

## President's voice

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We, Ozaki Mfg. Co., Ltd has established in 1916 and came along with Japanese Automotive industry that led the world and technological evolution. We have been getting support from our valuable customers by our great pride "High Accuracy and the Quality" products. Moreover, our products have been used by not only Automotive industry but also a wide industries such as Machinery, shipbuilding, railway, aircraft, power plant, chemistry and construction etc.

Dial Gauges of our main products have great reputation and our brand name "PEACOCK" well-known as synonym of Dial Gauges.

A Dial Gauge which is a kind of length meter has feature that the displacement is automatically indicated by its Pointer.

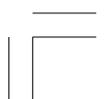
The structure of "PEACOCK" Dial Gauges has simple structure which is magnified mechanics by the gear. However, the individual parts become a complete parts through many processing and assembled by strict inspection.

**In next 100 years, we desire that our products  
will have been still trusted.**

**Hereafter, our desire will never fade away.**

To satisfy more various demands in the future, we concentrate to keep high quality products with characteristic production to meet top-level in advanced modern industrial world by a speedy technical improvement.

We, OZAKI MFG. CO., LTD. have never been happier so as long as making Precision Measuring Instruments that are not ashamed of the name at the "100th anniversary of founding" that will be faced soon and will meet with the expectation for PEACOCK fan.

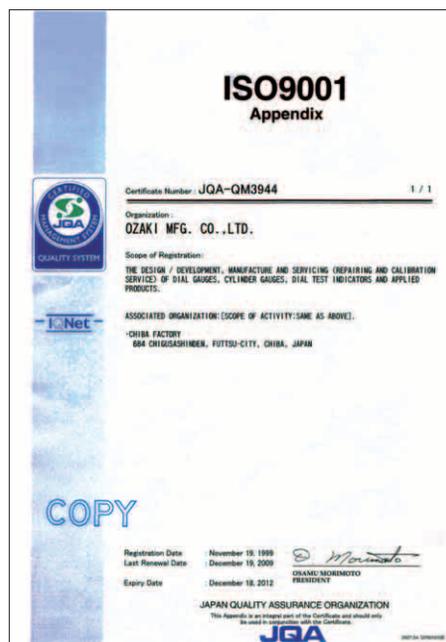
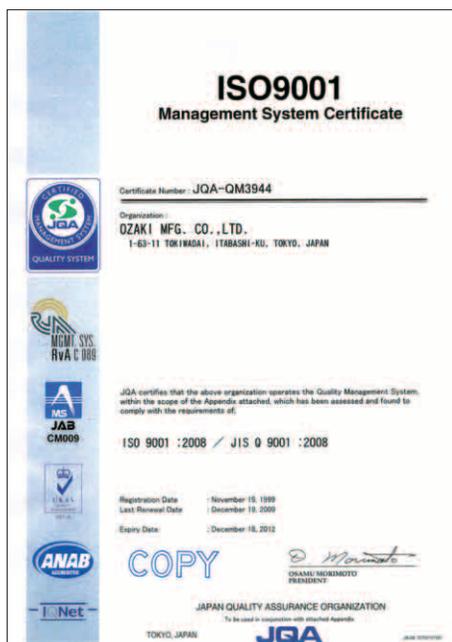


# ISO 9001 Certified OZAKI MFG. CO., LTD.

We, OZAKI MFG. CO., LTD., received ISO 9001 certification in 1999 and now renewed 2008 edition. We have been supplying high quality measuring instruments with reliable brand "PEACOCK" to our customers not only Japan but also overseas countries.

## Management System Certificate

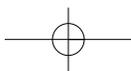
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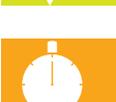
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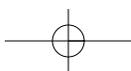
ISO Certification for  
DIAL GAUGES, PIC TEST INDICATORS, CYLINDER GAUGES AND  
ITS APPLIED DIAL GAUGES.

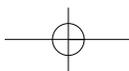
**PEACOCK®**



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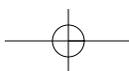
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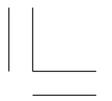
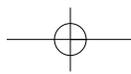
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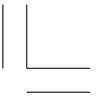
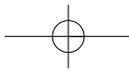
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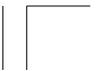
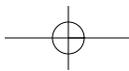
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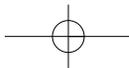
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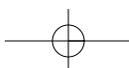


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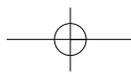
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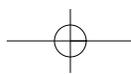
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**X**

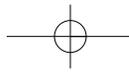
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**(Numerical)****1**

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| <b>36Z</b>  | One Revolution Dial Gauge ..... | <b>23</b> |

### 4

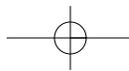
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|---------------|---------------------------------------|-----------|
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### 8

|            |                              |           |
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|------------|------------------------------|-----------|



# Weight of our products (packed with case)

0

Quick Chart

\*All the Pic Test Indicators are approx. 150g

weight: approx grams.

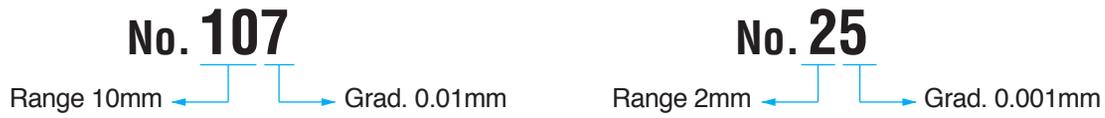
| Model      | weight (g) | Model                | weight (g) | Model              | weight (g) | Model              | weight (g) | Model                   | weight (g) |
|------------|------------|----------------------|------------|--------------------|------------|--------------------|------------|-------------------------|------------|
| Dial Gauge |            | 5Z                   | 165        | H-1A               | 280        | Dial Caliper Gauge |            | Linear Gauge            |            |
| 107        | 190        | 5Z-XB                | 165        | H-0.4N             | 280        | LA-1               | 820        | D-5                     | 270        |
| 107F       | 150        | 47Z                  | 110        | H-2.4N             | 280        | LA-2               | 1,250      | D-5UZ                   | 250        |
| 107-BL     | 190        | 47Z-XB               | 110        | H-20               | 295        | LA-3               | 2,100      | D-5B                    | 520        |
| 107F-RE    | 170        | 47SZ                 | 100        | H-30               | 315        | LA-4               | 850        | D-10                    | 340        |
| 107W       | 220        | 147Z                 | 100        | H-2                | 780        | LA-5               | 950        | D-20                    | 400        |
| 107-SWA    | 205        | 15Z                  | 165        | H-3                | 780        | LA-5S              | 900        | D-50                    | 700        |
| 107-T      | 190        | 15Z-SWF              | 165        | HR-1               | 550        | LA-6               | 750        | D-50HT                  | 700        |
| 107F-T     | 150        | 15DZ                 | 250        | J-A                | 1,600      | LA-8               | 1,060      | D-50WA                  | 720        |
| 107-LL     | 195        | 18                   | 200        | J-B                | 1,300      | LA-9               | 770        | D-100                   | 900        |
| 107F-LL    | 155        | 196Z                 | 110        | PG-10              | 165        | LA-10              | 1,000      | D-100WA                 | 920        |
| 107-E      | 190        | 36Z                  | 165        | GL                 | 220        | LA-11              | 780        | DN-10                   | 340        |
| 107-DX     | 220        | Cylinder Gauge       |            | P-1                | 200        | LA-13              | 1,800      | DN-20                   | 400        |
| 107-HG     | 190        | CC-02                | 370        | P-2                | 330        | LA-20              | 760        | D-5S                    | 270        |
| 57         | 190        | CC-01                | 390        | P-3                | 350        | LA-21              | 1,050      | D-5SB                   | 520        |
| 57F        | 150        | CC-1                 | 680        | Q-1                | 270        | LA-22              | 1,280      | D-10S                   | 340        |
| 57B        | 150        | CC-2                 | 680        | EG-1               | 130        | LA-23              | 1,330      | D-10ST                  | 340        |
| 57-SWA     | 205        | CC-3                 | 680        | EG-2               | 130        | LA-24              | 8,900      | D-10S                   | 340        |
| 17         | 190        | CC-3C                | 800        | PS-1               | 130        | LA-31              | 900        | D-20S                   | 400        |
| 5B         | 195        | CC-4                 | 1,900      | Dial Sheet Gauge   |            | LA-7               | 800        | D-50S                   | 700        |
| 5B-HG      | 195        | CC-5                 | 2,500      | K-1                | 3,120      | LA-14              | 950        | D-50SWA                 | 720        |
| 5F         | 155        | CC-6                 | 5,000      | K-2                | 4,750      | LB-1               | 790        | D-100S                  | 900        |
| 5-SWF      | 210        | CG-01                | 390        | K-3                | 4,450      | LB-2               | 650        | D-100SWA                | 920        |
| 5-DX       | 220        | CG-1                 | 650        | K-4                | 4,500      | LB-3               | 800        | DN-10S                  | 340        |
| 5S         | 120        | CG-2                 | 660        | K-7                | 7,800      | LB-4               | 820        | DN-20S                  | 400        |
| 25         | 235        | CG-3                 | 700        | Dial Upright Gauge |            | LB-5               | 1,030      | D-10SS                  | 350        |
| 25F-RE     | 255        | CG-3C                | 750        | R1-A               | 3,350      | LB-6               | 810        | D-10HS                  | 280        |
| 55         | 225        | CG-4                 | 1,900      | R1-B               | 3,250      | LB-8               | 950        | DL-2                    | 260        |
| 55-DX      | 180        | CG-5                 | 2,500      | R1-C               | 3,300      | LB-9               | 1,050      | DL-2S                   | 260        |
| 25S        | 220        | CG-6                 | 4,600      | Dial Depth Gauge   |            | LH-2               | 500        | Digital Counter         |            |
| 56         | 180        | CC-1S                | 470        | T-1                | 700        | LB-7               | 820        | C-500                   | 1,200      |
| 207        | 245        | CC-2S                | 520        | T-1W               | 395        | LB-7S              | 770        | C-700                   | 1,200      |
| 207F-PL    | 300        | CC-3S                | 580        | T-2                | 300        | LB-7V              | 1,300      | Digital Gauge           |            |
| 207S       | 195        | CC-3CS               | 580        | T-2W               | 325        | LB-14              | 920        | DG-205                  | 240        |
| 207S-LL    | 200        | CC-01R               | 380        | T-2B               | 245        | Tester             |            | DG-127                  | 230        |
| 207W       | 220        | CC-1R                | 700        | T-2C               | 290        | NB                 | 6,000      | DG-257                  | 240        |
| 207WF-T    | 195        | CC-2R                | 700        | T-3                | 300        | Bench Center       |            | PDN-20                  | 630        |
| 307        | 320        | CC-3R                | 750        | T-4                | 280        | OA                 | 80,000     | PDN-50                  | 880        |
| 307S       | 310        | CC-3CR               | 800        | T-6A               | 270        | OB                 | 100,000    | Digital Thickness Gauge |            |
| 507        | 440        | CG-01R               | 380        | T-6B               | 270        | Others             |            | G2-205                  | 400        |
| 509        | 440        | CG-1R                | 650        | Dial Inside Gauge  |            | YMH-1              | 340        | G2-205M                 | 400        |
| 809        | 1,150      | CG-2R                | 660        | U-1                | 330        | YMH-2              | 380        | G2-257                  | 400        |
| 36A        | 135        | CG-3R                | 700        | U2HA               | 250        | XY-1               | 150        | G2-127                  | 390        |
| 36B        | 135        | CG-3CR               | 750        | U2HB               | 250        | XY-2               | 100        | G2-127M                 | 390        |
| 47         | 110        | Dial Thickness Gauge |            | U2FA               | 380        | XZ-1               | 155        | G2-205A                 | 400        |
| 47F        | 100        | G                    | 165        | U2FB               | 380        | XZ-2               | 155        | G2-257A                 | 400        |
| 57S        | 140        | G-1A                 | 165        | U3HA               | 250        | GH-1               | 300        | G2-257M                 | 400        |
| 57SF       | 125        | G-1M                 | 165        | U3HB               | 250        |                    |            | G2-127A                 | 390        |
| 196A       | 115        | G-2                  | 370        | Stand              |            |                    |            | Signal Gauge            |            |
| 196A-6     | 115        | G-3                  | 355        | SIS-4              | 5,800      |                    |            | S-5                     | 260        |
| 196B       | 110        | G-4                  | 320        | SIS-6              | 3,650      |                    |            | S-7                     | 260        |
| 196B-T     | 110        | G-6                  | 280        | SIS-7              | 2,600      |                    |            | S-9                     | 260        |
| 107Z       | 160        | G-6C                 | 300        | PDS-2              | 7,150      |                    |            | SC-2A                   | 240        |
| 107Z-XB    | 160        | G-7C                 | 280        | PDS-2F             | 7,150      |                    |            | Signal Box              |            |
| 17B        | 190        | G-0.4N               | 165        | Magnetic Stand     |            |                    |            | SB-3                    | 1,500      |
| 17BF       | 150        | G-2.4N               | 165        | YM-1               | 1,500      |                    |            |                         |            |
| 17Z        | 160        | G-20                 | 180        | YM-2               | 2,000      |                    |            |                         |            |
| 17Z-SWA    | 160        | G-30                 | 200        | YM-3               | 1,500      |                    |            |                         |            |
| 117Z       | 160        | H                    | 280        |                    |            |                    |            |                         |            |

# Quick Chart for "PEACOCK" Dial Gauge

**0**

Quick Chart

We have named our dial gauge by model numbers, which indicate measurement range and graduation, instead of product code numbers.



## Our model numbers are:

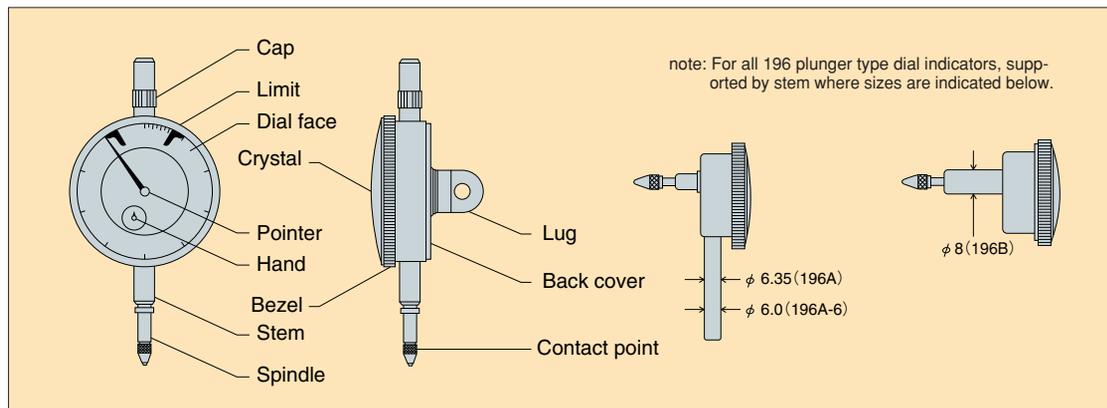
The first and second digit numbers (1, 2, 4, 10, 20, 30, 50, 80) signify measurement ranges.



Exceptions: 1. Model No. 5 signifies 1mm measurement range with 0.001mm graduation.  
2. Model No. 196A, 196B signify 5mm measurement range with 0.01mm graduation.

| Dial Gauge |           | Less Than One Revolution Dial Gauge <small>(Larger space between graduation allows easier reading.)</small> |   |
|------------|-----------|---|---|
| Grad.(mm)  | Range(mm) | Model   | Notes   |
| 0.01       | 1         | No. 17  | (With carbide contact point)                        |
|            | 3         | No. 36B   | (Small dial face)                                   |
|            | 4         | No. 47  | (Small dial face)                                   |
|            | 5         | No. 57  | (B: balanced dial. S: small dial face)              |
|            | 10        | No. 107   | (F-T: continuous CCW dial. SWA: oil-proof)          |
|            | 20        | No. 207   | (S: small dial face. W: center pointer)             |
| 0.05       | 5         | No. 196A  | (Back plunger, stem $\phi$ 6.35mm)                  |
|            |           | 196A-6  | (Back plunger, stem $\phi$ 6mm)                     |
|            |           | 196B  | (Back plunger, stem $\phi$ 8mm)                     |
| 0.1        | 50        | No. 509   |   |
|            | 80        | No. 809   |   |
| 0.001      | 1         | No. 5B  | (5SWF: oil-proof. 5S: small dial face)              |
|            | 2         | No. 25  | (S: small dial face)                                |
| 0.005      | 5         | No. 55  |   |
|            | 3         | No. 36A   | (Small dial face)                                   |
|            | 5         | No. 56  |   |
|            |           | 17Z   | (With carbide contact point)                        |
|            |           | 17Z-SWA   | (Oil-proof, carbide contact point)                  |
|            |           | 17B   | (White dial face)                                   |
|            |           | 47Z-XB  | (Long stem, carbide contact point)                  |
|            |           | 47Z   | (Long stem, carbide contact point)                  |
|            |           | 47SZ  | (Short stem, carbide contact point)                 |
|            |           | 107Z-XB   | (Long stem, carbide contact point)                  |
|            |           | 107Z  | (Long stem, flat carbide contact point)             |
|            |           | 196Z  | (Long stem, carbide contact point)                  |
|            |           | 5Z-XB   | (Long stem, carbide contact point)                  |
|            |           | 5Z  | (Long stem, flat carbide contact point)             |
|            |           | 15Z   | (Short stem, carbide contact point)                 |
|            |           | 15Z-SWF   | (Oil-proof, carbide contact point)                  |
|            |           | 18  | (Long stem, white dial face, carbide contact point) |

## Name of Parts



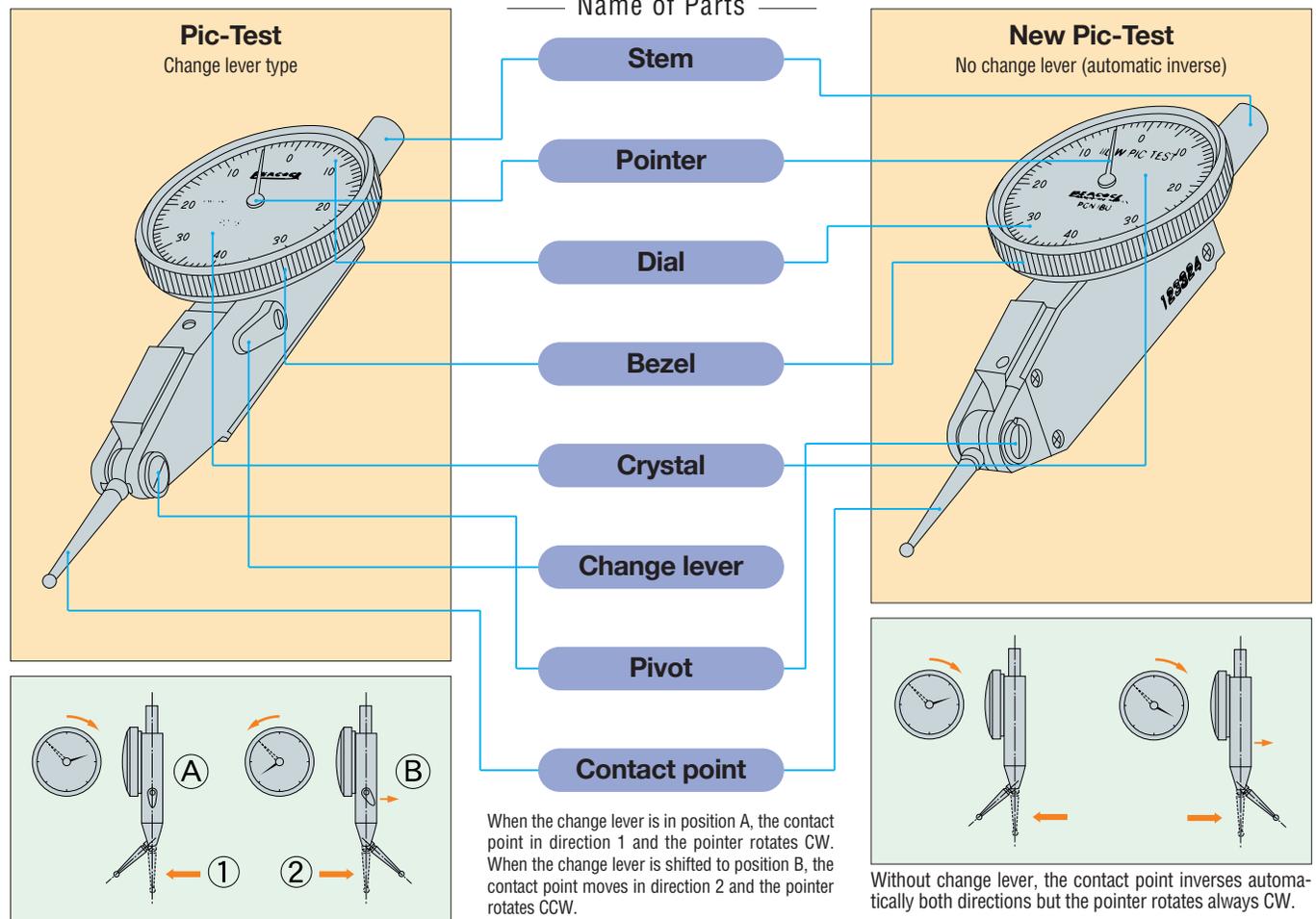


# Quick Chart for "PEACOCK" Lever-Type Dial Indicators

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Quick Chart

Lever-type dial indicators are most suitable for alignment and TIR (Total Indicator Run-Out) testing. There are two types of lever-type dial indicators. Pivot bearings are used on all of Peacock's lever-type indicators, which assure exceptional precision over a long period of time.



**For particular requirements PC and PCN series are available. Model numbers ending with U, E, D or W signify particular applications.**

|         |                            |  |  |
|---------|----------------------------|--|--|
| Example | <b>PCN-1AU</b><br>(U type) | <b>Anti-magnetic, non-electrifying</b> | Anti-magnetic contact point and pointer allow valid measurement even in strong magnetic fields. Electric flow is blocked by ceramic stem.                |
|         | <b>PCN-1AE</b><br>(E type) | <b>Super low measuring force</b>       | Measuring force is lower than other lever-type dial indicators. Special indicators with high sensitivity for measurement soft, highly elastic materials. |
|         | <b>PCN-1AD</b><br>(D type) | <b>Large dial face</b>                 | Large dial face with large numbers allows easy reading of test results.  |
|         | <b>PC-1BW</b><br>(W type)  | <b>Double dial face</b>                | Double sided dial faces allow easy reading from any direction.   |

# Table for Pic-Test and New Pic-Test

**0**

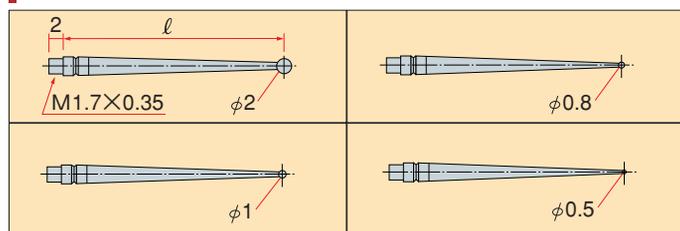
Quick Chart

● items are made to order.

|                          | Grad (mm) | Range (mm) | Model            | Length of contact point (ℓ size) | Indicator types |                     |                 |         |        |                          |
|--------------------------|-----------|------------|------------------|----------------------------------|-----------------|---------------------|-----------------|---------|--------|--------------------------|
|                          |           |            |                  |                                  | U               | E (measuring force) |                 | D       | W      | Z                        |
| PC with change lever     | 0.01      | 0.5        | PC-1A            | 18.20mm                          | ●               | PC-1AE              | Less than 0.1N  | ●       | —      | —                        |
|                          |           |            | PC-3 (parallel)  | 18.20mm                          | ●               | —                   | —               | —       | —      | —                        |
|                          |           | 0.8        | PC-1B            | 19.24mm                          | ●               | PC-1BE              | Less than 0.1N  | —       | PC-1BW | —                        |
|                          |           | 1.0        | PC-1L            | 39.72mm                          | ●               | PC-1LE              | Less than 0.1N  | —       | —      | —                        |
|                          | 0.002     | 0.28       | PC-2             | 8.80mm                           | ●               | ●                   | —               | ●       | —      | —                        |
|                          |           |            | PC-4 (parallel)  | 8.80mm                           | ●               | —                   | —               | —       | —      | —                        |
| PCN without change lever | 0.01      | 0.5        | PCN-0            | 17.74mm                          | —               | —                   | —               | —       | —      | —                        |
|                          |           |            | PCN-1A           | 17.74mm                          | PCN-1AU         | PCN-1AE             | Less than 0.05N | PCN-1AD | —      | —                        |
|                          |           |            | PCN-5 (vertical) | 17.74mm                          | PCN-5U          | —                   | —               | —       | —      | —                        |
|                          |           | 0.8        | PCN-1B           | 18.63mm                          | PCN-1BU         | PCN-1BE             | Less than 0.05N | —       | —      | PCN-1BZ(A)<br>PCN-1BZ(B) |
|                          |           | 1.0        | PCN-1L           | 39.00mm                          | PCN-1LU         | PCN-1LE             | Less than 0.05N | PCN-1LD | —      | PCN-1LZ(A)<br>PCN-1LZ(B) |
|                          | 0.002     | 0.28       | 0.2              | PCN-2B                           | 13.00mm         | PCN-2BU             | —               | —       | —      | —                        |
|                          |           |            | PCN-2            | 14.18mm                          | PCN-2U          | PCN-2E              | Less than 0.1N  | PCN-2BD | —      | PCN-2Z(A)<br>PCN-2Z(B)   |
|                          | 0.001     | 0.14       | 0.6              | PCN-6 (vertical)                 | 14.18mm         | PCN-6U              | —               | —       | —      | —                        |
|                          |           |            | PCN-7C           | 13.00mm                          | —               | —                   | —               | —       | —      | —                        |
|                          |           |            | 0.2              | PCN-S                            | 8.13mm          | PCN-SU              | —               | —       | —      | —                        |
|                          |           |            |                  | —                                | 13.00mm         | —                   | —               | —       | PCN-SD | —                        |

We can customize Pic-Test and New Pic-Test indicators according to your special needs. Please contact Peacock for details.

## Contact Points Ball Size



### Warning!

Contact points are not interchangeable among different models. Each indicator is assigned a specific contact point length as shown in the table below. Not using proper contact point for assigned model will result in inaccuracy.

Contact points with φ2mm carbide ball are attached to all Pic-Test indicators. φ1.0mm, φ0.8mm, and φ0.5mm contact points are also available from our stock.

## Lengths of contact points with φ2mm carbide ball (actual size)

|         |                                       |         |   |
|---------|---------------------------------------|---------|---|
| 8.13mm  | PCN-S<br>PCN-SU                       | 18.20mm | PC-1A<br>PC-1AE<br>PC-3                 |
| 8.80mm  | PC-2<br>PC-4                          | 18.63mm | PCN-1B<br>PCN-1BU<br>PCN-1BE            |
| 13.00mm | PCN-2B<br>PCN-SD<br>PCN-2BU           | 19.24mm | PC-1B<br>PC-1BE<br>PC-1BW               |
| 14.18mm | PCN-2<br>PCN-2U<br>PCN-2E             | 39.00mm | PCN-1L<br>PCN-1LU<br>PCN-1LE<br>PCN-1LD |
| 17.74mm | PCN-0<br>PCN-1A<br>PCN-1AU<br>PCN-1AE | 39.72mm | PC-1L<br>PC-1LE<br>PC-1LW               |

※ φ2mm Ruby ball are available for PC-1A, PC-1B, PC-1L, PC-2, PCN-1A, PCN-1B, PCN-1L, PCN-2, PCN-2B and PCN-S



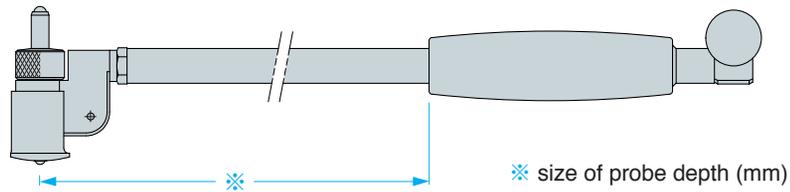
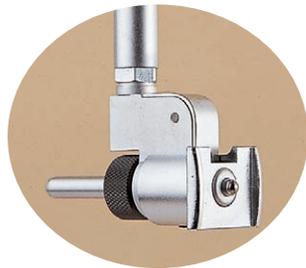
# Quick Chart for "PEACOCK" Cylinder Gauges

## For Both Blind Hole And Deep Bore Measuring

Quick Chart

Select the best fitted probe length according to the measuring depth.

- CC Series (standard)
- CG Series (blind hole)



※ size of probe depth (mm)

### Recommendation

Use the cylinder gauge vertically with a probe depth of 400mm or longer.

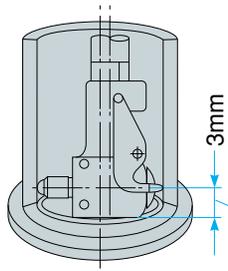
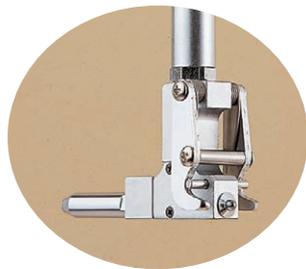
### CC Series

| Model | Measurement inner dia   | Probe depth (mm) |     |     |     |     |     |     |     |     |     |     |     |      |      |      |  |
|-------|-------------------------|------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|--|
|       |                         | 50               | 100 | 150 | 200 | 250 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1500 | 2000 |  |
| CC-02 | $\phi$ 6 ~ $\phi$ 10    | ●                | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —   | —    | —    | —    |  |
| CC-01 | $\phi$ 10 ~ $\phi$ 18   | ●                | ●   | —   | ●   | —   | ●   | —   | —   | —   | —   | —   | —   | —    | —    |      |  |
| CC-1  | $\phi$ 18 ~ $\phi$ 35   | 1. ●             | ●   | ●   | ●   | —   | ●   | —   | —   | —   | —   | —   | —   | —    | —    |      |  |
| CC-2  | $\phi$ 35 ~ $\phi$ 60   | 2. ●             | ●   | ●   | ●   | —   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●    | ●    |      |  |
| CC-3  | $\phi$ 50 ~ $\phi$ 100  | 3. ●             | ●   | ●   | ●   | —   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●    | ●    |      |  |
| CC-3C | $\phi$ 50 ~ $\phi$ 150  | 4. ●             | ●   | ●   | ●   | —   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●    | ●    |      |  |
| CC-4  | $\phi$ 100 ~ $\phi$ 160 | ●                | ●   | —   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●    | ●    |      |  |
| CC-5  | $\phi$ 160 ~ $\phi$ 250 | ●                | ●   | —   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●    | ●    |      |  |
| CC-6  | $\phi$ 250 ~ $\phi$ 400 | ●                | ●   | —   | ●   | —   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●    | ●    |      |  |

● are standard probe depth sizes

● are short type standard items. (Please order by model no.)

1. CC-1S ( $\phi$  18 ~  $\phi$  35)
2. CC-2S ( $\phi$  35 ~  $\phi$  60)
3. CC-3S ( $\phi$  50 ~  $\phi$  100)
4. CC-3CS ( $\phi$  50 ~  $\phi$  150)



Measuring is possible up to 3mm from the bottom of a cylinder.  
(CG-6 can measure up to 4.5mm)

### CG Series

| Model | Measurement inner dia   | Probe depth (mm) |     |     |     |     |     |     |     |     |     |     |     |      |  |
|-------|-------------------------|------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|
|       |                         | 50               | 100 | 150 | 200 | 250 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |  |
| CG-01 | $\phi$ 10 ~ $\phi$ 18   | ●                | ●   | ●   | ●   | ●   | ●   | —   | —   | —   | —   | —   | —   | —    |  |
| CG-1  | $\phi$ 18 ~ $\phi$ 35   | ●                | ●   | ●   | ●   | ●   | ●   | ●   | ●   | —   | —   | —   | —   | —    |  |
| CG-2  | $\phi$ 35 ~ $\phi$ 60   | ●                | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●    |  |
| CG-3  | $\phi$ 50 ~ $\phi$ 100  | ●                | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●    |  |
| CG-3C | $\phi$ 50 ~ $\phi$ 150  | ●                | ●   | ●   | ●   | —   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●    |  |
| CG-4  | $\phi$ 100 ~ $\phi$ 160 | ●                | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●    |  |
| CG-5  | $\phi$ 160 ~ $\phi$ 250 | ●                | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●    |  |
| CG-6  | $\phi$ 250 ~ $\phi$ 400 | ●                | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●    |  |

● are standard probe depth sizes

# Cylinder Gauges for Measuring Spline and Internal Gears

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Quick Chart

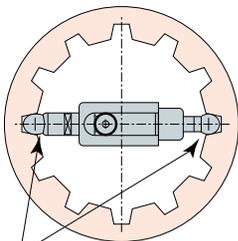
**For Peacock, measuring unusual places and shapes is never impossible.**

- Using specified ball diameters on both ends, we custom-manufacture dial bore gauges for measuring pitch diameter.
- For measuring root diameter, we remove the contact point guides (centering mechanism) so the gauges will not touch either gear tooth flank.
- For measuring the inside diameter, we add contact point guides (centering mechanism) to support the gauges on top of the gear teeth.

## Measuring Pitch Diameter

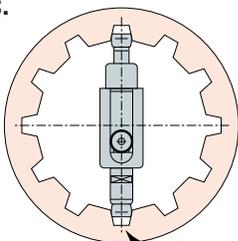
- Please specify pitch diameter and ball diameter.

(Carbide material will be used for all balls if not specified. For very unique requirements, we sometimes ask customers to supply us their own gauge balls.)



The diameter of these balls is a key point.

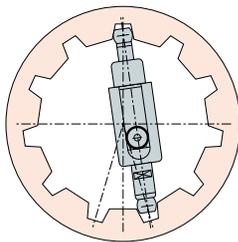
- When gauge balls interfere with tooth surface and invalidate the measurement, we truncate both balls.



Both ball ends are truncated.

- We provide customized conversion tables for applications with odd numbered teeth.

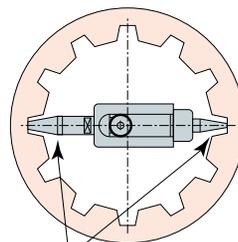
(Individual conversion table is made just for your application.)



## Measuring Large Diameter

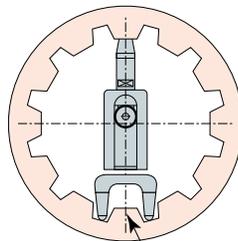
- Please specify large diameter ( $\phi D$ ), width and height of face.

(We design contact points that do not touch either gear surface.)



Dimensioned the size of contact point

- When the number of teeth are odd, one side of the contact point is bifurcated to straddle a tooth.

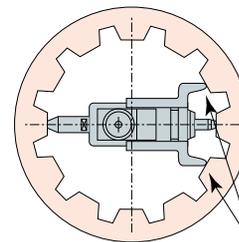


Contact points straddle a tooth

## Measuring Small Diameter

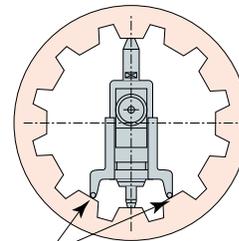
- Please specify inside diameter size and whole depth of tooth.

(We design contact point guides on both sides of contact point.)



Putting contact point guides against the top of the teeth is the key.

- Ball tip is used on contact point guides.



Ball tips avoid friction wear

- For shallow spline and internal gears. These bore gauges for measuring spline and internal gears are adopted from CC series (standard bore gauges). For measuring shallow spline and internal gears, we adopt CG series.

### For Inquiries:

We provide quotes based on submitted workpiece drawings or actual workpiece examples. There is no minimum quantity required. Please specify what you want to measure, workpiece materials and tolerance. See page 20.  
(Please contact us directly or call a sales representative in your area.)

**0**

Quick Chart

# Request for Special Designed Cylinder Gauge (Measurement is Internal Gear only)

Date: \_\_\_\_\_

Name: \_\_\_\_\_

For your measurement, please check

Major Diameter

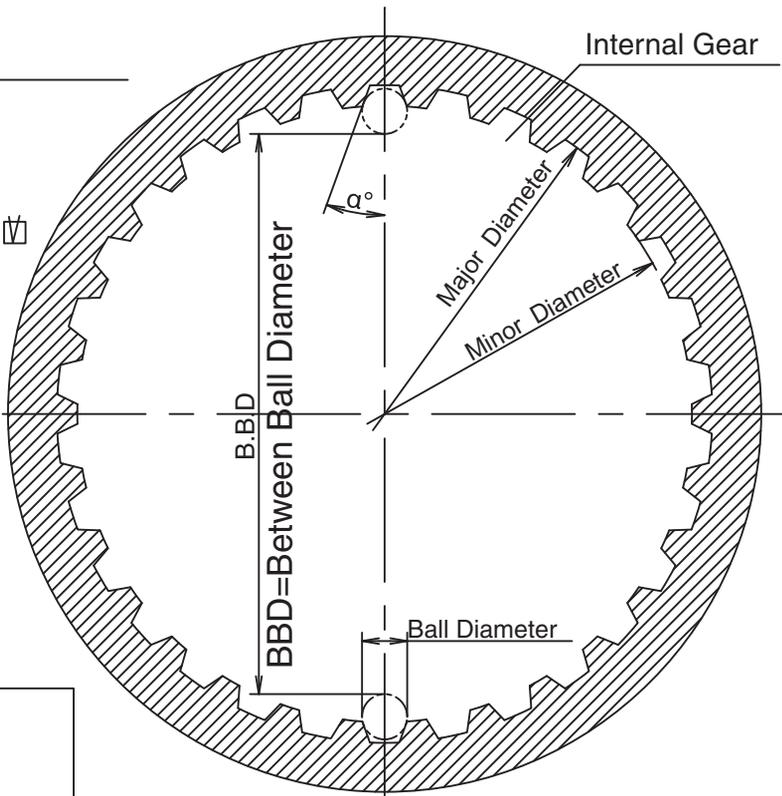
Minor Diameter

B.B.D=Between Ball Diameter or  
O.P.D= Over Pin Diameter

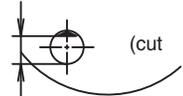
Depth of measurement work-piece

\_\_\_\_\_ mm

Remark:  
\_\_\_\_\_



Specifications for BBD

| B.B.D          | Tolerance  |   |
|----------------|--|---|
| Ball Diameter  |  (cut ) | Ball Cut<br><input type="checkbox"/> Yes<br><input type="checkbox"/> No |
| Major Diameter | Tolerance  |   |
| Minor Diameter | Tolerance  |   |

Specifications for Major Diameter and Minor Diameter

| B.B.D          | Tolerance        |
|----------------|------------------|
| Ball Diameter  | $S\phi =$        |
| Major Diameter | Tolerance        |
| Minor Diameter | Tolerance        |
| Pressure Angle | $\alpha^\circ =$ |
| No. of Teeth   | Z                |

In case ball cut is necessary, we can provide the Master.

Master Production  Yes  No

Please apply if you have the Parameter Table together with Tolerance.

OZAKI MFG. CO., LTD. TOKYO, JAPAN  
 URL: <http://www.peacockozaki.jp/eng.htm>  
 Tel: +81 3 3966 1109  
 Fax: +81 3 3558 1868



SECTION

# 1



1

## 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

# One Revolution Dial Gauges

1

## 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)

One Revolution Dial Gauges

### 0.001mm Type

**15Z**

Graduation: 0.001mm  
Range: 0.16mm

- Contact point (XB-1)
- Flat back

**15Z-SWF**

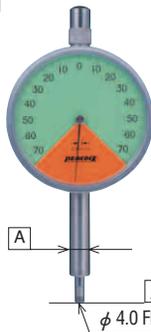
Graduation: 0.001mm  
Range: 0.16mm

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

**5Z-XB**

Graduation: 0.001mm  
Range: 0.16mm

- 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



New

**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**

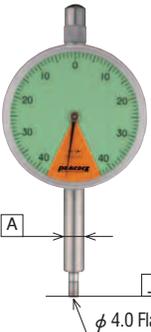
Graduation: 0.01mm  
Range: 0.8mm

- 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



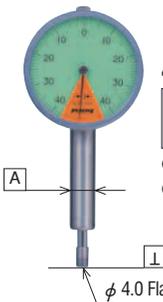
New

**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

- Contact point (X-112)
- Back plunger type

**Specifications**

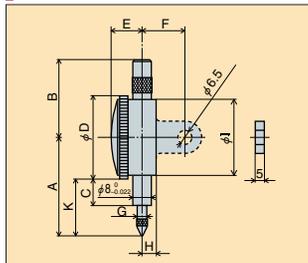
(unit: μm)

| Model           | Graduation (mm) | Range (mm) (Free stroke) | Reading     | Indication error |                |                |                 |                       | Retrace error | Repeatability | Measuring force less than (N) |
|-----------------|-----------------|--------------------------|-------------|------------------|----------------|----------------|-----------------|-----------------------|---------------|---------------|-------------------------------|
|                 |                 |                          |             | 1/10 revolution  | 1/2 revolution | One revolution | Two revolutions | Whole measuring range |               |               |                               |
| 15Z             | 0.001           | 0.16 (3.0)               | 80 - 0 - 80 | 2.5              | ±3             | ±4             | —               | —                     | 3             | 0.5           | 1.5                           |
| 15Z-SWF         | 0.001           | 0.16 (3.0)               | 80 - 0 - 80 | 2.5              | ±3             | ±4             | —               | —                     | 3             | 0.5           | 1.5                           |
| 5Z-XB           | 0.001           | 0.14 (3.0)               | 70 - 0 - 70 | 2.5              | ±3             | ±4             | —               | —                     | 3             | 0.5           | 1.5                           |
| 5Z              | 0.001           | 0.14 (3.0)               | 70 - 0 - 70 | 2.5              | ±3             | ±4             | —               | —                     | 3             | 0.5           | 1.5                           |
| 18              | 0.001           | 0.16 (3.0)               | 80 - 0 - 80 | 2.5              | ±3             | ±4             | —               | —                     | 3             | 0.5           | 1.5                           |
| 17Z             | 0.01            | 0.8 (7.0)                | 40 - 0 - 40 | 8                | ±9             | ±10            | —               | —                     | 5             | 5             | 1.4                           |
| 17Z-SWA         | 0.01            | 0.8 (7.0)                | 40 - 0 - 40 | 8                | ±9             | ±10            | —               | —                     | 5             | 5             | 1.4                           |
| 107Z-XB         | 0.01            | 0.8 (7.0)                | 40 - 0 - 40 | 8                | ±9             | ±10            | —               | —                     | 5             | 5             | 1.4                           |
| 107Z            | 0.01            | 0.8 (7.0)                | 40 - 0 - 40 | 8                | ±9             | ±10            | —               | —                     | 5             | 5             | 1.4                           |
| 17B             | 0.01            | 0.8 (10)                 | 40 - 0 - 40 | 8                | ±9             | ±10            | —               | —                     | 5             | 5             | 1.4                           |
| <b>New</b> 15DZ | 0.001           | 0.16 (3.0)               | 80 - 0 - 80 | 2.5              | ±3             | ±4             | —               | —                     | 3             | 0.7           | 1.5                           |
| <b>New</b> 117Z | 0.01            | 1.0 (7.0)                | 50 - 0 - 50 | 8                | ±9             | ±10            | —               | —                     | 5             | 5             | 1.4                           |
| 47Z             | 0.01            | 0.8 (4)                  | 40 - 0 - 40 | 9                | —              | ±13            | —               | —                     | 6             | 5             | 1.4                           |
| 47Z-XB          | 0.01            | 0.8 (4)                  | 40 - 0 - 40 | 9                | —              | ±13            | —               | —                     | 6             | 5             | 1.4                           |
| 47SZ            | 0.01            | 0.8 (4)                  | 40 - 0 - 40 | 9                | —              | ±13            | —               | —                     | 6             | 5             | 1.4                           |
| 196Z            | 0.01            | 0.8 (4)                  | 40 - 0 - 40 | 10               | ±12            | ±15            | —               | —                     | 6             | 5             | 1.4                           |
| <b>New</b> 147Z | 0.01            | 1.0                      | 50 - 0 - 50 | 9                | —              | ±13            | —               | —                     | 6             | 5             | 1.4                           |
| <b>New</b> 36Z  | 0.005           | 0.4 (3.0)                | 20 - 0 - 20 | —                | —              | ±10            | —               | —                     | 5             | 5             | 1.4                           |

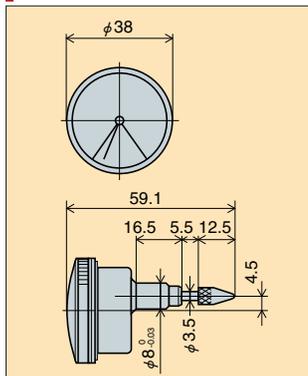
Note- All Dial Indicators (except for 196Z) listed above have flat back as standard.

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

**Dimensions**



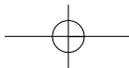
**Dimensions 196Z**



**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 | 29   | 55   | 16.8  | 196Z | 4    | 6.5 | 49  | 41.9 |      |     |      |
| 17Z             | 17ZL          | 65   | 18.5 | 38.5 |       |      |      |     |     |      |      |     |      |
| 17Z-SWA         | 17Z-SWAL      | 65   | 38.5 |      |       |      |      |     |     |      |      |     |      |
| 107Z-XB         | 107Z-XBL      | 69.4 | 42.9 |      |       |      |      |     |     |      |      |     |      |
| 107Z            | 107ZL         | 66.4 | 30   | 53   | 14.5  | 196Z | 4    | 6.5 | 49  | 39.9 |      |     |      |
| 17BF            | 17B           | 65   | 40.5 | 18.5 | 20(-) |      |      |     |     | 38.5 |      |     |      |
| <b>New</b> 117Z | 117ZL         | 65   | 41.5 | 18.5 | (20)  |      |      |     |     | 38.5 |      |     |      |
| <b>New</b> 15DZ | 15DZL         | 69.4 | 41.5 | 23.7 | 66.5  |      |      |     |     | 15.5 | 7.6  | 36  |      |
| 47Z             | 47ZL          | 58.9 | 20   | 30   | 36    | 13   | (15) | 4   | 5.8 | 32   | 40.9 |     |      |
| 47Z-XB          | 47Z-XBL       | 61.9 |      | 43.9 |       |      |      |     |     |      |      |     |      |
| 47SZ            | 47SZL         | 41.1 |      | 9.7  |       |      |      |     |     |      | 3.5  | 6.5 | 23.1 |
| <b>New</b> 147Z | 147ZL         | 41.1 |      | 23.1 |       |      |      |     |     |      |      |     |      |
| <b>New</b> 36Z  | 36ZL          | 60   | 41.5 | 18.5 | 53    | 14.5 | (20) | 4   | 6.5 | 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

## 1

### 0.001mm and 0.005mm



Standard Dial Gauges

#### 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.

<HG>

#### High Precision Type



**5B-HG**

Graduation: 0.001mm  
Range: 1mm

- Indication error  $\pm 3\mu\text{m}$
- Retrace error 2 $\mu\text{m}$
- Includes accuracy certification
- Lug back



**5-DX**

Graduation: 0.001mm  
Range: 1mm

- Durable type (Spindle  $\phi 5\text{mm}$ )
- Lug back



**5B**

Graduation: 0.001mm  
Range: 1mm

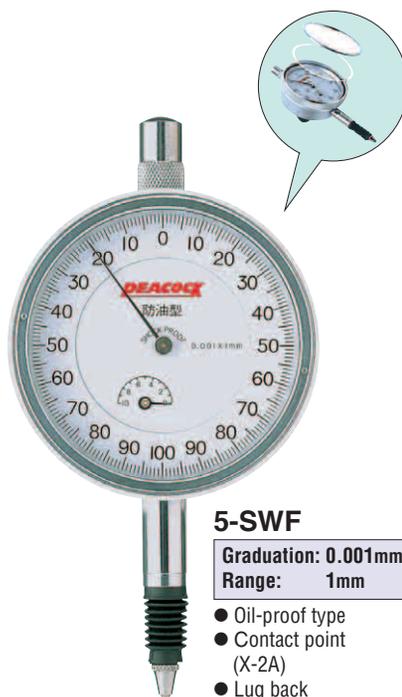
- Lug back



**5F**

Graduation: 0.001mm  
Range: 1mm

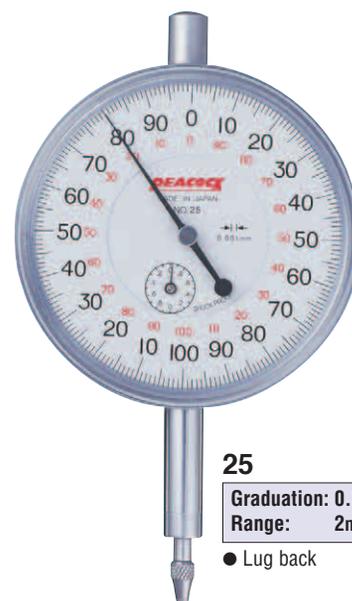
- Flat back



**5-SWF**

Graduation: 0.001mm  
Range: 1mm

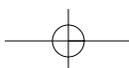
- Oil-proof type
- Contact point (X-2A)
- Lug back

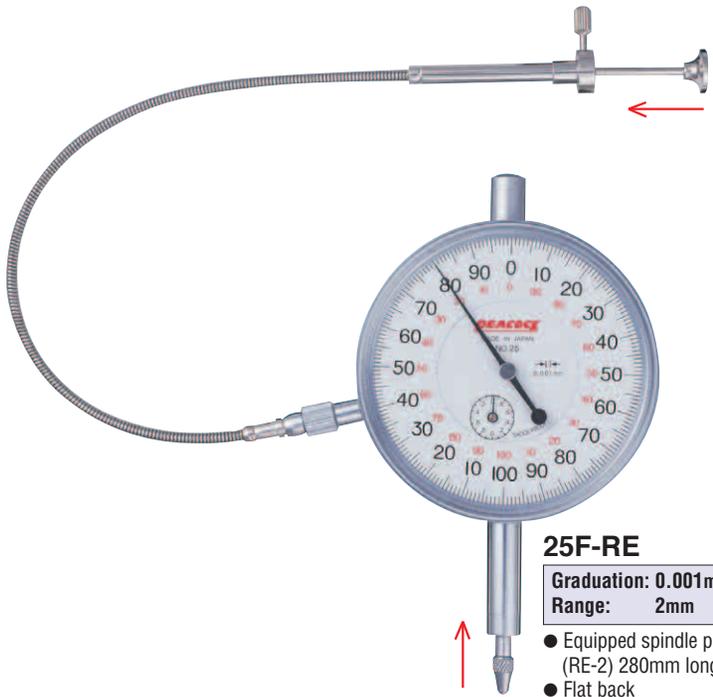


**25**

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

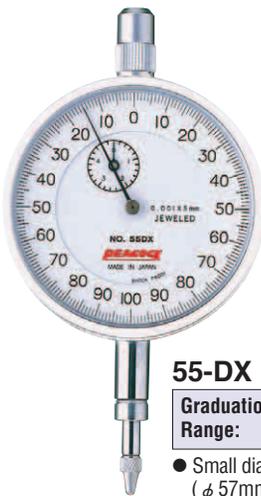
- Small dial face type (φ 55.7mm)
- Lug back



**55**

Graduation: 0.001mm  
Range: 5mm

- Lug back



**55-DX**

Graduation: 0.001mm  
Range: 5mm

- Small dial face type (φ 57mm)
- Lug back



**56**

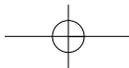
Graduation: 0.005mm  
Range: 5mm

- Lug back

**Specifications**

(unit: μm)

| Model  | Graduation (mm) | Range (mm) | Reading        | Indication error |                |                |                 |                       | Retrace error | Repeatability | Measuring force less than (N) |
|--------|-----------------|------------|----------------|------------------|----------------|----------------|-----------------|-----------------------|---------------|---------------|-------------------------------|
|        |                 |            |                | 1/10 revolution  | 1/2 revolution | One revolution | Two revolutions | Whole measuring range |               |               |                               |
| 5B-HG  | 0.001           | 1          | 0 - 100 - 0    | 2                | ±2             | ±3             | ±3              | ±3                    | 2             | 0.5           | 1.5                           |
| 5-DX   | 0.001           | 1          | 0 - 100 - 0    | 2.5              | ±3             | ±4             | ±4              | ±5                    | 3             | 0.5           | 1.5                           |
| 5B     | 0.001           | 1          | 0 - 100 - 0    | 2.5              | ±3             | ±4             | ±4              | ±5                    | 3             | 0.5           | 1.5                           |
| 5F     | 0.001           | 1          | 0 - 100 - 0    | 2.5              | ±3             | ±4             | ±4              | ±5                    | 3             | 0.5           | 1.5                           |
| 5-SWF  | 0.001           | 1          | 0 - 100 - 0    | 2.5              | ±3             | ±4             | ±4              | ±5                    | 3             | 0.5           | 1.5                           |
| 25     | 0.001           | 2          | ±0 - 100 - 100 | 4                | ±5             | ±6             | ±6              | ±7                    | 3             | 0.5           | 1.5                           |
| 25F-RE | 0.001           | 2          | ±0 - 100 - 100 | 4                | ±5             | ±6             | ±6              | ±7                    | 3             | 0.5           | 1.5                           |
| 25S    | 0.001           | 2          | 0 - 100 - 0    | 4                | ±5             | ±6             | ±6              | ±7                    | 3             | 0.5           | 1.5                           |
| 55     | 0.001           | 5          | 0 - 100 - 0    | 5                | ±6             | ±7             | ±8              | ±10                   | 4             | 1             | 1.5                           |
| 55-DX  | 0.001           | 5          | 0 - 100 - 0    | 5                | ±6             | ±7             | ±8              | ±10                   | 4             | 1             | 1.5                           |
| 56     | 0.005           | 5          | 0 - 25 - 50    | 6                | ±10            | ±10            | ±12             | ±12                   | 5             | 5             | 1.5                           |



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# Standard Dial Gauges

JIS B 7503

## 1

### 0.01mm



Standard Dial Gauges

#### 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.

#### <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

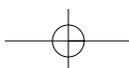
- Spindle pull-up release (RE-1) 280 mm long
- Flat back

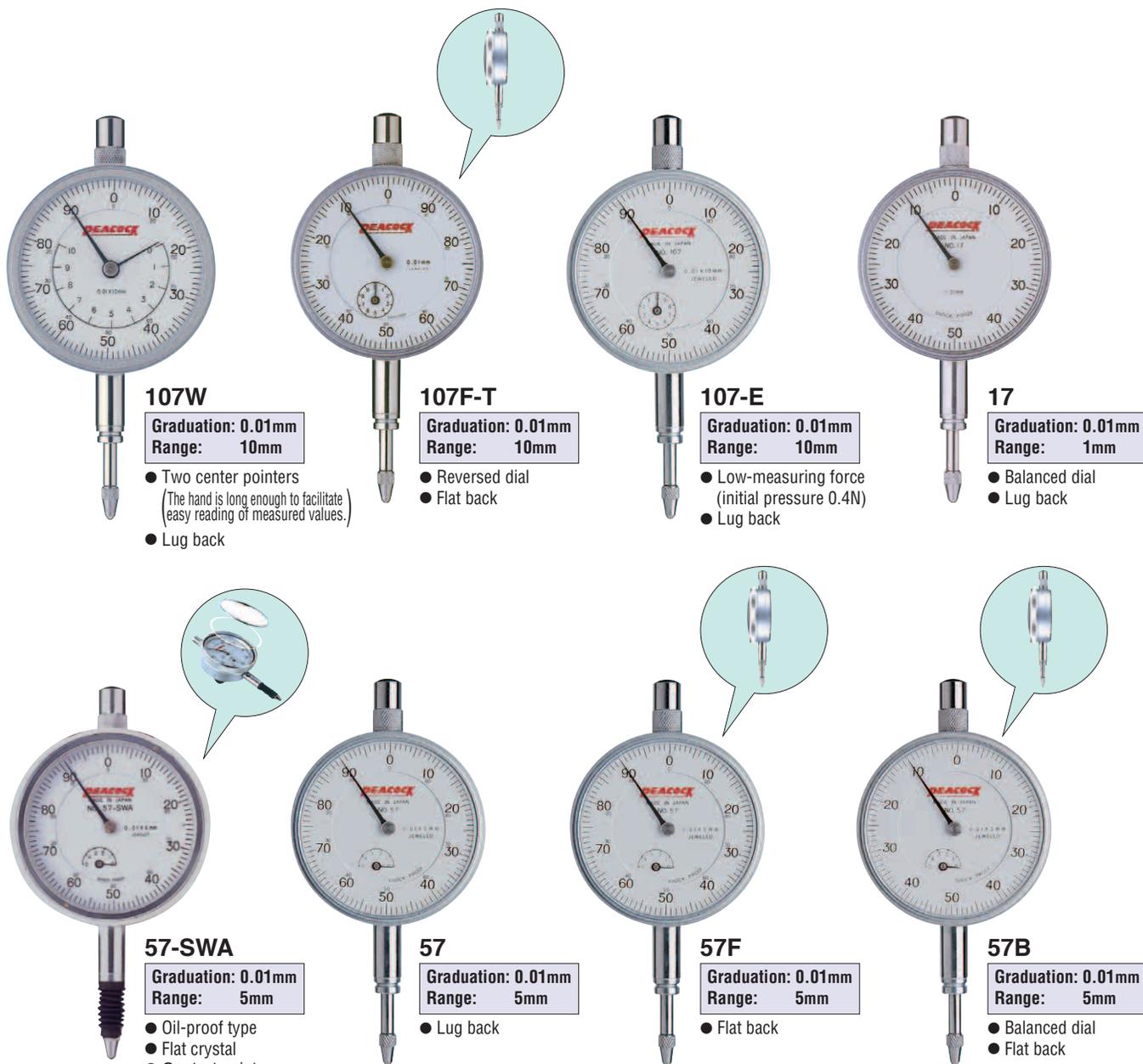


#### 107-LL

Graduation: 0.01mm  
Range: 10mm

- Spindle lifting lever (LL-1)
- Lug back

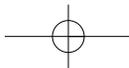




**Specifications**

(unit:  $\mu\text{m}$ )

| Model   | Graduation (mm) | Range (mm) | Reading            | Indication error |                |                |                 |                       | Retrace error | Repeatability | Measuring force less than (N) |
|---------|-----------------|------------|--------------------|------------------|----------------|----------------|-----------------|-----------------------|---------------|---------------|-------------------------------|
|         |                 |            |                    | 1/10 revolution  | 1/2 revolution | One revolution | Two revolutions | Whole measuring range |               |               |                               |
| 107-HG  | 0.01            | 10         | $\pm 0 - 50 - 100$ | 6                | $\pm 7$        | $\pm 8$        | $\pm 10$        | $\pm 10$              | 4             | 5             | 1.4                           |
| 107-DX  | 0.01            | 10         | $\pm 0 - 50 - 100$ | 8                | $\pm 9$        | $\pm 10$       | $\pm 15$        | $\pm 15$              | 5             | 5             | 1.4                           |
| 107     | 0.01            | 10         | $\pm 0 - 50 - 100$ | 8                | $\pm 9$        | $\pm 10$       | $\pm 15$        | $\pm 15$              | 5             | 5             | 1.4                           |
| 107F    | 0.01            | 10         | $\pm 0 - 50 - 100$ | 8                | $\pm 9$        | $\pm 10$       | $\pm 15$        | $\pm 15$              | 5             | 5             | 1.4                           |
| 107-SWA | 0.01            | 10         | $\pm 0 - 50 - 100$ | 8                | $\pm 9$        | $\pm 10$       | $\pm 15$        | $\pm 15$              | 5             | 5             | 1.4                           |
| 107-BL  | 0.01            | 10         | $\pm 0 - 50 - 100$ | 8                | $\pm 9$        | $\pm 10$       | $\pm 15$        | $\pm 15$              | 5             | 5             | 1.4                           |
| 107F-RE | 0.01            | 10         | $\pm 0 - 50 - 100$ | 8                | $\pm 9$        | $\pm 10$       | $\pm 15$        | $\pm 15$              | 5             | 5             | 1.4                           |
| 107-LL  | 0.01            | 10         | $\pm 0 - 50 - 100$ | 8                | $\pm 9$        | $\pm 10$       | $\pm 15$        | $\pm 15$              | 5             | 5             | 1.4                           |
| 107W    | 0.01            | 10         | $\pm 0 - 50 - 100$ | 8                | $\pm 9$        | $\pm 10$       | $\pm 15$        | $\pm 15$              | 5             | 5             | 1.4                           |
| 107F-T  | 0.01            | 10         | $\pm 100 - 50 - 0$ | 8                | $\pm 9$        | $\pm 10$       | $\pm 15$        | $\pm 15$              | 5             | 5             | 1.4                           |
| 107-E   | 0.01            | 10         | $\pm 0 - 50 - 100$ | 8                | $\pm 9$        | $\pm 10$       | $\pm 15$        | $\pm 15$              | 5             | 5             | initial pressure 0.4          |
| 17      | 0.01            | 1          | 0 - 50 - 0         | 8                | $\pm 9$        | $\pm 10$       | —               | —                     | 5             | 5             | 1.4                           |
| 57-SWA  | 0.01            | 5          | $\pm 0 - 50 - 100$ | 8                | $\pm 9$        | $\pm 10$       | $\pm 15$        | $\pm 15$              | 5             | 5             | 1.4                           |
| 57      | 0.01            | 5          | $\pm 0 - 50 - 100$ | 8                | $\pm 9$        | $\pm 10$       | $\pm 15$        | $\pm 15$              | 5             | 5             | 1.4                           |
| 57F     | 0.01            | 5          | $\pm 0 - 50 - 100$ | 8                | $\pm 9$        | $\pm 10$       | $\pm 15$        | $\pm 15$              | 5             | 5             | 1.4                           |
| 57B     | 0.01            | 5          | 0 - 50 - 0         | 8                | $\pm 9$        | $\pm 10$       | $\pm 15$        | $\pm 15$              | 5             | 5             | 1.4                           |



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# 1

## Long Travel Dial Gauges

JMAS 2001

### 0.01mm, 0.05mm and 0.1mm



Long Travel Dial Gauges

**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.

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



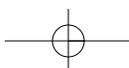
**207WF-T**  
Graduation: 0.01mm  
Range: 20mm

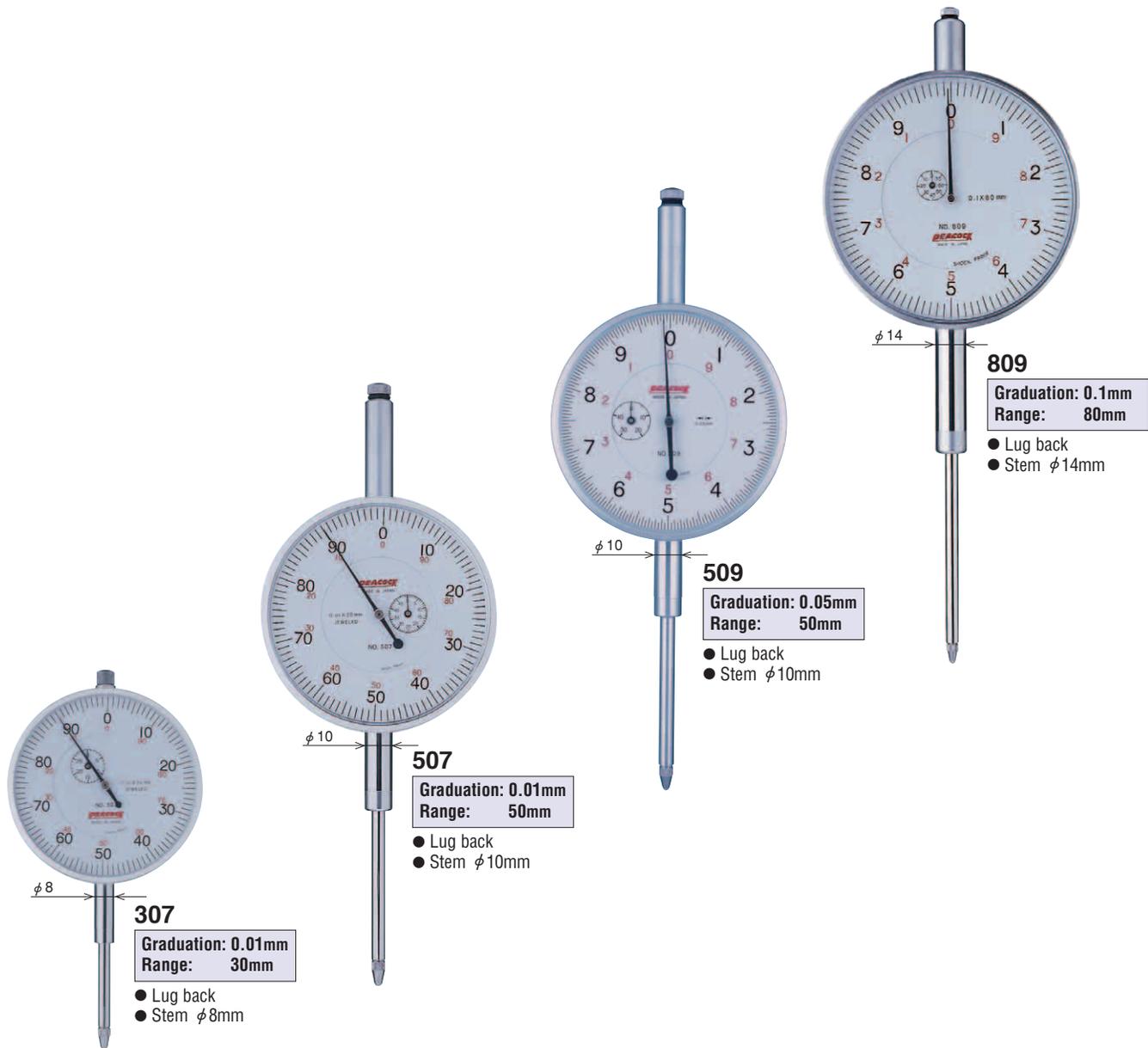
- Two center pointers (The hand is long enough to facilitate easy reading of measured values)
- Reversed dial
- Flat back



**307S**  
Graduation: 0.01mm  
Range: 30mm

- Small dial face type (φ 53mm)
- Contact point (X-2)
- Lug back





**Specifications**

(unit:  $\mu$ m)

| Model   | Graduation (mm) | Range (mm) | Reading            | Indication error |                |                |                 |                       | Retrace error | Repeatability | Measuring force less than (N) |
|---------|-----------------|------------|--------------------|------------------|----------------|----------------|-----------------|-----------------------|---------------|---------------|-------------------------------|
|         |                 |            |                    | 1/10 revolution  | 1/2 revolution | One revolution | Two revolutions | Whole measuring range |               |               |                               |
| 207     | 0.01            | 20         | $\pm 0 - 50 - 100$ | 10               | —              | $\pm 15$       | —               | $\pm 20$              | 7             | 5             | 2.0                           |
| 207F-PL | 0.01            | 20         | $\pm 0 - 50 - 100$ | 10               | —              | $\pm 15$       | —               | $\pm 20$              | 7             | 5             | 2.0                           |
| 207F-T  | 0.01            | 20         | $\pm 100 - 50 - 0$ | 10               | —              | $\pm 15$       | —               | $\pm 20$              | 7             | 5             | 2.0                           |
| 207S-LL | 0.01            | 20         | $\pm 0 - 50 - 100$ | 10               | —              | $\pm 15$       | —               | $\pm 20$              | 7             | 5             | 2.0                           |
| 207S    | 0.01            | 20         | $\pm 0 - 50 - 100$ | 10               | —              | $\pm 15$       | —               | $\pm 20$              | 7             | 5             | 2.0                           |
| 207W    | 0.01            | 20         | $\pm 0 - 50 - 100$ | 10               | —              | $\pm 15$       | —               | $\pm 20$              | 7             | 5             | 2.0                           |
| 207WF-T | 0.01            | 20         | $\pm 100 - 50 - 0$ | 10               | —              | $\pm 15$       | —               | $\pm 20$              | 7             | 5             | 2.0                           |
| 307S    | 0.01            | 30         | $\pm 0 - 50 - 100$ | 14               | —              | $\pm 18$       | —               | $\pm 25$              | 7             | 5             | 2.2                           |
| 307     | 0.01            | 30         | $\pm 0 - 50 - 100$ | 14               | —              | $\pm 18$       | —               | $\pm 25$              | 7             | 5             | 2.2                           |
| 507     | 0.01            | 50         | $\pm 0 - 50 - 100$ | 15               | —              | $\pm 20$       | —               | $\pm 35$              | 9             | 5             | 2.5                           |
| 509     | 0.05            | 50         | $\pm 0 - 5 - 10$   | 30               | —              | $\pm 100$      | —               | $\pm 100$             | 10            | 20            | 2.5                           |
| 809     | 0.1             | 80         | $\pm 0 - 5 - 10$   | 50               | —              | $\pm 100$      | —               | $\pm 100$             | —             | 35            | 2.5                           |



# 1

## Miniature Dial Gauges

JMAS 2003

### 0.001mm, 0.005mm and 0.01mm



Miniature Dial Gauges

- These compact size dial gauges are equipped with small dial faces. They are especially useful for measuring jigs, in restricted areas.



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



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



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



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



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



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

#### Specifications

(unit:  $\mu$ m)

| Model | Graduation (mm) | Range (mm) | Reading             | Indication error |                |                |                 |                       | Retrace error | Repeatability | Measuring force less than (N) |
|-------|-----------------|------------|---------------------|------------------|----------------|----------------|-----------------|-----------------------|---------------|---------------|-------------------------------|
|       |                 |            |                     | 1/10 revolution  | 1/2 revolution | One revolution | Two revolutions | Whole measuring range |               |               |                               |
| 5S    | 0.001           | 1          | $\pm 0 - 100 - 100$ | 5                | $\pm 6$        | $\pm 7$        | $\pm 8$         | $\pm 10$              | 4             | 5             | 1.5                           |
| 47    | 0.01            | 4          | 0 - 50 - 0          | 9                | —              | $\pm 13$       | —               | $\pm 15$              | 6             | 5             | 1.4                           |
| 47F   | 0.01            | 4          | 0 - 50 - 0          | 9                | —              | $\pm 13$       | —               | $\pm 15$              | 6             | 5             | 1.4                           |
| 57S   | 0.01            | 5          | $\pm 0 - 50 - 100$  | 9                | —              | $\pm 13$       | —               | $\pm 15$              | 6             | 5             | 1.4                           |
| 36A   | 0.005           | 3          | $\pm 0 - 25 - 50$   | 9                | —              | $\pm 13$       | —               | $\pm 15$              | 6             | 5             | 1.4                           |
| 36B   | 0.01            | 3          | 0 - 25 - 50         | 9                | —              | $\pm 13$       | —               | $\pm 15$              | 6             | 5             | 1.4                           |

# Back Plunger Type Dial Gauges

## 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.

1



Back Plunger Type Dial Gauges



### 196A

Graduation: 0.01mm  
Range: 5mm

- Stem  $\phi$  6.35mm
- Contact point (X-1)



### 196A-6

Graduation: 0.01mm  
Range: 5mm

- Stem  $\phi$  6mm
- Contact point (X-1)



### 196Z

Graduation: 0.01mm  
Range: 0.8mm

- Stem  $\phi$  8mm
- Pointer giving less than one revolution
- Contact point (X-112)



### 196B

Graduation: 0.01mm  
Range: 5mm

- Stem  $\phi$  8mm
- Contact point (X-112)

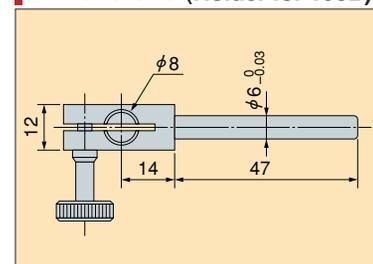


### 196B-T

Graduation: 0.01mm  
Range: 5mm

- Stem  $\phi$  8mm
- Reversed dial
- Contact point (X-112)

### Dimensions (Holder for 196B)



### Specifications

(unit:  $\mu\text{m}$ )

| Model  | Graduation (mm) | Range (mm) | Reading      | Indication error |                |                |                 |                       | Retrace error | Repeatability | Measuring force less than (N) |
|--------|-----------------|------------|--------------|------------------|----------------|----------------|-----------------|-----------------------|---------------|---------------|-------------------------------|
|        |                 |            |              | 1/10 revolution  | 1/2 revolution | One revolution | Two revolutions | Whole measuring range |               |               |                               |
| 196A   | 0.01            | 5          | 0 - 50 - 100 | 10               | $\pm 12$       | $\pm 15$       | $\pm 20$        | $\pm 20$              | 6             | 5             | 1.4                           |
| 196A-6 | 0.01            | 5          | 0 - 50 - 100 | 10               | $\pm 12$       | $\pm 15$       | $\pm 20$        | $\pm 20$              | 6             | 5             | 1.4                           |
| 196Z   | 0.01            | 0.8        | 40 - 0 - 40  | 10               | $\pm 12$       | $\pm 15$       | —               | —                     | 6             | 5             | 1.4                           |
| 196B   | 0.01            | 5          | 0 - 50 - 100 | 10               | $\pm 12$       | $\pm 15$       | $\pm 20$        | $\pm 20$              | 6             | 5             | 1.4                           |
| 196B-T | 0.01            | 5          | 100 - 50 - 0 | 10               | $\pm 12$       | $\pm 15$       | $\pm 20$        | $\pm 20$              | 6             | 5             | 1.4                           |

※ Dial dia.  $\phi$ 38mm (All Back Plunger type Dial Gauges)



# 1

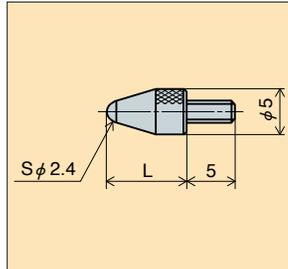
## Replaceable Contact Point (Screw pitch M2.5 × 0.45mm)

### for Dial Indicators and Linear Gauges

Replaceable Contact Point

#### ● Ball Contact Point

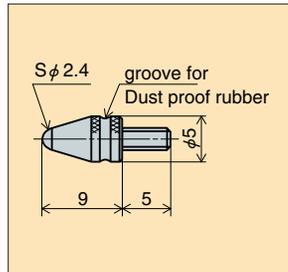
**X-1**



| 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

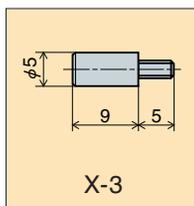
**X-2**



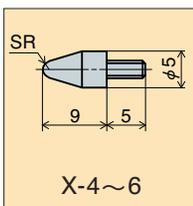
| Part No. | L (mm) | Material |
|----------|--------|----------|
| X-2      | 9      | Steel    |
| XB-2     | 9      | Carbide  |
| XC-2     | 9      | Ruby     |
| X-2A     | 12     | Steel    |
| XB-2A    | 12     | Carbide  |

#### ● Special Contact Point

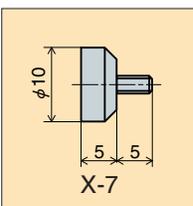
**X-3**



**X-4~6**



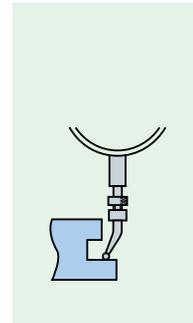
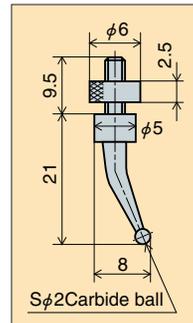
**X-7**



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

#### ● Offset Contact Point

**X-8**



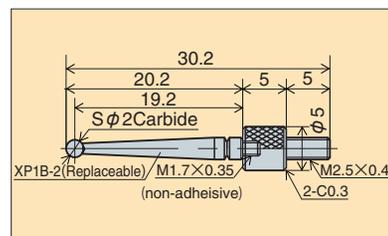
| Part No. | Material |
|----------|----------|
| X-8      | Carbide  |

#### ● Special Contact Point

**X-12**



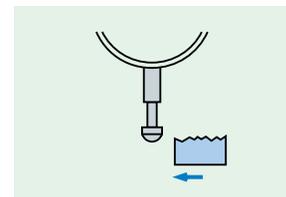
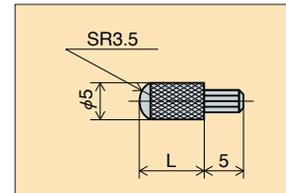
● Replaceable for Contact Point for Pic Test Indicator



| Part No. | Material |
|----------|----------|
| X-12     | Carbide  |

#### ● Spherical Contact Point

**XS-1**



#### 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

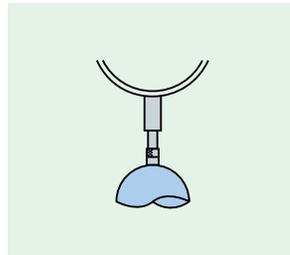
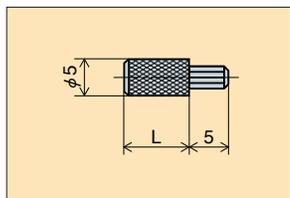
1



Replaceable Contact Point

### ● Flat Contact Point

#### XS-2

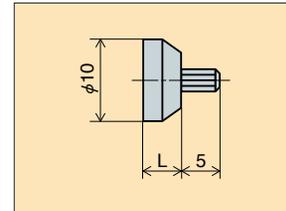


#### XS-2series

| 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     |

### ● Flat Contact Point

#### XS-5

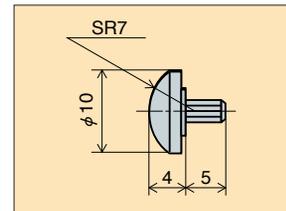


#### XS-5series

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

### ● Button type Contact Point

#### XS-6

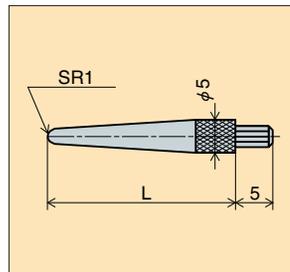


#### XS-6series

| Part No. | Material |
|----------|----------|
| XS-6     | SKS 3    |

### ● Taper Contact Point

#### XS-3



#### 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     |

### ● Contact Point set XS

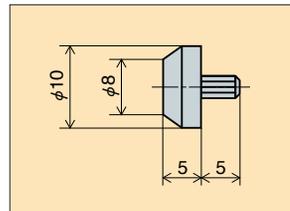


※XS is provided with setting table for XS-1 to XS-6 contact points, and a case. Each type sold separately.

| Part No. | Material |
|----------|----------|
| XS       | SKS3     |

### ● Plain Contact Point

#### XS-4

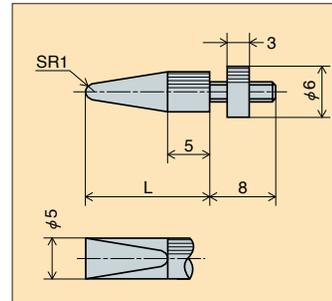


#### XS-4series

| Part No. | Material |
|----------|----------|
| XS-4     | SKS3     |

### ● Knife-edge Contact Point

#### XS-710



| 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     |



# 1

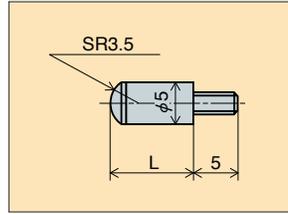
## Replaceable Contact Point (Screw pitch M2.5 × 0.45mm)

### for Dial Indicators and Linear Gauges

Replaceable Contact Point

#### ● Carbide Spherical Contact Point

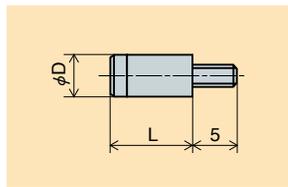
##### **XB-308**



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

#### ● Carbide Flat Contact Point

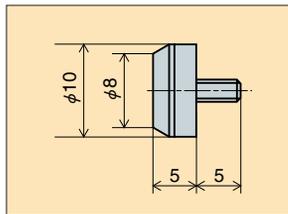
##### **XB-408**



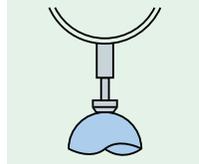
| Part No. | φ D (mm) | L (mm) | Material |
|----------|----------|--------|----------|
| XB-405   | 5        | 5      | Carbide  |
| XB-406   | 4        | 6      | Carbide  |
| XB-408   | 5        | 8      | Carbide  |

#### ● Carbide Plain Contact Point

##### **XB-505**

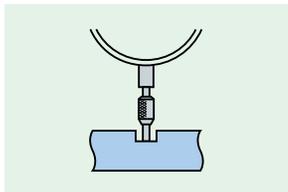
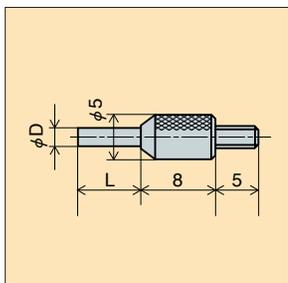


| Part No. | Material |
|----------|----------|
| XB-505   | Carbide  |



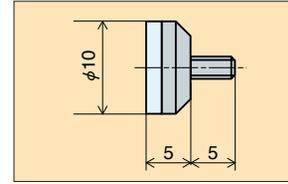
#### ● Needle Type Contact Point

##### **XB-801**



#### ● Carbide Flat Contact Point

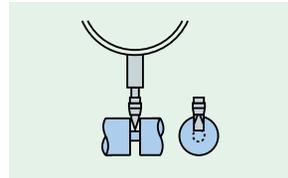
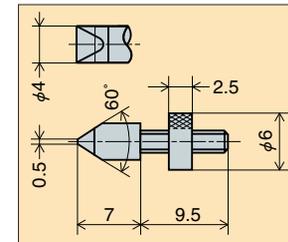
##### **XB-605**



| Part No. | Material |
|----------|----------|
| XB-605   | Carbide  |

#### ● Carbide Knife-edge Contact Point

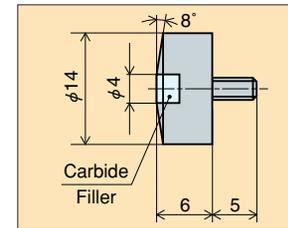
##### **XB-707**



| Part No. | Material |
|----------|----------|
| XB-707   | Carbide  |

#### ● Carbide Plain Contact Point

##### **XB-506**



| 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)

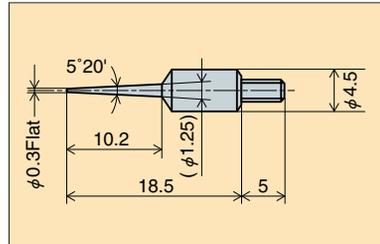
## for Dial Indicators and Linear Gauges

1

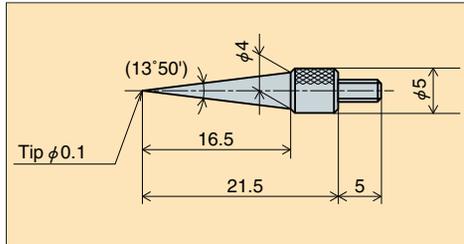


Replaceable Contact Point

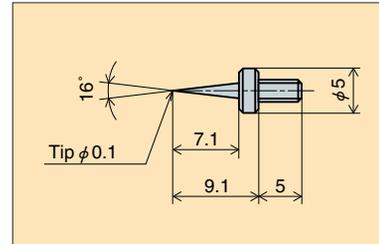
● Needle Contact Point



| Part No. | Material |
|----------|----------|
| XT-2C    | SK 3     |



| Part No. | Material |
|----------|----------|
| XT-3     | SK 3     |

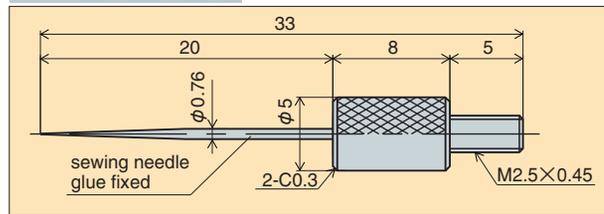


| Part No. | Material |
|----------|----------|
| XT-4     | SK 3     |

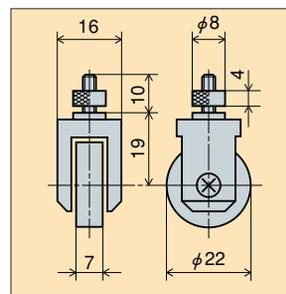
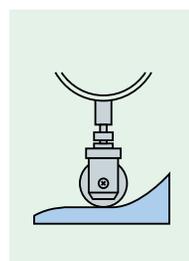
● Needle Contact Point



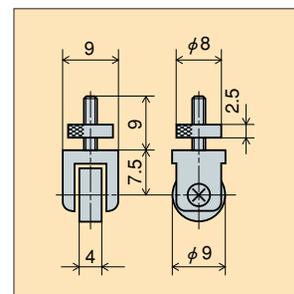
| Part No. | Material      |
|----------|---------------|
| XT-5     | sewing needle |



● Roller Contact Point



| Part No. | Material |
|----------|----------|
| SH-1     | SUJ2     |

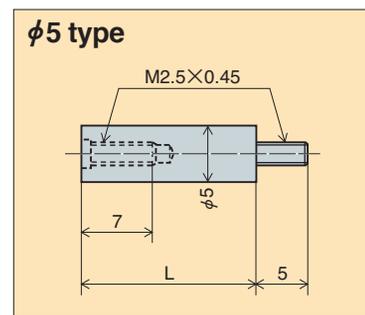
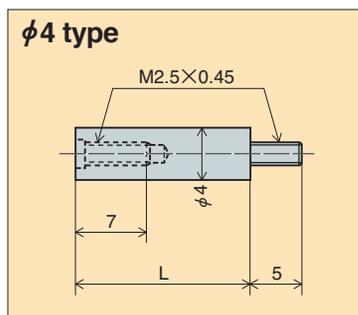


| Part No. | Material |
|----------|----------|
| SH-2     | SUJ2     |

● Contact Point Joint

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

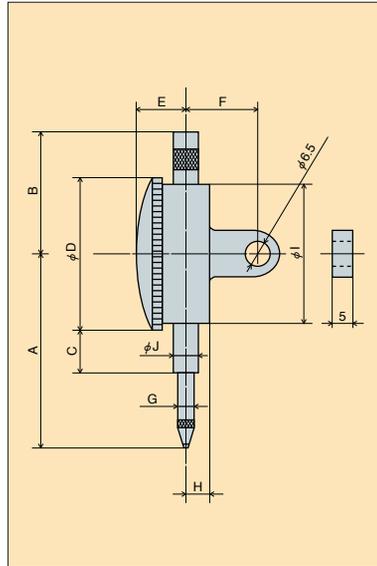
| L (mm) | φ 4 type | φ 5 type |
|--------|----------|----------|
| 6      | XJ-406   |          |
| 10     | XJ-410   | XJ-510   |
| 15     | XJ-415   |          |
| 20     | XJ-420   | XJ-520   |
| 25     | XJ-425   |          |
| 30     | XJ-430   | XJ-530   |
| 35     | XJ-435   |          |
| 40     | 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   |          |



# Dimensions of Dial Gauges



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 <sup>0</sup> <sub>-0.022</sub> |
| 5-DX   | 60 | 42.6 | 17   | 55.7 | 14.5 | 20   | 5   | 7   | 52   | 8.0 <sup>0</sup> <sub>-0.03</sub>  |
| 5B     | 60 | 41.5 | 18.5 | 53   | 14.5 | 20   | 4   | 6.5 | 49   | 8.0 <sup>0</sup> <sub>-0.022</sub> |
| 5F     | 60 | 41.5 | 18.5 | 53   | 14.5 | —    | 4   | 6.5 | 49   | 8.0 <sup>0</sup> <sub>-0.022</sub> |
| 5-SWF  | 63 | 41.5 | 17.5 | 55   | 15   | 20   | 4   | 6.5 | 49   | 8.0 <sup>0</sup> <sub>-0.022</sub> |
| 25     | 72 | 42   | 25   | 66.5 | 14.5 | 20   | 4   | 7.5 | 62.5 | 8.0 <sup>0</sup> <sub>-0.03</sub>  |
| 25F-RE | 72 | 41   | 25   | 66.5 | 14.5 | —    | 4   | 7.5 | 62.5 | 8.0 <sup>0</sup> <sub>-0.03</sub>  |
| 25S    | 60 | 42.6 | 17   | 55.7 | 14.5 | 20   | 5   | 7   | 52   | 8.0 <sup>0</sup> <sub>-0.03</sub>  |
| 55     | 73 | 52   | 25   | 66   | 17   | 20   | 4.5 | 7   | 62.5 | 8.0 <sup>0</sup> <sub>-0.03</sub>  |
| 55-DX  | 62 | 44.5 | 17   | 57   | 17   | 19.5 | 4.5 | 6.5 | 52   | 8.0 <sup>0</sup> <sub>-0.03</sub>  |
| 56     | 62 | 44.5 | 17   | 57   | 17   | 19.5 | 4.5 | 6.5 | 52   | 8.0 <sup>0</sup> <sub>-0.03</sub>  |

## 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 <sup>0</sup> <sub>-0.03</sub> |
| 107-DX  | 65 | 50.7 | 17   | 55.7 | 14.5 | 20 | 5 | 7   | 52 | 8.0 <sup>0</sup> <sub>-0.03</sub> |
| 107     | 65 | 41.5 | 18.5 | 53   | 14.5 | 20 | 4 | 6.5 | 49 | 8.0 <sup>0</sup> <sub>-0.03</sub> |
| 107F    | 65 | 41.5 | 18.5 | 53   | 14.5 | —  | 4 | 6.5 | 49 | 8.0 <sup>0</sup> <sub>-0.03</sub> |
| 107-SWA | 68 | 41.5 | 17.5 | 55   | 15   | 20 | 4 | 6.5 | 49 | 8.0 <sup>0</sup> <sub>-0.03</sub> |
| 107-BL  | 65 | 41.5 | 18.5 | 53   | 14.5 | —  | 4 | 6.5 | 49 | 8.0 <sup>0</sup> <sub>-0.03</sub> |
| 107F-RE | 65 | 41.5 | 18.5 | 53   | 14.5 | 20 | 4 | 6.5 | 49 | 8.0 <sup>0</sup> <sub>-0.03</sub> |
| 107-LL  | 65 | —    | 18.5 | 53   | 14.5 | 20 | 4 | 6.5 | 49 | 8.0 <sup>0</sup> <sub>-0.03</sub> |
| 107W    | 65 | 41.5 | 17.5 | 55   | 17   | 20 | 4 | 6.5 | 49 | 8.0 <sup>0</sup> <sub>-0.03</sub> |
| 107F-T  | 65 | 41.5 | 18.5 | 53   | 14.5 | —  | 4 | 6.5 | 49 | 8.0 <sup>0</sup> <sub>-0.03</sub> |
| 107-E   | 65 | 41.5 | 18.5 | 53   | 14.5 | 20 | 4 | 6.5 | 49 | 8.0 <sup>0</sup> <sub>-0.03</sub> |
| 17      | 65 | 41.5 | 18.5 | 53   | 14.5 | 20 | 4 | 6.5 | 49 | 8.0 <sup>0</sup> <sub>-0.03</sub> |
| 57-SWA  | 65 | 41.5 | 18.5 | 55   | 15   | 20 | 4 | 6.5 | 49 | 8.0 <sup>0</sup> <sub>-0.03</sub> |
| 57      | 65 | 41.5 | 18.5 | 53   | 14.5 | 20 | 4 | 6.5 | 49 | 8.0 <sup>0</sup> <sub>-0.03</sub> |
| 57F     | 65 | 41.5 | 18.5 | 53   | 14.5 | —  | 4 | 6.5 | 49 | 8.0 <sup>0</sup> <sub>-0.03</sub> |
| 57B     | 65 | 41.5 | 18.5 | 53   | 14.5 | —  | 4 | 6.5 | 49 | 8.0 <sup>0</sup> <sub>-0.03</sub> |

## Long Travel 0.01mm 0.005mm 0.1mm (mm)

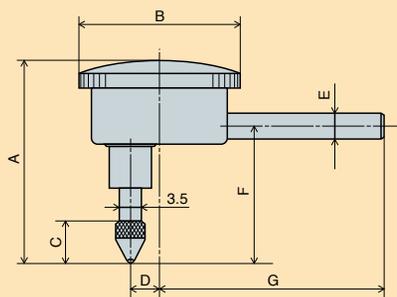
| Model   | A     | B    | C    | D    | E    | F    | G   | H   | I    | J                                  |
|---------|-------|------|------|------|------|------|-----|-----|------|------------------------------------|
| 207     | 90    | 41   | 25   | 66.5 | 14.5 | 20   | 5   | 7.5 | 62.5 | 8.0 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

## 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 <sup>0</sup> <sub>-0.03</sub> |
| 47    | 39.5 | 20   | 9.5  | 36   | 13   | 15 | 3.5 | 5.8 | 32   | 8.0 <sup>0</sup> <sub>-0.03</sub> |
| 47F   | 39.5 | 20   | 9.5  | 36   | 13   | —  | 3.5 | 5.8 | 32   | 8.0 <sup>0</sup> <sub>-0.03</sub> |
| 57S   | 41.3 | 27.4 | 10   | 39   | 14   | 19 | 4   | 5.1 | 36.5 | 8.0 <sup>0</sup> <sub>-0.03</sub> |
| 36A   | 46.2 | 30.5 | 12.9 | 40.8 | 12.5 | 19 | 4   | 5.1 | 37   | 8.0 <sup>0</sup> <sub>-0.03</sub> |
| 36B   | 46.2 | 30.5 | 12.9 | 40.8 | 12.5 | 19 | 4   | 5.1 | 37   | 8.0 <sup>0</sup> <sub>-0.03</sub> |



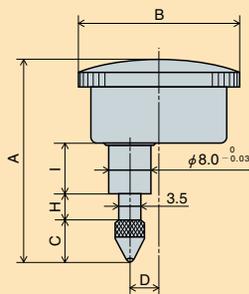
**196A Type**



**Back Plunger 0.01mm (mm)**

| Model         | A  | B  | C | D   | E    | F    | G  |
|---------------|----|----|---|-----|------|------|----|
| <b>196A</b>   | 44 | 38 | 9 | 4.5 | 6.35 | 28.1 | 57 |
| <b>196A-6</b> | 44 | 38 | 9 | 4.5 | 6    | 28.1 | 57 |

**196B Type**



**Back Plunger 0.01mm (mm)**

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



# 1

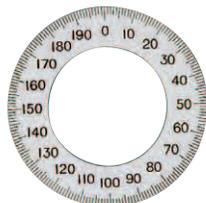
## Accessories for Dial Gauges



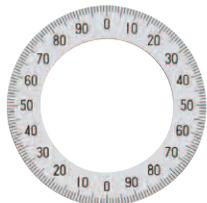
Accessories for Dial Gauges

### ● Outer dial plates

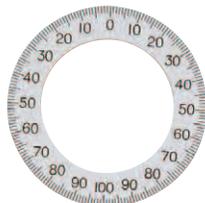
#### 0.001mm type



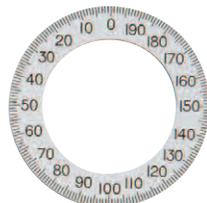
Continuous Dial A  
(0-100-200)



Continuous Dial B  
(0-100-100)



Balanced dial  
(0-100-0)



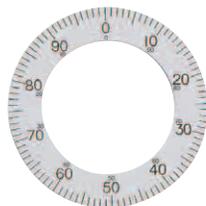
Reversed dial A  
(±200-100-0)

#### (Applicable Models)

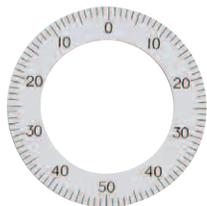
5B-HG, 5B, 5F, 5-SWF

- 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.

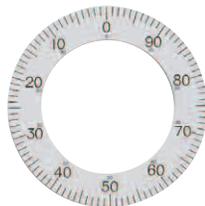
#### 0.01mm type



Continuous Dial A  
(0-50-100)



Balanced dial  
(0-50-0)



Reversed dial A  
(±100-50-0)

#### (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)

### ● Color Caps



Red



Yellow



Green



Blue



Black

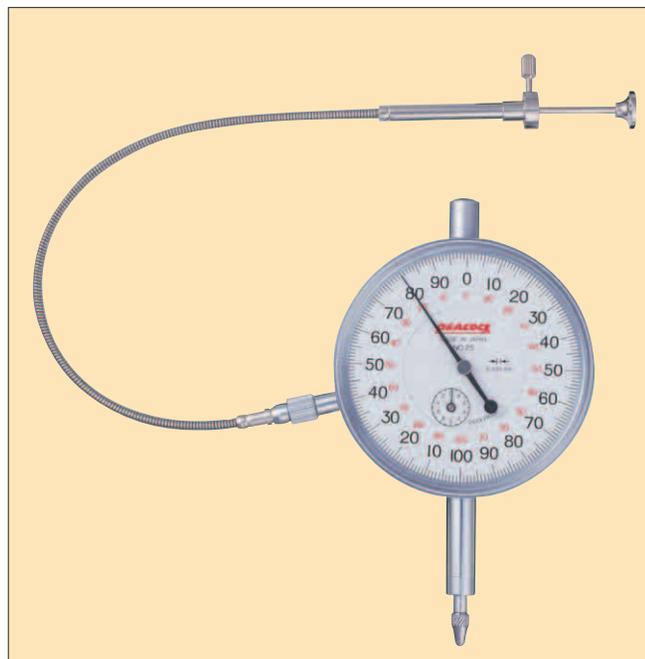
To manage the measurement by dial gauges, caps with five different colors are available. They are attachable to standard dial gauges. (No. 5, 107, 15, 17, 18, 55, 56 and 25S)

### ● Spindle Lifting Lever (LL-1)



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

### ● Spindle pull-up Release



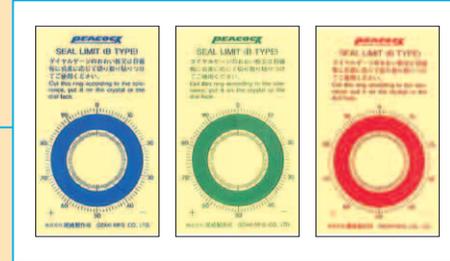
| Part No.                  | Dial Gauge installable |
|---------------------------|------------------------|
| RE-1 (Total length:275mm) | 107F-RE. R1-B.         |
| RE-2 (Total length:287mm) | 25F-RE. R1-A.          |

● Various accessories

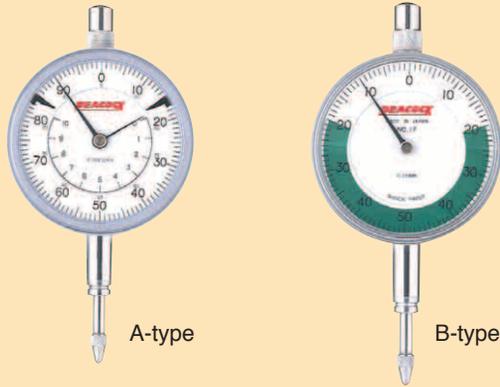
● Easily attachable adhesive limits A type



● Easily attachable adhesive limits B type



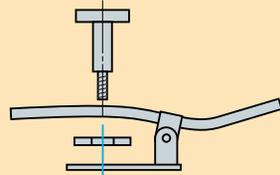
● Examples of adhesive limits stickers



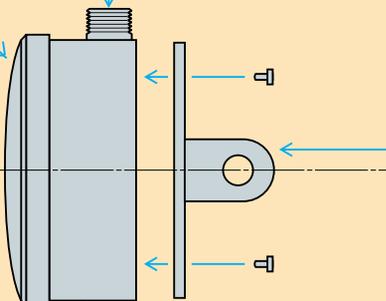
● Color caps



● Spindle Lifting Lever (LL-1)



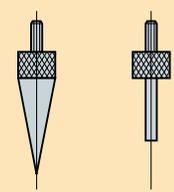
● Backs



● Contact point joint



● Replaceable contact points



● Outer dial plates



# 1

Accessories for Dial Gauges

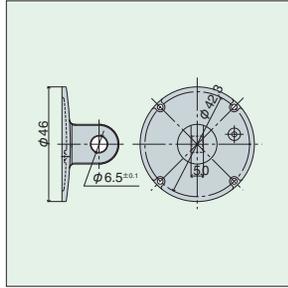
## ● Backs

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**

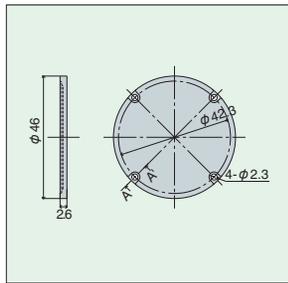


| Part No.       | Outer dia. | Dial Gauge installable                                   |
|----------------|------------|--|
| <b>GB-1A</b>   | 46.0       | 107. 107Z. 17Z. 57. 17. 17B. 5Z. 15Z. 207S. 207W. 18. 5B |
| <b>GB-115</b>  | 50.2       | 25S  |
| <b>GB-125</b>  | 59.5       | 25. 55. 207  |
| <b>GB-1307</b> | 69.8       | 307  |
| <b>GB-1507</b> | 76.7       | 507. 509   |
| <b>GB-1809</b> | 105.0      | 809  |
| <b>GB-147</b>  | 30.7       | 47. 47Z. 47SZ  |
| <b>GB-136</b>  | 35.8       | 5S. 36A. 36B   |
| <b>GB-157S</b> | 35.3       | 57S  |
| <b>GB-1DX</b>  | 50.2       | 55DX. 56. 107DX. 307S                                    |

### ② Flat back



**GB-3A**

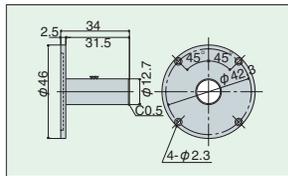


|                |       |  |
|----------------|-------|--|
| <b>GB-3A</b>   | 46.0  | 107. 107Z. 17Z. 57. 17. 17B. 5Z. 15Z. 207S. 207W. 18. 5B |
| <b>GB-315</b>  | 50.2  | 25S  |
| <b>GB-325</b>  | 59.5  | 25. 207  |
| <b>GB-355</b>  | 59.5  | 55   |
| <b>GB-3307</b> | 69.8  | 307  |
| <b>GB-3507</b> | 76.7  | 507  |
| <b>GB-3809</b> | 105.0 | 809  |
| <b>GB-347</b>  | 30.7  | 47. 47SZ. 47Z  |
| <b>GB-336</b>  | 35.8  | 5S. 36A. 36B   |
| <b>GB-357S</b> | 35.3  | 57S  |
| <b>GB-3DX</b>  | 50.2  | 55DX. 56. 107DX. 307S                                    |

### ③ Post back



**GB-4A**

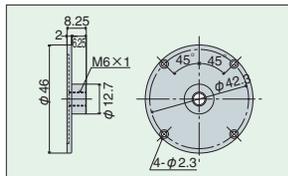


|               |      |  |
|---------------|------|--|
| <b>GB-4A</b>  | 46.0 | 107. 107Z. 17Z. 57. 17. 17B. 5Z. 15Z. 207S. 207W. 18. 5B |
| <b>GB-447</b> | 30.7 | 47. 47Z. 47SZ  |

### ④ Screw back



**GB-5A**

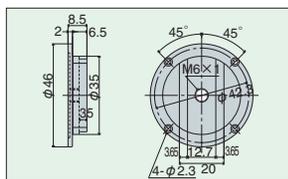


|                |      |   |
|----------------|------|---|
| <b>GB-5A</b>   | 46.0 | 107. 107Z. 57. 17. 5B. 5Z. 17B. 15Z. 207S. 207W. 18 |
| <b>GB-547</b>  | 30.7 | 47. 47Z. 47SZ                                       |
| <b>GB-536</b>  | 35.8 | 5S. 36A. 36B  |
| <b>GB-557S</b> | 35.3 | 57S   |

### ⑤ Adjustable back



**GB-6A**

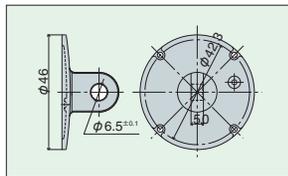


|                |      |                            |
|----------------|------|----------------------------|
| <b>GB-6A</b>   | 46.0 | 107. 107Z. 57. 17. 5B. 5Z. |
| <b>GB-625</b>  | 59.5 | 25. 55. 207                |
| <b>GB-647</b>  | 30.7 | 47. 47Z. 47SZ              |
| <b>GB-636</b>  | 35.8 |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

### ⑥ Lug back with lever



**GB-7A**



|              |      |  |
|--------------|------|--|
| <b>GB-7A</b> | 46.0 | 107. 107Z. 57. 17. 5B. 5Z. 17B. 15Z. 17Z. 18 |
|--------------|------|--|

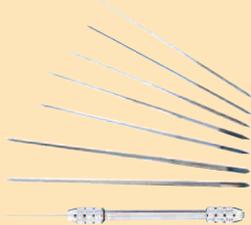
# Repair Tools

1



Repair Tools

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

|   |  |   |  |
|---|--|---|--|
| <p><b>1 Case</b></p>  <p>Width × Depth × Height<br/>225mm × 180mm × 170mm</p>  | <p><b>2 Pointer drawer</b></p>  <p>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.</p> <p>example</p>  | <p><b>3 Hand drawer</b></p>  <p>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.</p>             | <p><b>4 Plus and minus driver set (six in a set)</b></p>  <p>⊖ No.2 (1.4mmW) ⊖ No.5 (2.9mmW)<br/>⊖ No.3 (2mmW) ⊕ No.0 (4mmW)<br/>⊖ No.4 (2.4mmW) ⊕ No.1 (5mmW)<br/>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.</p> |
| <p><b>5 Driver with handle</b></p>  <p>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.)</p>  | <p><b>6 Reamer and reamer holder</b></p>  <p>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.</p>  | <p><b>7 Clock oil</b></p>  <p>This is an oil to be lubricated in the course of assembly.</p>   | <p><b>8 Tweezers</b></p>  <p>This is used to handle small parts such as hair spring, pointer or small thread.</p>   |
| <p><b>9 Pliers</b></p>  <p>This is used to fasten or loosen a pin or knock.</p>  | <p><b>10 Washing brush</b></p>  <p>This is used to remove sticks such as old oil cake and dusts with washing.</p>   | <p><b>11 Blower</b></p>  <p>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.</p> | <p><b>12 Lubrication brush</b></p>  <p>This is used, in the course of assembly, to lubricate into the spindle center. Use care to lubricate only a small amount of oil.</p>   |
| <p><b>13 Crystal press fitter</b></p>  <p>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.</p> <ul style="list-style-type: none"> <li>● 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.</li> <li>● Includes 8 types of changeable frames.</li> <li>● Changeable frame examples: <ul style="list-style-type: none"> <li>③ and ④: for lever-type dial indicators PC and PCN</li> <li>④ and ⑤: for small dial indicators</li> <li>⑥ and ⑦: for standard type 0.001mm and 0.01mm dial indicators</li> <li>⑦ and ⑧: for long stroke dial indicators</li> </ul> </li> <li>● Changeable frame sizes (mm): <ul style="list-style-type: none"> <li>① φ 20   ② φ 21.5   ③ φ 24.5   ④ φ 30   ⑤ φ 33   ⑥ φ 36   ⑦ φ 40.5   ⑧ φ 43</li> </ul> </li> </ul> |  |   |  |

# Technical Data

## 1

### Dial Indicators JIS B 7503: 1997 (Japan Industrial Standards)



Technical Data

#### Methods of measuring of performance

| No. | Item             | Measuring method  | Illustration | Measuring instrument  |
|-----|------------------|---|--------------|---|
| 1   | Indication error | Holding the plunger of the dial gauge vertically and downward, carry out the following procedure setting the reading of dial gauge at the zero point.   |              | <p>Micrometer head or length measuring instrument of 0.5μm or under in scale interval and instrumental error of ±1μm and supporting stand for the dial gauge of 0.001mm and 0.002mm in scale interval and 2mm or under in measuring range.</p> <p>For other dial gauges from the above, micrometer head or length measuring instruments of 1μm or under in scale interval and ±1μm in instrumental error and measuring stand.</p> |
| 2   | Adjacent error   | Press in the plunger 1/10 by 1/10 revolution up to two revolutions from the zero point, 1/2 by 1/2 revolution up to five revolutions and 1 by 1 revolution up to the end point of the measuring range after exceeding five revolutions and, returning back the plunger in the same state, read the same measuring points as in the pressing in direction. Obtain the error from the error diagram made as a result of the reading in both directions(see Attached Fig.1). |              |   |
| 3   | Retrace error    | Pressing in the plunger in the same state, read the same measuring points as in the pressing in direction. Obtain the error from the error diagram made as a result of the reading in both directions(see Attached Fig.1).  |              |   |
| 4   | Repeatability    | Applying the contact point vertically on the upper surface of the measuring stand, obtain the maximum difference between the indications at every times when the plunger is operated rapidly and slowly five times at an arbitrary position in the measuring range.   |              | Measuring stand.<br>Supporting stand.   |
| 5   | Measuring Force  | Hold the dial gauge whose plunger is placed vertically and downward, transfer the plunger up-and-downward continuously and slowly to measure the measuring forces at the zero point, center and end point of the measuring range.   |              | Supporting stand.<br>Upper dish spring type indicating balance (2g or under in scale interval) or force meter (0.02 N or under in sensitivity).   |

# Dial Indicators JIS B 7503: 1997 (Japan Industrial Standards)

Technical Data

## Maximum allowable error of indication

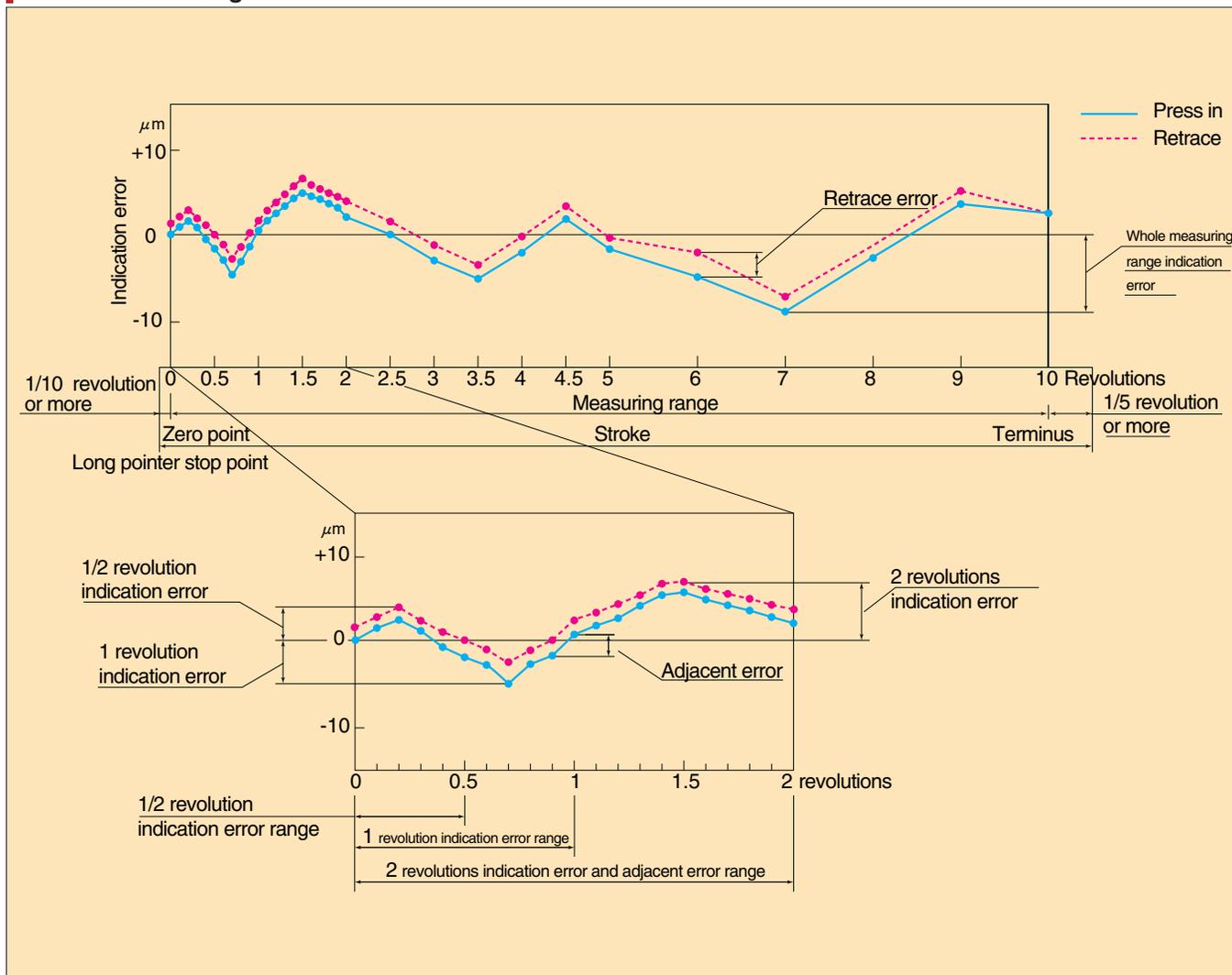
(unit:  $\mu\text{m}$ )

|                  |                       | Scale interval and measuring range |          |                              |          |                             |                             |
|------------------|-----------------------|------------------------------------|----------|------------------------------|----------|-----------------------------|-----------------------------|
|                  |                       | 0.01mm                             | 0.002mm  |                              | 0.001mm  |                             |                             |
| Measuring range  |                       | 10mm max.                          | 2mm max. | Over 2mm, and less than 10mm | 1mm max. | Over 1mm, and less than 2mm | Over 2mm, and less than 5mm |
| Retrace Error    |                       | 5                                  | 3        | 4                            | 3        | 3                           | 4                           |
| Repeatability    |                       | 5                                  | 0.5      | 1                            | 0.5      | 0.5                         | 1                           |
| Indication error | 1/10 revolution (1)   | 8                                  | 4        | 5                            | 2.5      | 4                           | 5                           |
|                  | 1/2 revolution        | $\pm 9$                            | $\pm 5$  | $\pm 6$                      | $\pm 3$  | $\pm 5$                     | $\pm 6$                     |
|                  | One revolution        | $\pm 10$                           | $\pm 6$  | $\pm 7$                      | $\pm 4$  | $\pm 6$                     | $\pm 7$                     |
|                  | Two revolutions       | $\pm 15$                           | $\pm 6$  | $\pm 8$                      | $\pm 4$  | $\pm 6$                     | $\pm 8$                     |
|                  | Whole measuring range | $\pm 15$                           | $\pm 7$  | $\pm 12$                     | $\pm 5$  | $\pm 7$                     | $\pm 10$                    |

Note: (1) Adjacent error.

Remark: The value in this table shall be at 20°C.

## Indication error diagram





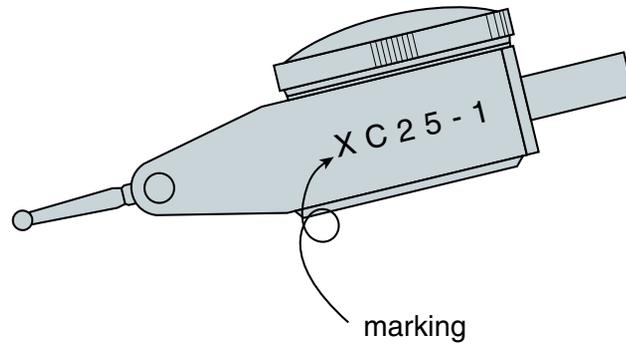
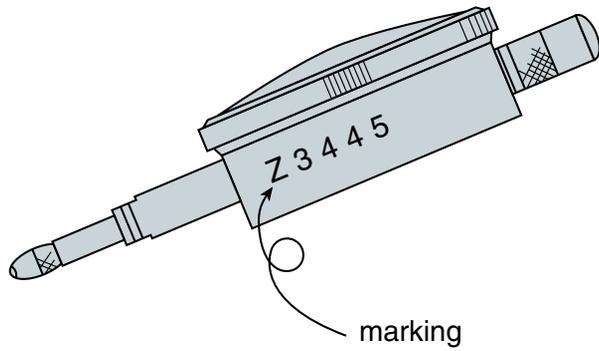
# 1

## Marking Service

Marking Service

To all our valued customers :

When you purchase any new PEACOCK 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

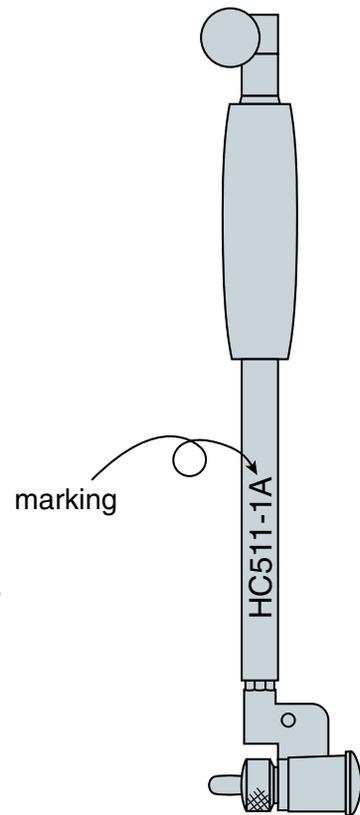
• Numeric characters (10)

0 1 2 3 4 5 6 7 8 9

• Symbols (18)

+ - × / ± = ( ) < > [ ] ¥ : . , . .

• Standard font (Helvetica)



SECTION  
**2**



**2**

## Lever Type Dial Indicators Pic Test • New Pic Test

- **PCN Series**
- **W Series**
- **Z Series**
- **E Series**
- **U Series**
- **D Series**
- **PC Series**
- **Accessories**



# 2

## Lever Type Dial Indicators NEW PIC TEST

### Without change lever PCN series

The New Pic Test is a lever type dial indicators used in all over the world.

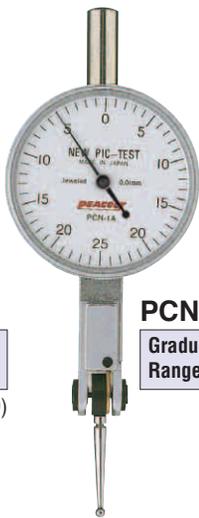
It is a measuring instrument used for measurements of restricted areas, and the outside/inside, groove width and centering with the dial gauge installed to the lathe or the milling cutting machine for measurements with the gauges held on the height gauges.

- **Without change lever (Automatic inverse type)**  
The lever type dial gauge of this type has no change lever, the contact point inverses automatically in normal or reverse direction as desired and pointer turns always CW to improve the measuring efficiency.
- **Miniature Bearing Used**  
The miniature bearing used as a bearing at the pivot of the contact point to show good indication stability without any effect by rod play.
- **O-ring used**  
Oil resistance is enhanced by seating the O-ring in the turning section of the outer frame.

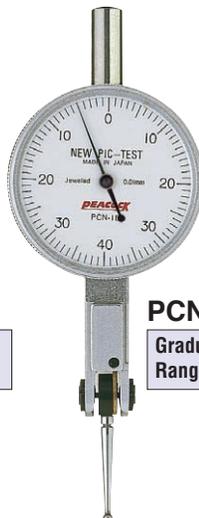
Lever Type Dial Indicators NEW PIC TEST



**PCN-0**  
Graduation: 0.01mm  
Range: 0.5mm  
● Small dial face (φ 29)



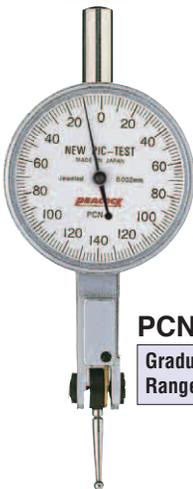
**PCN-1A**  
Graduation: 0.01mm  
Range: 0.5mm



**PCN-1B**  
Graduation: 0.01mm  
Range: 0.8mm



**PCN-1L**  
Graduation: 0.01mm  
Range: 1.0mm  
● Long contact point (L = 42.8mm)



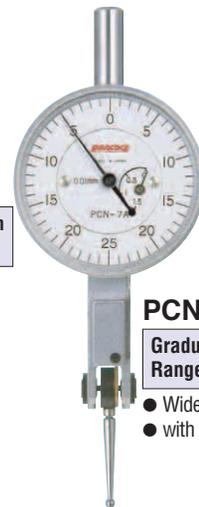
**PCN-2**  
Graduation: 0.002mm  
Range: 0.28mm



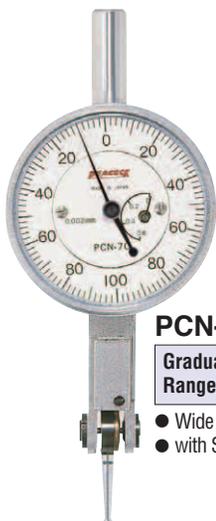
**PCN-2B**  
Graduation: 0.002mm  
Range: 0.2mm



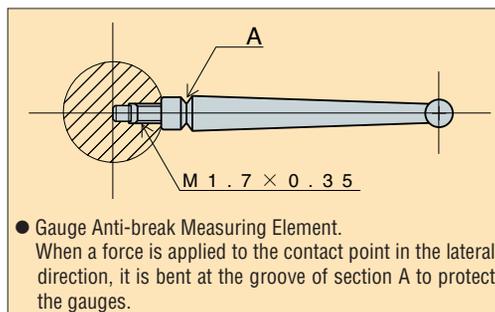
**PCN-S**  
Graduation: 0.001mm  
Range: 0.14mm  
● High accuracy



**PCN-7A**  
Graduation: 0.01mm  
Range: 1.5mm  
● Wide measuring range  
● with Shorter Pointer



**PCN-7C**  
Graduation: 0.002mm  
Range: 0.6mm  
● Wide measuring range  
● with Shorter Pointer



※ The contact point can simply replaced (See page P57).

Vertical



PCN-5

Graduation: 0.01mm  
Range: 0.5mm

Vertical



PCN-6

Graduation: 0.002mm  
Range: 0.28mm

## Specifications

| Model  | Graduation (mm) | Range (mm) | Reading     | Accuracy ( $\mu\text{m}$ )  |                |                | Measuring force less than(N) |
|--------|-----------------|------------|-------------|-----------------------------|----------------|----------------|------------------------------|
|        |                 |            |             | Wide-range forward accuracy | Adjacent error | Backward error |                              |
| PCN-0  | 0.01            | 0.5        | 0 - 25 - 0  | 5                           | 5              | 3              | 0.3                          |
| PCN-1A | 0.01            | 0.5        | 0 - 25 - 0  | 5                           | 5              | 3              | 0.3                          |
| PCN-1B | 0.01            | 0.8        | 0 - 40 - 0  | 8                           | 5              | 3              | 0.3                          |
| PCN-1L | 0.01            | 1.0        | 0 - 50 - 0  | 10                          | 5              | 4              | 0.3                          |
| PCN-2  | 0.002           | 0.28       | 0 - 140 - 0 | 3                           | 2              | 2              | 0.3                          |
| PCN-2B | 0.002           | 0.2        | 0 - 100 - 0 | 3                           | 2              | 2              | 0.3                          |
| PCN-S  | 0.001           | 0.14       | 0 - 70 - 0  | 3                           | 2              | 2              | 0.3                          |
| PCN-7A | 0.01            | 1.5        | 0 - 25 - 0  | 8                           | 5              | 3              | 0.3                          |
| PCN-7C | 0.002           | 0.6        | 0 - 100 - 0 | 6                           | 2              | 3              | 0.3                          |
| PCN-5  | 0.01            | 0.5        | 0 - 25 - 0  | 5                           | 5              | 3              | 0.3                          |
| PCN-6  | 0.002           | 0.28       | 0 - 140 - 0 | 3                           | 2              | 2              | 0.3                          |

Special Type Test Indicators

# Special Type Test Indicators

## Double Dial Type W series

- The conventional lever type dial gauge used to have some unreadable points when aligning with it, which has made it impossible to do the accurate aligning till now. The double dial type Pic Test has two dials at both sides, making it possible to cover said unreadable points by conventional Pic Tests.



PC-1BW

Graduation: 0.01mm  
Range: 0.8mm

- Change lever type

## Specifications

| Model  | Graduation (mm) | Range (mm) | Reading    | Accuracy ( $\mu\text{m}$ )  |                |                | Measuring force less than(N) |
|--------|-----------------|------------|------------|-----------------------------|----------------|----------------|------------------------------|
|        |                 |            |            | Wide-range forward accuracy | Adjacent error | Backward error |                              |
| PC-1BW | 0.01            | 0.8        | 0 - 40 - 0 | 8                           | 5              | 4              | 0.4                          |



# 2

## Special Type Test Indicators

### One Revolution Z series (without change lever type)

The dial face is easy to read with light yellow and blue (dead zone)

Special Type Test Indicators

● **Gauge Anti-break Measuring Element**

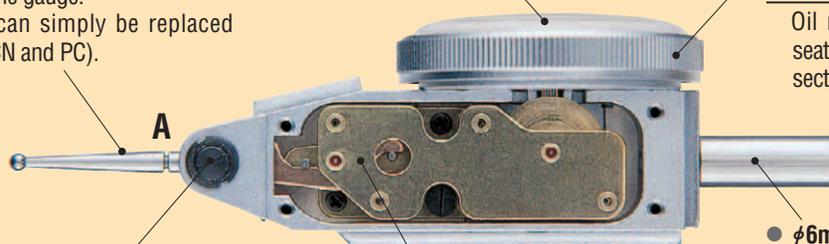
When a force is applied to the contact point in the lateral direction, it is bent at the groove of section A to protect the gauge. The contact point can simply be replaced (adopted in all the PCN and PC).

● **Dial face with colored limit**

To check out of tolerance detection and testing easier.

● **Dust and Oil resistant O-ring (inside bezel)**

Oil resistance is enhanced by seating the O-ring in the turning section of the outer frame.



● **Super sensitive miniature bearing used**

The miniature bearing is used as a bearing at the pivot of the contact point to show stable indication without any effect by rod play.

● **No clutch (automatic inverse type)**

The Pic Test Indicator of this type has no bias lever, the contact point inverse automatically in the normal or reverse direction as desired and the pointer turns always CW to improve the measuring efficiency.

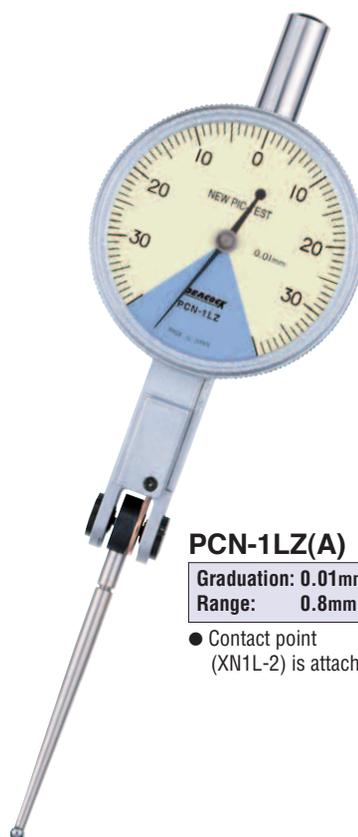
"A" type Downward



**PCN-1BZ(A)**

Graduation: 0.01mm  
Range: 0.6mm

- Contact point (XN1B-2) is attached



**PCN-1LZ(A)**

Graduation: 0.01mm  
Range: 0.8mm

- Contact point (XN1L-2) is attached



**PCN-2Z(A)**

Graduation: 0.002mm  
Range: 0.2mm

- High accuracy
- Contact point (XN2-2) is attached

**Specifications**

| Model      | Graduation (mm) | Range (mm) | Movable Range (mm) | Indication error      |                |                | Measuring force less than(N) |
|------------|-----------------|------------|--------------------|-----------------------|----------------|----------------|------------------------------|
|            |                 |            |                    | Whole measuring range | Adjacent error | Backward error |                              |
| PCN-1BZ(A) | 0.01            | 0.6        | 0.7                | 8                     | 5              | 3              | 0.3                          |
| PCN-1LZ(A) | 0.01            | 0.8        | 0.9                | 10                    | 5              | 4              | 0.3                          |
| PCN-2Z(A)  | 0.002           | 0.2        | 0.24               | 3                     | 2              | 2              | 0.3                          |

**"B" type Upward**



**PCN-1BZ(B)**

Graduation: 0.01mm  
Range: 0.6mm

- Contact point (XN1B-2) is attached



**PCN-1LZ(B)**

Graduation: 0.01mm  
Range: 0.8mm

- Contact point (XN1L-2) is attached



**PCN-2Z(B)**

Graduation: 0.002mm  
Range: 0.2mm

- High accuracy
- Contact point (XN2-2) is attached



Special Type Test Indicators

**Specifications**

| Model      | Graduation (mm) | Range (mm) | Movable Range (mm) | Indication error      |                |                | Measuring force less than(N) |
|------------|-----------------|------------|--------------------|-----------------------|----------------|----------------|------------------------------|
|            |                 |            |                    | Whole measuring range | Adjacent error | Backward error |                              |
| PCN-1BZ(B) | 0.01            | 0.6        | 0.7                | 8                     | 5              | 3              | 0.3                          |
| PCN-1LZ(B) | 0.01            | 0.8        | 0.9                | 10                    | 5              | 4              | 0.3                          |
| PCN-2Z(B)  | 0.002           | 0.2        | 0.24               | 3                     | 2              | 2              | 0.3                          |

**Dimensions**

**PCN-1BZ (A)·(B)**  
**PCN-2Z (A)·(B)**

Dimensions:  $\phi 6.0^{+0.03}$ , 15.5, 94.2, 8, 60.4, 10, S#2 carbide

**PCN-1LZ (A)·(B)**

Dimensions: 26, 15.85, 1.65, 16,  $\phi 6.0^{+0.03}$ , 15.5, 8, 80.8, 10, S#2 carbide

**● Length of Contact Point**

| Model                 | L (mm) |
|-----------------------|--------|
| PCN-1BZ(A) PCN-1BZ(B) | 22.2   |
| PCN-2Z(A) PCN-2Z(B)   | 17.8   |
| PCN-1LZ(A) PCN-1LZ(B) | 42.8   |

## 2

## Special Type Test Indicators

## Super low measuring force E series

Lever dial gauge that is suitable for flaw-free measure of an object under measurement and for measurement of plastic products with a low measuring force.

A measuring force is 0.05N, 0.1N or less that is lower than a 0.4N measuring force in the conventional dial gauges. Specifications and outer dimensions are the same as those of standard PC and PCN types, except a measuring force.

## Without change lever type (CW rotation only)

**PCN-1AE**

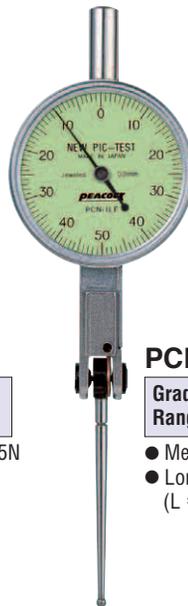
Graduation: 0.01mm  
Range: 0.5mm

- Measuring force 0.05N

**PCN-1BE**

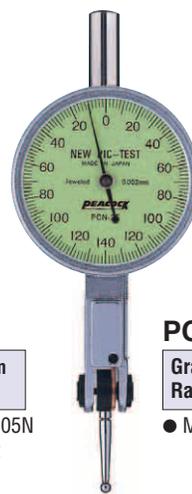
Graduation: 0.01mm  
Range: 0.8mm

- Measuring force 0.05N

**PCN-1LE**

Graduation: 0.01mm  
Range: 1.0mm

- Measuring force 0.05N
- Long contact point (L = 42.8mm)

**PCN-2E**

Graduation: 0.002mm  
Range: 0.28mm

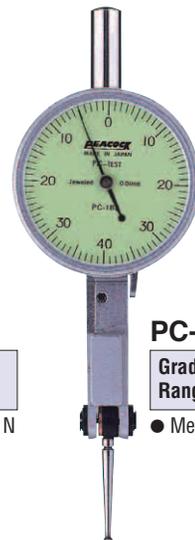
- Measuring force 0.1N

## Change lever type

**PC-1AE**

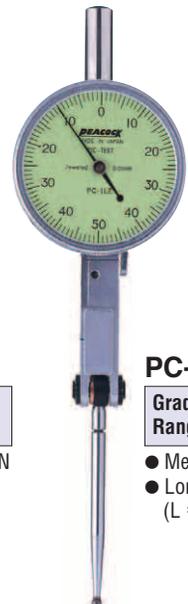
Graduation: 0.01mm  
Range: 0.5mm

- Measuring force 0.1N

**PC-1BE**

Graduation: 0.01mm  
Range: 0.8mm

- Measuring force 0.1N

**PC-1LE**

Graduation: 0.01mm  
Range: 1.0mm

- Measuring force 0.1N
- Long contact point (L = 43.0mm)

## Specifications

| Model   | Graduation (mm) | Range (mm) | Reading     | Accuracy ( $\mu\text{m}$ )  |                |                | Measuring force less than(N) |
|---------|-----------------|------------|-------------|-----------------------------|----------------|----------------|------------------------------|
|         |                 |            |             | Wide-range forward accuracy | Adjacent error | Backward error |                              |
| PCN-1AE | 0.01            | 0.5        | 0 - 25 - 0  | 5                           | 5              | 3              | 0.05                         |
| PCN-1BE | 0.01            | 0.8        | 0 - 40 - 0  | 8                           | 5              | 3              | 0.05                         |
| PCN-1LE | 0.01            | 1.0        | 0 - 50 - 0  | 10                          | 5              | 4              | 0.05                         |
| PCN-2E  | 0.002           | 0.28       | 0 - 140 - 0 | 3                           | 2              | 2              | 0.1                          |
| PC-1AE  | 0.01            | 0.5        | 0 - 25 - 0  | 5                           | 5              | 3              | 0.1                          |
| PC-1BE  | 0.01            | 0.8        | 0 - 40 - 0  | 8                           | 5              | 3              | 0.1                          |
| PC-1LE  | 0.01            | 1.0        | 0 - 50 - 0  | 10                          | 5              | 4              | 0.1                          |

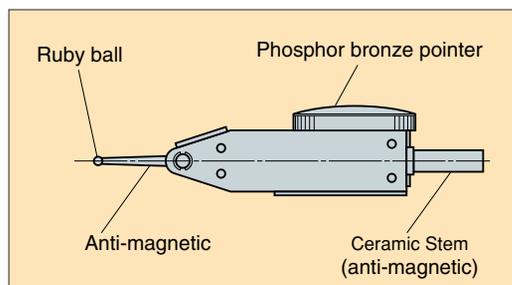
# Special Type Test Indicators

## Non-electrifying & Complete Anti-magnetic U series

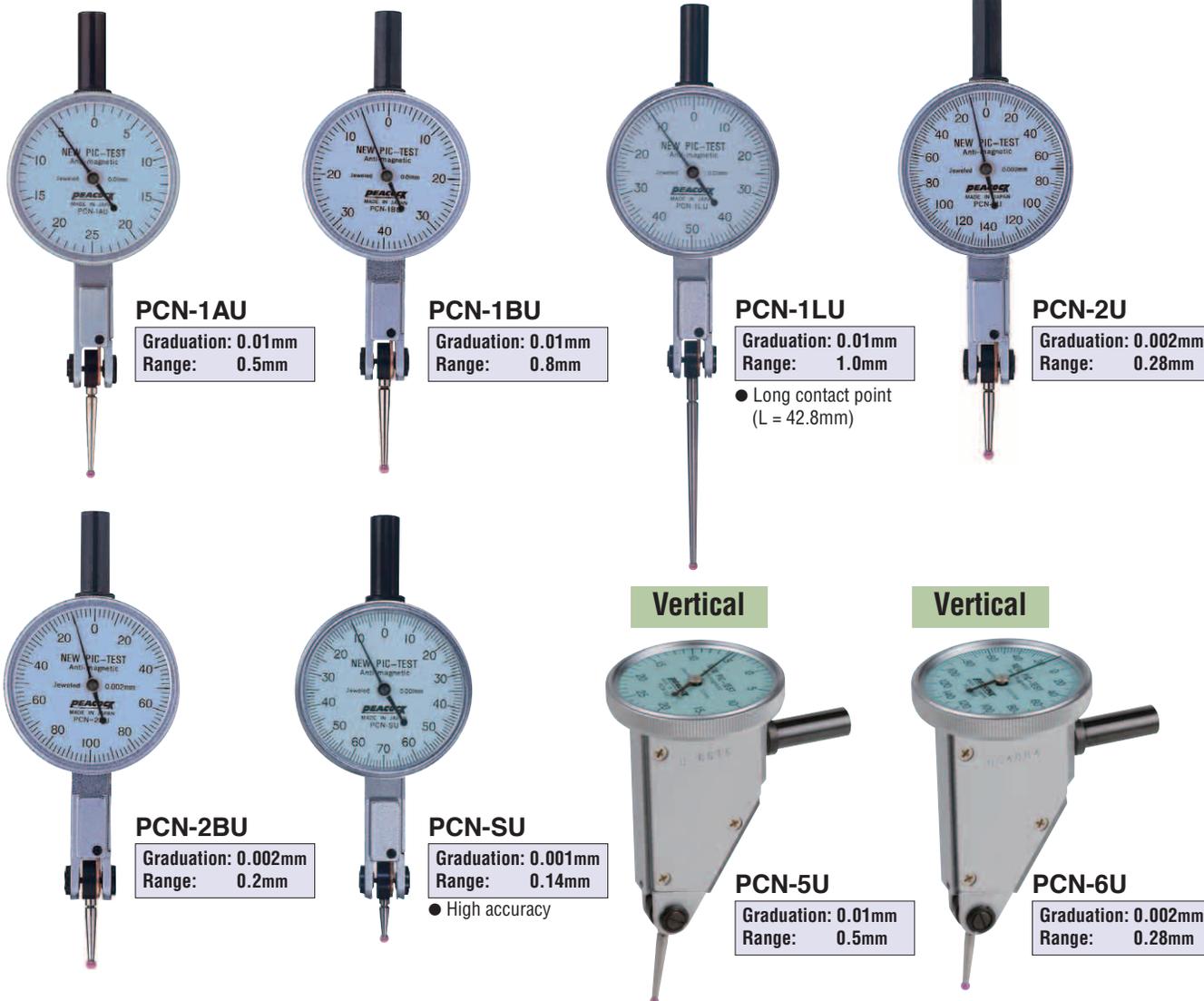
When non-electrifying type of Pic Test or New Pic Test is used, electric flow is blocked at the ceramic stem, even of a magnetic stand is electrified. Thus, you can continue your work without any problem.

The dial face is light blue color and easy to read. Specifications and outer dimensions are the same as those of standard PCN types, except the portion of stems.

**Without change lever type (CW rotation only)**



Special Type Test Indicators



### Specifications

| Model   | Graduation (mm) | Range (mm) | Reading     | Accuracy ( $\mu\text{m}$ )  |                |                | Measuring force less than(N) |
|---------|-----------------|------------|-------------|-----------------------------|----------------|----------------|------------------------------|
|         |                 |            |             | Wide-range forward accuracy | Adjacent error | Backward error |                              |
| PCN-1AU | 0.01            | 0.5        | 0 - 25 - 0  | 5                           | 5              | 3              | 0.3                          |
| PCN-1BU | 0.01            | 0.8        | 0 - 40 - 0  | 8                           | 5              | 3              | 0.3                          |
| PCN-1LU | 0.01            | 1.0        | 0 - 50 - 0  | 10                          | 5              | 4              | 0.3                          |
| PCN-2U  | 0.002           | 0.28       | 0 - 140 - 0 | 3                           | 2              | 2              | 0.3                          |
| PCN-2BU | 0.002           | 0.2        | 0 - 100 - 0 | 3                           | 2              | 2              | 0.3                          |
| PCN-SU  | 0.001           | 0.14       | 0 - 70 - 0  | 3                           | 2              | 2              | 0.3                          |
| PCN-5U  | 0.01            | 0.5        | 0 - 25 - 0  | 5                           | 5              | 3              | 0.3                          |
| PCN-6U  | 0.002           | 0.28       | 0 - 140 - 0 | 3                           | 2              | 2              | 0.3                          |



# 2

## Special Type Test Indicators

### Large dial face D series

The dial plate size of PCN-1A, PCN-1L, PCN-2B, and PCN-S models has been enlarged, with easy reading due to the larger scale spacing, as a result.

Screw type long stems are standard for these large dial face test indicators.

Without change lever type (CW rotation only)

Special Type Test Indicators



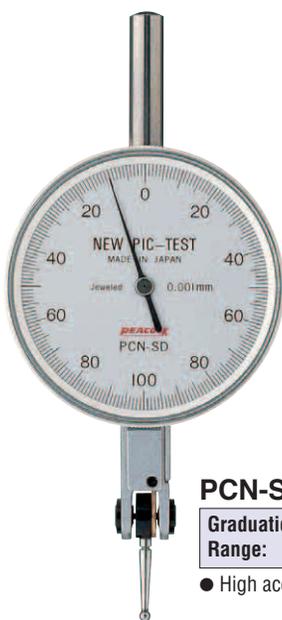
**PCN-1AD**  
Graduation: 0.01mm  
Range: 0.5mm



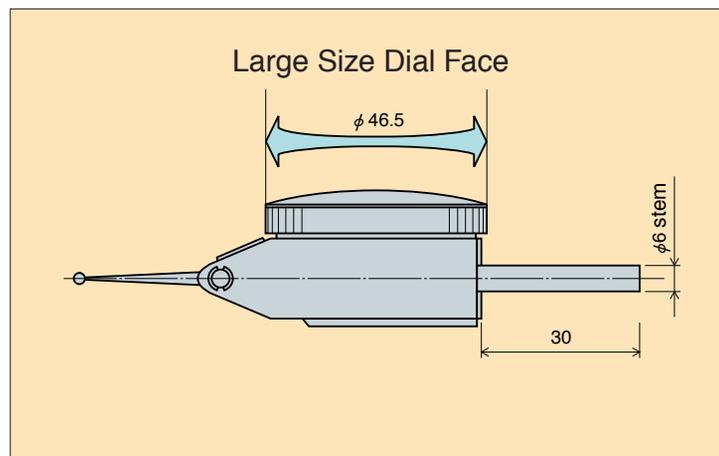
**PCN-1LD**  
Graduation: 0.01mm  
Range: 1mm  
● Long contact point (L = 42.8mm)



**PCN-2BD**  
Graduation: 0.002mm  
Range: 0.2mm



**PCN-SD**  
Graduation: 0.001mm  
Range: 0.2mm  
● High accuracy



#### Specifications

| Model   | Graduation (mm) | Range (mm) | Reading     | Accuracy (μm)               |                |                | Measuring force less than(N) |
|---------|-----------------|------------|-------------|-----------------------------|----------------|----------------|------------------------------|
|         |                 |            |             | Wide-range forward accuracy | Adjacent error | Backward error |                              |
| PCN-1AD | 0.01            | 0.5        | 0 - 25 - 0  | 5                           | 5              | 3              | 0.3                          |
| PCN-1LD | 0.01            | 1.0        | 0 - 50 - 0  | 10                          | 5              | 4              | 0.3                          |
| PCN-2BD | 0.002           | 0.2        | 0 - 100 - 0 | 3                           | 2              | 2              | 0.3                          |
| PCN-SD  | 0.001           | 0.2        | 0 - 100 - 0 | 3                           | 2              | 2              | 0.3                          |



## 2

## Examples of Applications



Do you have any gauge that is not influenced by magnetic field?  
I would like to use a gauge by mounting it on an electric discharge machine.



Stainless steel Contact Point with phosphor bronze pointer are immune to magnetic influences. Ceramic Stem does not conduct electricity.



It is hard for me to read small scale and numerals which strains the eyes.  
Do you have one with an easy-to-read scale?



With an enlarge dial face of 1.3 x the standard New Pic Test, easier and faster reading is assured with the larger scale intervals.

### Anti-magnetic/Non-electrifying type U-Series (light blue dial face)

**PCN-1BU**

Graduation: 0.01mm  
Range: 0.8mm

### Enlarged-dial face type D-Series (Dial face diameter 46.5mm)

**PCN-1AD**

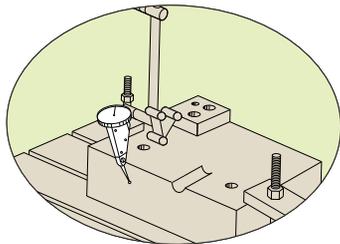
Graduation: 0.01mm  
Range: 0.5mm

**Specifications**

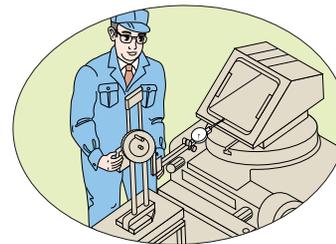
| Model   | Graduation (mm) | Range (mm) |
|---------|-----------------|------------|
| PCN-1AU | 0.01            | 0.5        |
| PCN-1BU | 0.01            | 0.8        |
| PCN-1LU | 0.01            | 1.0        |
| PCN-2U  | 0.002           | 0.28       |
| PCN-2BU | 0.002           | 0.2        |
| PCN-SU  | 0.001           | 0.14       |
| PCN-5U  | 0.01            | 0.5        |
| PCN-6U  | 0.002           | 0.28       |

**Specifications**

| Model   | Graduation (mm) | Range (mm) |
|---------|-----------------|------------|
| PCN-1AD | 0.01            | 0.5        |
| PCN-1LD | 0.01            | 1.0        |
| PCN-2BD | 0.002           | 0.2        |
| PCN-SD  | 0.001           | 0.2        |

**Electric discharge machining**

Ceramic stem is supported by a magnetic stand.  
Electric current is isolated by the ceramic stem.  
It is thus possible to measure the work piece without electrifying it.

**Easy to read**

An enlarge dial face with bigger scale intervals enables easy reading by user of all ages.

**Q** I would like to measure soft work pieces like plastic products, so I need a gauge with low measuring force. Do you have a gauge with ultra-high sensitivity?

**A** Lowest measuring force is achieved by this type of New Pic Test & Pic Test. With measuring force of 0.1N and lower and also 0.05N and lesser as compared to the standard 0.4N, sensitivity is greatly increased.

**Low measuring force type E-Series (green dial face)**

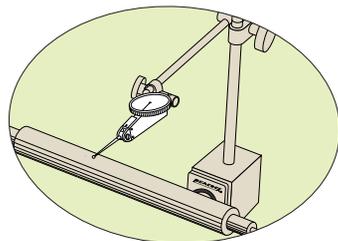


**PC-1BE**  
Graduation: 0.01mm  
Range: 0.8mm

**Specifications**

| Model   | Graduation (mm) | Range (mm) | Measuring force less than(N) |
|---------|-----------------|------------|------------------------------|
| PCN-1AE | 0.01            | 0.5        | 0.05                         |
| PCN-1BE | 0.01            | 0.8        | 0.05                         |
| PCN-1LE | 0.01            | 1.0        | 0.05                         |
| PCN-2E  | 0.002           | 0.28       | 0.1                          |
| PC-1AE  | 0.01            | 0.5        | 0.1                          |
| PC-1BE  | 0.01            | 0.8        | 0.1                          |
| PC-1LE  | 0.01            | 1.0        | 0.1                          |

**Measuring of deviation on rubber roller**



With extra low measuring force, work piece can be measured without deforming it.

**Q** During alignment of gauges with needs for turning the gauge around to the back, reading is made difficult and inefficiency results. Do you have a solution to this?

**A** Special dual face type with 2 faces directly opposite each other makes reading of measured value possible even when gauges need to be turned around.

**Dual face type W-Series**

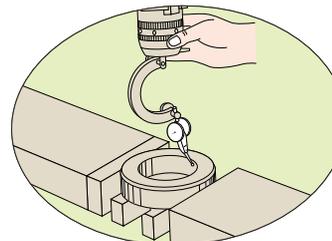


**PC-1BW**  
Graduation: 0.01mm  
Range: 0.8mm

**Specifications**

| Model  | Graduation (mm) | Range (mm) |
|--------|-----------------|------------|
| PC-1BW | 0.01            | 0.8        |

**Alignment work**



With Dual dial type, readings can be made easily even if gauges is turned 180 deg.

Examples of Applications

2

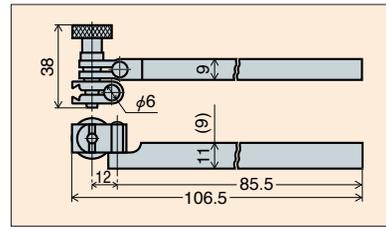
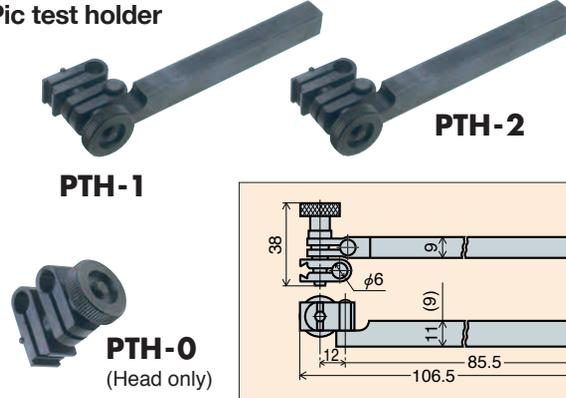
# Accessories (Option)

Accessories (Option)

● Replaceable contact point (carbide ball)

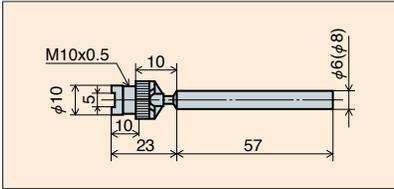
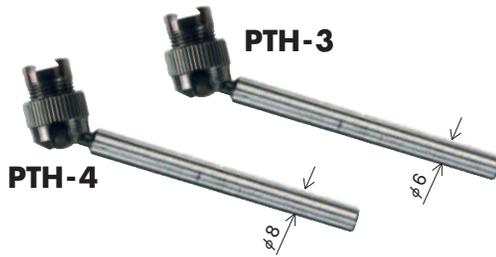


● Pic test holder



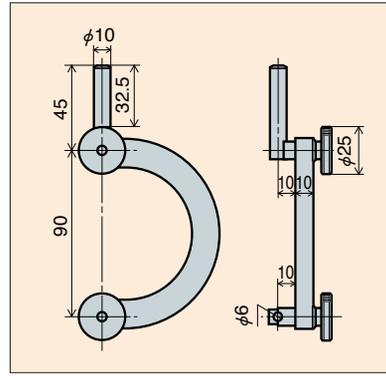
PTH-1 · 2 ( ) PTH-2

● Universal holder



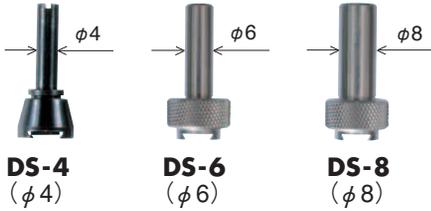
PTH-3 · 4 ( ) PTH-4

● Centricator (Pic Test Indicators supplied on request)

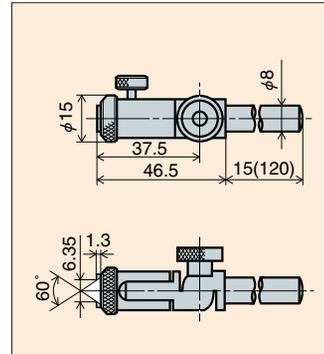
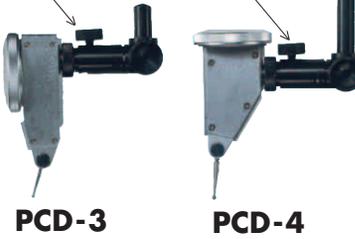


PCD-2

● Dovetail stem



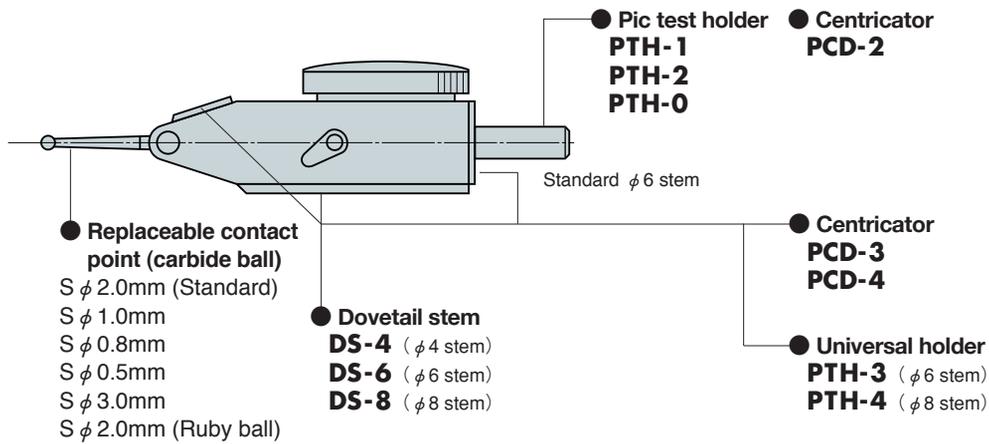
with fine adjustment



PCD-3

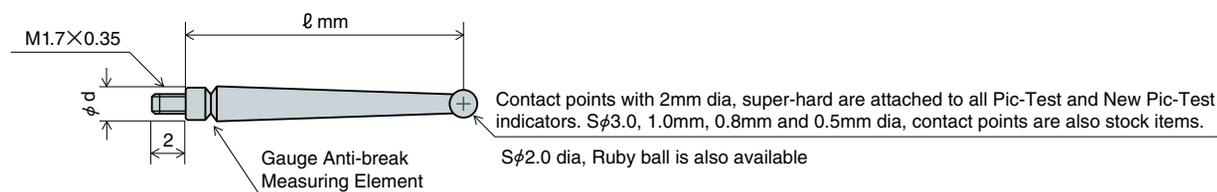
PCD-4

( ) PCD-4



# Replaceable Contact Points (M1.7 × 0.35)

2



## For Pic Test (Change lever type)

| Part No.            | ℓ (mm) | φ ball (mm) | φ d (mm) | Applicable Indicator |
|---------------------|--------|-------------|----------|----------------------|
| XP1A-3              | 18.2   | 3           | 2.5      | PC-1A PC-1AE PC-3    |
| XP1A-2              | 18.2   | 2           | 2.5      | PC-1A PC-1AE PC-3    |
| XP1A-2R (ruby ball) | 18.2   | 2           | 2.5      | PC-1A PC-1AE PC-3    |
| XP1A-1              | 18.2   | 1           | 2.5      | PC-1A PC-1AE PC-3    |
| XP1A-08             | 18.2   | 0.8         | 2.5      | PC-1A PC-1AE PC-3    |
| XP1A-05             | 18.2   | 0.5         | 2.5      | PC-1A PC-1AE PC-3    |
| XP1B-3              | 19.24  | 3           | 2.5      | PC-1B PC-1BE PC-1BW  |
| XP1B-2              | 19.24  | 2           | 2.5      | PC-1B PC-1BE PC-1BW  |
| XP1B-2R (ruby ball) | 19.24  | 2           | 2.5      | PC-1B PC-1BE PC-1BW  |
| XP1B-1              | 19.24  | 1           | 2.5      | PC-1B PC-1BE PC-1BW  |
| XP1B-08             | 19.24  | 0.8         | 2.5      | PC-1B PC-1BE PC-1BW  |
| XP1B-05             | 19.24  | 0.5         | 2.5      | PC-1B PC-1BE PC-1BW  |
| XP1L-3              | 39.72  | 3           | 3.0      | PC-1L PC-1LE         |
| XP1L-2              | 39.72  | 2           | 3.0      | PC-1L PC-1LE         |
| XP1L-2R (ruby ball) | 39.72  | 2           | 3.0      | PC-1L PC-1LE         |
| XP1L-1              | 39.72  | 1           | 3.0      | PC-1L PC-1LE         |
| XP1L-08             | 39.72  | 0.8         | 3.0      | PC-1L PC-1LE         |
| XP1L-05             | 39.72  | 0.5         | 3.0      | PC-1L PC-1LE         |
| XP2-3               | 8.80   | 3           | 2.2      | PC-2 PC-4            |
| XP2-2               | 8.80   | 2           | 2.2      | PC-2 PC-4            |
| XP2-2R (ruby ball)  | 8.80   | 2           | 2.2      | PC-2 PC-4            |
| XP2-1               | 8.80   | 1           | 2.2      | PC-2 PC-4            |
| XP2-08              | 8.80   | 0.8         | 2.2      | PC-2 PC-4            |
| XP2-05              | 8.80   | 0.5         | 2.2      | PC-2 PC-4            |

## For New Pic Test (without Change lever type)

| Part No.            | ℓ (mm) | φ ball (mm) | φ d (mm) | Applicable Indicator                                     |
|---------------------|--------|-------------|----------|--|
| XN1A-3              | 17.74  | 3           | 2.5      | PCN-1A PCN-0 PCN-1AE PCN-1AD PCN-5 PCN-7A                |
| XN1A-2              | 17.74  | 2           | 2.5      | PCN-1A PCN-0 PCN-1AE PCN-1AD PCN-5 PCN-7A                |
| XN1A-2R (ruby ball) | 17.74  | 2           | 2.5      | PCN-1A PCN-0 PCN-1AE PCN-1AD PCN-5 PCN-7A PCN-1AU PCN-5U |
| XN1A-1              | 17.74  | 1           | 2.5      | PCN-1A PCN-0 PCN-1AE PCN-1AD PCN-5 PCN-7A                |
| XN1A-08             | 17.74  | 0.8         | 2.5      | PCN-1A PCN-0 PCN-1AE PCN-1AD PCN-5 PCN-7A                |
| XN1A-05             | 17.74  | 0.5         | 2.5      | PCN-1A PCN-0 PCN-1AE PCN-1AD PCN-5 PCN-7A                |
| XN1B-3              | 18.63  | 3           | 2.5      | PCN-1B PCN-1BE PCN-1BZ (A)-(B)                           |
| XN1B-2              | 18.63  | 2           | 2.5      | PCN-1B PCN-1BE PCN-1BZ (A)-(B)                           |
| XN1B-2R (ruby ball) | 18.63  | 2           | 2.5      | PCN-1B PCN-1BE PCN-1BU PCN-1BZ (A)-(B)                   |
| XN1B-1              | 18.63  | 1           | 2.5      | PCN-1B PCN-1BE PCN-1BZ (A)-(B)                           |
| XN1B-08             | 18.63  | 0.8         | 2.5      | PCN-1B PCN-1BE PCN-1BZ (A)-(B)                           |
| XN1B-05             | 18.63  | 0.5         | 2.5      | PCN-1B PCN-1BE PCN-1BZ (A)-(B)                           |
| XN1L-3              | 39.00  | 3           | 2.5      | PCN-1L PCN-1LE PCN-1LD PCN-1LZ (A)-(B)                   |
| XN1L-2              | 39.00  | 2           | 2.5      | PCN-1L PCN-1LE PCN-1LD PCN-1LZ (A)-(B)                   |
| XN1L-2R (ruby ball) | 39.00  | 2           | 2.5      | PCN-1L PCN-1LE PCN-1LD PCN-1LU PCN-1LZ (A)-(B)           |
| XN1L-1              | 39.00  | 1           | 2.5      | PCN-1L PCN-1LE PCN-1LD PCN-1LZ (A)-(B)                   |
| XN1L-08             | 39.00  | 0.8         | 2.5      | PCN-1L PCN-1LE PCN-1LD PCN-1LZ (A)-(B)                   |
| XN1L-05             | 39.00  | 0.5         | 2.5      | PCN-1L PCN-1LE PCN-1LD PCN-1LZ (A)-(B)                   |
| XN2-3               | 14.18  | 3           | 2.2      | PCN-2 PCN-2E PCN-6 PCN-2Z (A)-(B)                        |
| XN2-2               | 14.18  | 2           | 2.2      | PCN-2 PCN-2E PCN-6 PCN-2Z (A)-(B)                        |
| XN2-2R (ruby ball)  | 14.18  | 2           | 2.2      | PCN-2 PCN-2E PCN-6 PCN-2U PCN-6U PCN-2Z (A)-(B)          |
| XN2-1               | 14.18  | 1           | 2.2      | PCN-2 PCN-2E PCN-6 PCN-2Z (A)-(B)                        |
| XN2-08              | 14.18  | 0.8         | 2.2      | PCN-2 PCN-2E PCN-6 PCN-2Z (A)-(B)                        |
| XN2-05              | 14.18  | 0.5         | 2.2      | PCN-2 PCN-2E PCN-6                                       |
| XN2B-3              | 13.00  | 3           | 2.2      | PCN-2B PCN-2BD PCN-7C PCN-SD                             |
| XN2B-2              | 13.00  | 2           | 2.2      | PCN-2B PCN-2BD PCN-7C PCN-SD                             |
| XN2B-2R (ruby ball) | 13.00  | 2           | 2.2      | PCN-2B PCN-2BD PCN-7C PCN-SD PCN-2BU                     |
| XN2B-1              | 13.00  | 1           | 2.2      | PCN-2B PCN-2BD PCN-7C PCN-SD                             |
| XN2B-08             | 13.00  | 0.8         | 2.2      | PCN-2B PCN-2BD PCN-7C PCN-SD                             |
| XN2B-05             | 13.00  | 0.5         | 2.2      | PCN-2B PCN-2BD PCN-7C PCN-SD                             |
| XNS-3               | 8.13   | 3           | 2.2      | PCN-S  |
| XNS-2               | 8.13   | 2           | 2.2      | PCN-S  |
| XNS-2R (ruby ball)  | 8.13   | 2           | 2.2      | PCN-S PCN-SU   |
| XNS-1               | 8.13   | 1           | 2.2      | PCN-S  |
| XNS-08              | 8.13   | 0.8         | 2.2      | PCN-S  |
| XNS-05              | 8.13   | 0.5         | 2.2      | PCN-S  |

Dimensions of Lever Type Dial Indicators



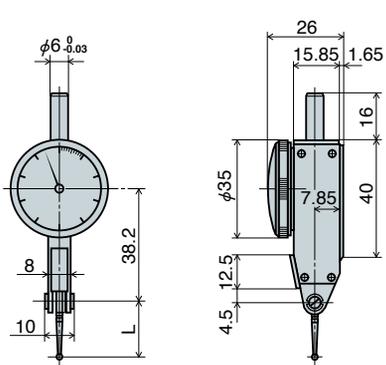
# 2

## Dimensions of Lever Type Dial Indicators

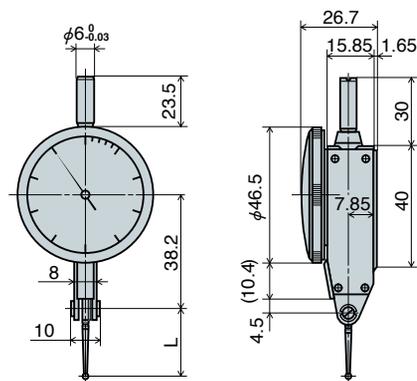
### Contact Points Length and Types



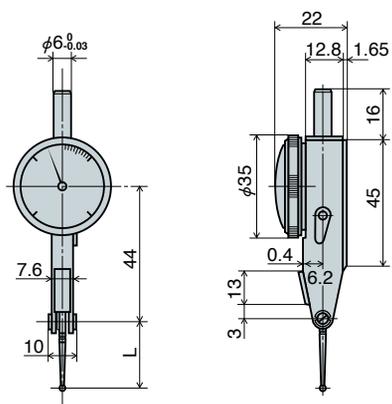
Resplacable Contact Points (M1.7 × 0.35)



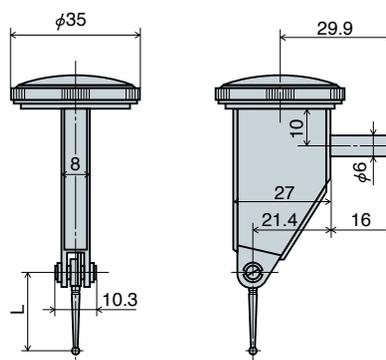
| Model                                      | L (mm) |
|--|--------|
| PCN-1A . PCN-1AE . PCN-1AU . PCN-7A        | 21.3   |
| PCN-1B . PCN-1BE . PCN-1BU . PCN-1BZ(A)(B) | 22.2   |
| PCN-1L . PCN-1LE . PCN-1LU . PCN-1LZ(A)(B) | 42.8   |
| PCN-2 . PCN-2E . PCN-2U . PCN-2Z(A)(B)     | 17.8   |
| PCN-2B . PCN-2BU                           | 16.6   |
| PCN-S                                      | 11.7   |
| PCN-7C                                     | 16.6   |



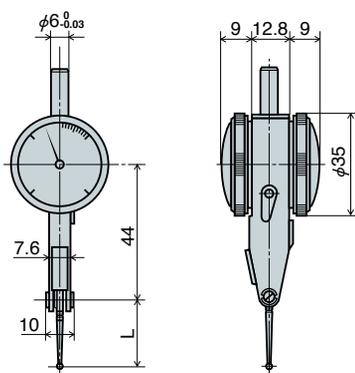
| Model            | L (mm) |
|------------------|--------|
| PCN-1AD          | 21.3   |
| PCN-2BD . PCN-SD | 16.6   |
| PCN-1LD          | 42.8   |



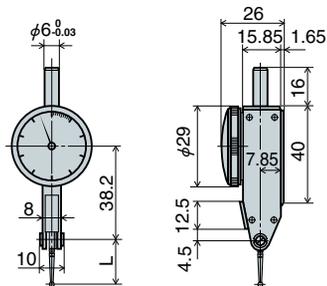
| Model          | L (mm) |
|----------------|--------|
| PC-1A . PC-1AE | 21.4   |
| PC-1B . PC-1BE | 22.4   |
| PC-1L . PC-1LE | 43.0   |
| PC-2           | 12.0   |



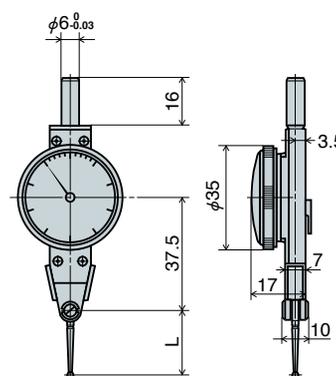
| Model          | L (mm) |
|----------------|--------|
| PCN-5 . PCN-5U | 21.3   |
| PCN-6 . PCN-6U | 17.8   |



| Model  | L (mm) |
|--------|--------|
| PC-1BW | 22.4   |
| PC-1LW | 43.0   |

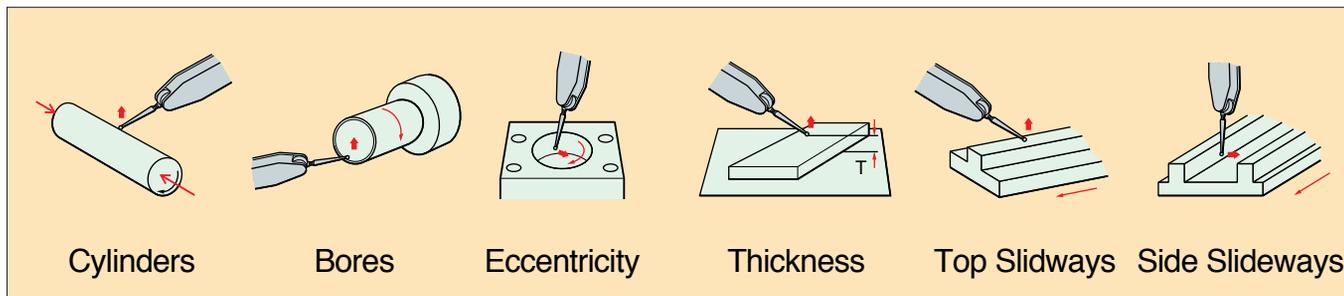


| Model | L (mm) |
|-------|--------|
| PCN-0 | 21.3   |



| Model | L (mm) |
|-------|--------|
| PC-3  | 21.4   |
| PC-4  | 12.0   |
| PC-3L | 43.0   |

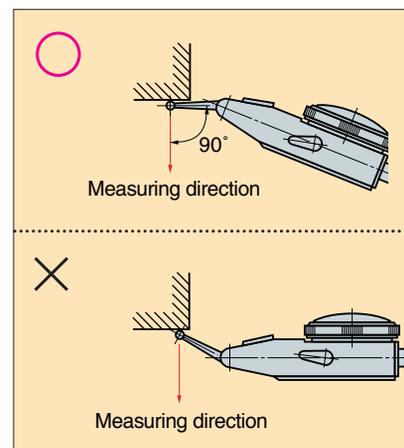
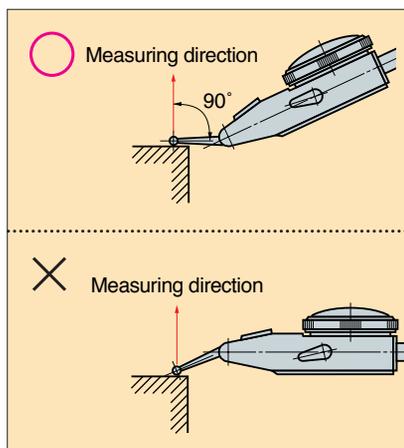
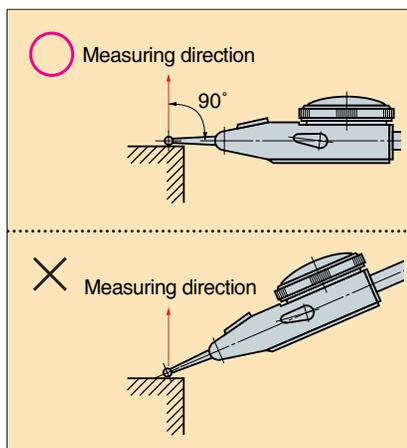
# Applied Examples



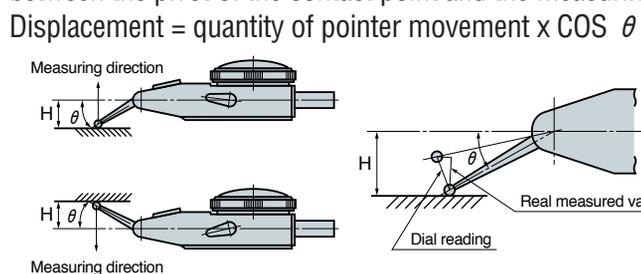
Precautions for Handling

## Precautions for Handling

- Dial gauges shall be used by being fixed to a rigid retainer to prevent the influence of flexure or the like. In measurement, the measuring direction shall be made perpendicular to the center line of the measuring probe.



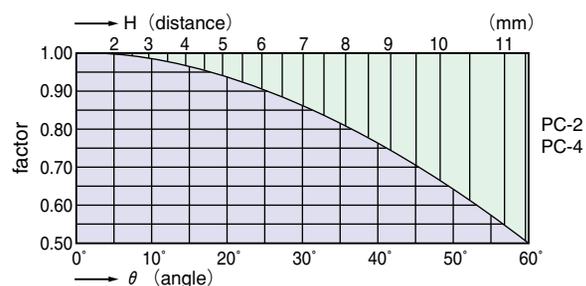
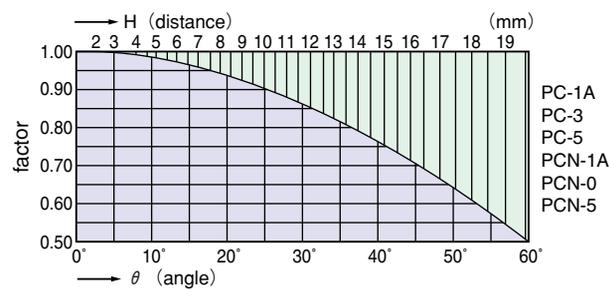
- In case they are not perpendicular, a correction by the following formula is necessary:**  
Due to various measuring direction, the contact point sometimes can not be angled perpendicular to the measuring device.  
Examples the diagrams below, where the measuring probe is set at an non-perpendicular angles and the distance between the pivot of the contact point and the measuring device is signified by the letter H:



Example:

Using a PC-1A indicator, suppose the degree of angle is 30° and the Pic Test reading is 0.05mm. The factor for the PC-1A indicator from the graph is 0.87.

$$0.05\text{mm} \times 0.87 = 0.0435 = 0.043\text{mm}$$



- When modification is not necessary:**  
If the measuring tolerance is 10% and the graph factor is above 0.9, modification by calculation is unnecessary.



# 2

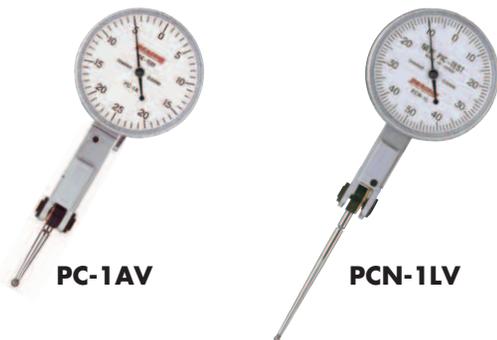
## Special Type Pic Test Indicators

### Without stem type V series

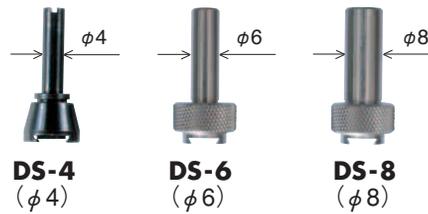
Our standard Pic Test Indicators have  $\phi 6$ mm fixed stem.  
If you do not need it, we can supply Pic Test Indicators without stem or with Dovetail Stem. ( $\phi 4$ mm,  $\phi 6$ mm or  $\phi 8$ mm)



Right Angle Contact Point for PIC TEST (PAT.No.3065810)



#### ● Dovetail stem



#### Specifications

| Model   | Graduation (mm) | Range (mm) | Reading     | Accuracy ( $\mu$ m)         |                |                | Measuring force less than(N) |
|---------|-----------------|------------|-------------|-----------------------------|----------------|----------------|------------------------------|
|         |                 |            |             | Wide-range forward accuracy | Adjacent error | Backward error |                              |
| PC-1AV  | 0.01            | 0.5        | 0 - 25 - 0  | 5                           | 5              | 3              | 0.4                          |
| PC-1BV  | 0.01            | 0.8        | 0 - 40 - 0  | 8                           | 5              | 3              | 0.4                          |
| PC-1LV  | 0.01            | 1.0        | 0 - 50 - 0  | 10                          | 5              | 4              | 0.4                          |
| PC-2V   | 0.002           | 0.28       | 0 - 140 - 0 | 3                           | 2              | 2              | 0.4                          |
| PCN-1AV | 0.01            | 0.5        | 0 - 25 - 0  | 5                           | 5              | 3              | 0.3                          |
| PCN-1BV | 0.01            | 0.8        | 0 - 40 - 0  | 8                           | 5              | 3              | 0.3                          |
| PCN-1LV | 0.01            | 1.0        | 0 - 50 - 0  | 10                          | 5              | 4              | 0.3                          |
| PCN-2V  | 0.002           | 0.28       | 0 - 140 - 0 | 3                           | 2              | 2              | 0.3                          |
| PCN-2BV | 0.002           | 0.2        | 0 - 200 - 0 | 3                           | 2              | 2              | 0.3                          |
| PCN-SV  | 0.001           | 0.14       | 0 - 75 - 0  | 3                           | 2              | 2              | 0.3                          |

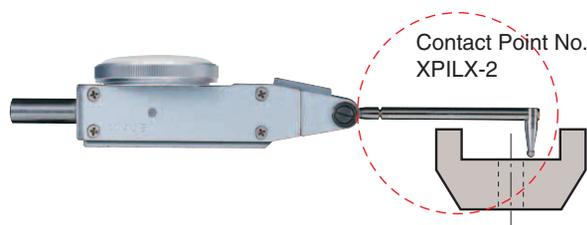
\*We also can supply other Pic Test Indicators without  $\phi 6$ mm fixed stem.

## Right Angle Contact Point for PIC TEST (PAT.No.3065810)

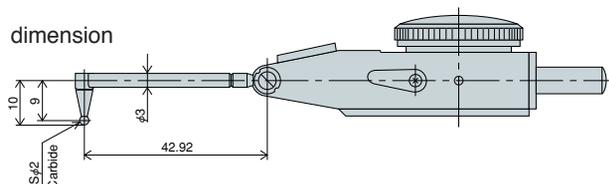
Unique Contact Point not existing before!

### Contact Point Part No. XPILX-2

A Contact Point end bent at a right has made it possible to make a measurement of an object that used to be impossible to measure!  
Set the Contact Point so that it is horizontal and perpendicular to work.



The Contact Point enable a measurement of a recessed portion located at the back of a project portion that would not be possible by the use of an existing Contact Point.



Also makes it possible to measure the parallelism and run-out of grooves on different levels.

SECTION  
**3**



## Cylinder Gauges

- **Standard Cylinder Gauges**  
CC Series  
CG Series
- **Special Cylinder Gauges**  
S Series
- **"R" Series**

**3**



# 3

## Standard Cylinder Gauges

JIS B 7515

### CC series

Peacock offers a complete line of Dial Bore Gauges with interchangeable anvils and necessary accessories to perform close tolerance measurements of holes, taper and roundness.

- Dial gauge mounting knob is very simple of and sure avoiding demerit of collet-system.
- The contact point is tungsten carbide ball.
- The standard ball tipped at the replacement rod is made of steel.  
The sintered hard-alloy ball is also available to tip.
- Wide range accuracy.....5 μm or less  
Adjacent error.....2 μm or less  
Repeated accuracy.....2 μm or less



Standard Cylinder Gauges



#### Specifications

| Model | Range (mm) | Length below grip (mm) | Number of Feelers (mm) | Thickness of Washers (mm) |
|-------|------------|------------------------|------------------------|---------------------------|
| CC-02 | 6 ~ 10     | 50                     | Intervals 0.5 mm x 9   | —                         |
| CC-01 | 10 ~ 18    | 100                    | Intervals 1 mm x 9     | 0.5 mm                    |
| CC-1  | 18 ~ 35    | 150                    | Intervals 2 mm x 9     | 0.5, 1 mm each            |
| CC-2  | 35 ~ 60    | 150                    | Intervals 5 mm x 6     | 1,2,3 mm each             |
| CC-3  | 50 ~ 100   | 150                    | Intervals 5 mm x 11    | 1,2,3 mm each             |
| CC-3C | 50 ~ 150   | 150                    | Intervals 5 mm x 11    | 1,2,3 mm each             |
| CC-4  | 100 ~ 160  | 250                    | Intervals 10 mm x 7    | 1,2,3,4 mm each           |
| CC-5  | 160 ~ 250  | 250                    | Intervals 10 mm x 10   | 1,2,3,4 mm each           |
| CC-6  | 250 ~ 400  | 400                    | Intervals 10 mm x 16   | 1,2,3,4 mm each           |

※Dial gauge is not furnished and supplied only on request. Suitable dial gauges are 17Z, 57B (0.01mm) and 15Z, 5F (0.001mm).



CC-1 complete set

#### ● List of special length below grip (available on request)

|       | L=50 (mm) | L=100 (mm) | L=200 (mm) | L=300 (mm) | L=400 (mm) | L=500 (mm) | L=600 (mm) | L=700 (mm) | L=800 (mm) | L=900 (mm) | L=1000 (mm) | L=1500 (mm) | L=2000 (mm) |
|-------|-----------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|-------------|-------------|
| CC-01 | ●         | standard   | ●          | ●          | —          | —          | —          | —          | —          | —          | —           | —           | —           |
| CC-1  | CC-1S     | ●          | ●          | ●          | ●          | ●          | —          | —          | —          | —          | —           | —           | —           |
| CC-2  | CC-2S     | ●          | ●          | ●          | ●          | ●          | ●          | ●          | ●          | ●          | ●           | ●           | ●           |
| CC-3  | CC-3S     | ●          | ●          | ●          | ●          | ●          | ●          | ●          | ●          | ●          | ●           | ●           | ●           |
| CC-3C | CC-3CS    | ●          | ●          | ●          | ●          | ●          | ●          | ●          | ●          | ●          | ●           | ●           | ●           |
| CC-4  | ●         | ●          | ●          | ●          | ●          | ●          | ●          | ●          | ●          | ●          | ●           | ●           | ●           |
| CC-5  | ●         | ●          | ●          | ●          | ●          | ●          | ●          | ●          | ●          | ●          | ●           | ●           | ●           |
| CC-6  | ●         | ●          | ●          | ●          | standard   | ●          | ●          | ●          | ●          | ●          | ●           | ●           | ●           |

● L=600mm for CC-2 can not measurement of a 35mm ID.

# Short Size Cylinder Gauges

## S series

This is a compact cylinder gauge with a length below grip of 50 mm. It is used when a standard item is too long to measure the object or a shorter length of below grip is required for conveniently. Specifications are same as standard model.



**CC-1S**  
Range: 18~35mm



**CC-2S**  
Range: 35~60mm

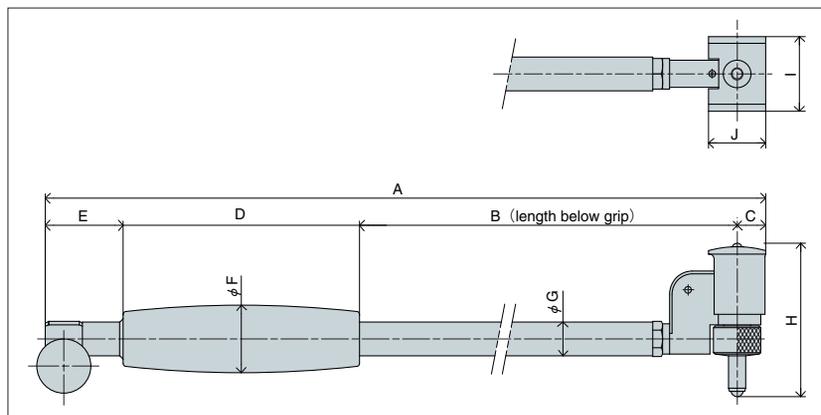


**CC-3CS**  
Range: 50~150mm  
● With 50 mm extension collar



Short Size Cylinder Gauges

### Outer Dimension



### Dimension

| Model  | A     | B     | C    | D   | E  | F  | G  | H       | I   | J    |
|--------|-------|-------|------|-----|----|----|----|---------|-----|------|
| CC-1   | 249   | 150   | 5.75 | 70  | 23 | 20 | 10 | 18~35   | 13  | 11.5 |
| CC-2   | 251.5 | 150   | 8.5  | 70  | 23 | 20 | 10 | 35~60   | 22  | 17   |
| CC-3   | 253   | 150   | 9    | 70  | 23 | 20 | 10 | 50~100  | 30  | 18   |
| CC-3C  | 253   | 150   | 9    | 70  | 23 | 20 | 10 | 50~150  | 30  | 18   |
| CC-4   | 370   | 250   | 12   | 85  | 23 | 25 | 13 | 100~160 | 50  | 24   |
| CC-5   | 391.5 | 251.5 | 14   | 100 | 26 | 25 | 16 | 160~250 | 70  | 28   |
| CC-6   | 540   | 400   | 14   | 100 | 26 | 25 | 16 | 250~400 | 100 | 28   |
| CC-1S  | 150   | 50    | 5.75 | 70  | 23 | 20 | 10 | 18~35   | 13  | 11.5 |
| CC-2S  | 151.5 | 50    | 8.5  | 70  | 23 | 20 | 10 | 35~60   | 22  | 17   |
| CC-3S  | 152   | 50    | 9    | 70  | 23 | 20 | 10 | 50~100  | 30  | 18   |
| CC-3CS | 152   | 50    | 9    | 70  | 23 | 20 | 10 | 50~150  | 30  | 18   |



# 3

## Cylinder Gauges (Blind Hole Type)

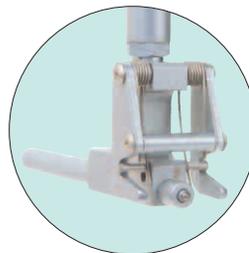
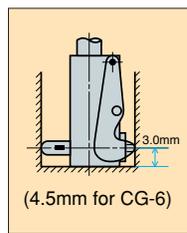
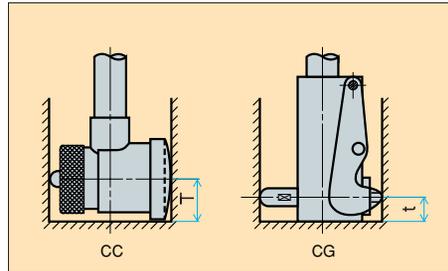
### CG series

If using a CC type cylinder gauge for blind hole bore diameter, its guide plate interrupt the measurement at a point deeper than "T", as shown in the figure below.

In such case, the CG type with modified guide plate is suitable for measurement of the diameter to the point as deep as "t".

- Wide range accuracy...5 μm or less
- Adjacent error.....2 μm or less
- Repeated accuracy.....2 μm or less
- Effective measuring range is 0.5 mm (CG-01)
- Effective measuring range is 1.2 mm (CG-1 to CG-6)

#### Applied Example



CG-2 head details



Cylinder Gauges (Blind Hole Type)



**CG-01**  
Range: 10~18mm  
● Blind hole type



**CG-1**  
Range: 18~35mm



**CG-3**  
Range: 50~100mm



**CG-4**  
Range: 100~160mm

#### Specifications

| Model | Range (mm) | Length below grip (mm) | Number of Feelers (mm) | Thickness of Washers (mm) |
|-------|------------|------------------------|------------------------|---------------------------|
| CG-01 | 10 ~ 18    | 100                    | Intervals 1 mm x 9     | 0.5 mm each               |
| CG-1  | 18 ~ 35    | 150                    | Intervals 2 mm x 9     | 0.5, 1 mm each            |
| CG-2  | 35 ~ 60    | 150                    | Intervals 5 mm x 6     | 1,2,3 mm each             |
| CG-3  | 50 ~ 100   | 150                    | Intervals 5 mm x 11    | 1,2,3 mm each             |
| CG-3C | 50 ~ 150   | 150                    | Intervals 5 mm x 11    | 1,2,3 mm each             |
| CG-4  | 100 ~ 160  | 250                    | Intervals 10 mm x 7    | 1,2,3,4 mm each           |
| CG-5  | 160 ~ 250  | 250                    | Intervals 10 mm x 10   | 1,2,3,4 mm each           |
| CG-6  | 250 ~ 400  | 400                    | Intervals 10 mm x 16   | 1,2,3,4 mm each           |

※ Dial gauge is not furnished and supplied only on request. Suitable dial gauges are 17Z, 57B (0.01mm) and 15Z, 5F (0.001mm).

※ CG-3C includes 50 mm extension collar.

※ In general, it is the range from the origin, that is the position where the plunger is pushed in by 0.1 mm, to the position where the plunger is pushed in further by 1.2 mm.

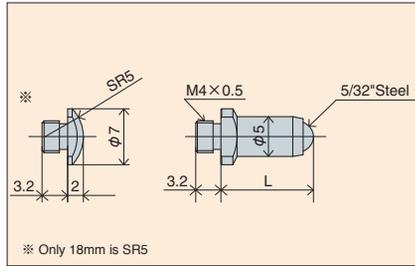
#### ● List of special length below grip (available on request)

|       | L=50 (mm) | L=100 (mm) | L=150 (mm) | L=200 (mm) | L=250 (mm) | L=300 (mm) | L=400 (mm) | L=500 (mm) | L=600 (mm) | L=700 (mm) | L=800 (mm) | L=900 (mm) | L=1000 (mm) |
|-------|-----------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------------|
| CG-01 | ●         | standard   | ●          | ●          | ●          | ●          |            |            |            |            |            |            |             |
| CG-1  | ●         | ●          | standard   | ●          | ●          | ●          | ●          | ●          |            |            |            |            |             |
| CG-2  | ●         | ●          | standard   | ●          | ●          | ●          | ●          | ●          | ●          | ●          | ●          | ●          | ●           |
| CG-3  | ●         | ●          | standard   | ●          | ●          | ●          | ●          | ●          | ●          | ●          | ●          | ●          | ●           |
| CG-3C | ●         | ●          | standard   | ●          | ●          | ●          | ●          | ●          | ●          | ●          | ●          | ●          | ●           |
| CG-4  | ●         | ●          | ●          | ●          | standard   | ●          | ●          | ●          | ●          | ●          | ●          | ●          | ●           |
| CG-5  | ●         | ●          | ●          | ●          | standard   | ●          | ●          | ●          | ●          | ●          | ●          | ●          | ●           |
| CG-6  | ●         | ●          | ●          | ●          | ●          | ●          | standard   | ●          | ●          | ●          | ●          | ●          | ●           |

● L=600mm for CG-2 can not measurement of a 35mm ID.

# Dimensions for Feeler and Washer for Cylinder Gauges

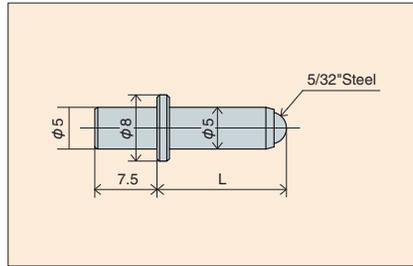
CC-1 Feeler



\* Only 18mm is SR5

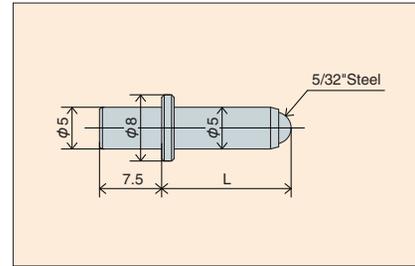
| Model       | Size (mm) | L (mm) |
|-------------|-----------|--------|
| CC-1 Feeler | *18       | 2      |
|             | 20        | 4      |
|             | 22        | 6      |
|             | 24        | 8      |
|             | 26        | 10     |
|             | 28        | 12     |
|             | 30        | 14     |
|             | 32        | 16     |
|             | 34        | 18     |

CC-2 Feeler



| Model       | Size (mm) | L (mm) |
|-------------|-----------|--------|
| CC-2 Feeler | 35        | 5      |
|             | 40        | 10     |
|             | 45        | 15     |
|             | 50        | 20     |
|             | 55        | 25     |
|             | 60        | 30     |

CC-3·3C Feeler

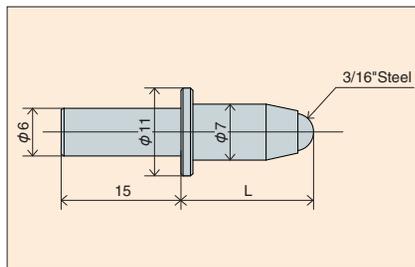


| Model          | Size (mm) | L (mm) |
|----------------|-----------|--------|
| CC-3·3C Feeler | 50        | 5      |
|                | 55        | 10     |
|                | 60        | 15     |
|                | 65        | 20     |
|                | 70        | 25     |
|                | 75        | 30     |
|                | 80        | 35     |
|                | 85        | 40     |
|                | 90        | 45     |
|                | 95        | 50     |
|                | 100       | 55     |



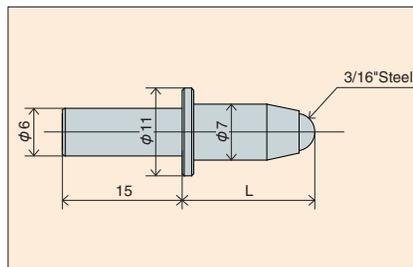
Dimensions for Feeler and Washer for Cylinder Gauges

CC-4 Feeler



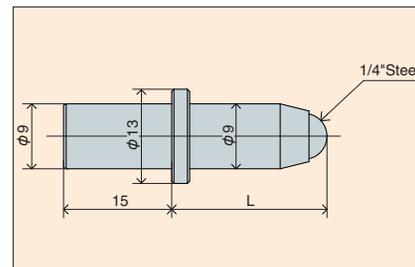
| Model       | Size (mm) | L (mm) |
|-------------|-----------|--------|
| CC-4 Feeler | 100       | 10     |
|             | 110       | 20     |
|             | 120       | 30     |
|             | 130       | 40     |
|             | 140       | 50     |
|             | 150       | 60     |
|             | 160       | 70     |

CC-5 Feeler



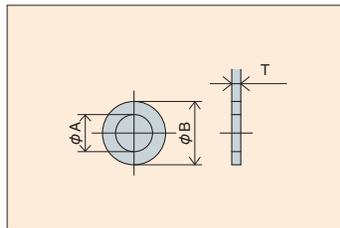
| Model       | Size (mm) | L (mm) |
|-------------|-----------|--------|
| CC-5 Feeler | 160       | 10     |
|             | 170       | 20     |
|             | 180       | 30     |
|             | 190       | 40     |
|             | 200       | 50     |
|             | 210       | 60     |
|             | 220       | 70     |
|             | 230       | 80     |
|             | 240       | 90     |
|             | 250       | 100    |

CC-6 Feeler



| Model       | Size (mm) | L (mm) |
|-------------|-----------|--------|
| CC-6 Feeler | 250       | 10     |
|             | 260       | 20     |
|             | 270       | 30     |
|             | 280       | 40     |
|             | 290       | 50     |
|             | 300       | 60     |
|             | 310       | 70     |
|             | 320       | 80     |
|             | 330       | 90     |
|             | 340       | 100    |
|             | 350       | 110    |
|             | 360       | 120    |
|             | 370       | 130    |
|             | 380       | 140    |

CC-1~6 Washer



| Model   | T (mm)     | A (mm) | B (mm) |
|---------|------------|--------|--------|
| CC-1    | 0.5, 1     | 4.1    | 7      |
| CC-2    | 1, 2, 3    | 5.1    | 8      |
| CC-3·3C | 1, 2, 3    | 5.1    | 8      |
| CC-4    | 1, 2, 3, 4 | 6.1    | 10     |
| CC-5    | 1, 2, 3, 4 | 6.1    | 10     |
| CC-6    | 1, 2, 3, 4 | 9.1    | 13     |

## 3

# Cylinder Gauges

## CC•CG-R series

Do you have any trouble when measuring internal diameter?

If so, we offer more radii of Contact Point & Feeler for Cylinder Gauges "R" Series.

- Wide range accuracy... $5\ \mu\text{m}$  or less
- Adjacent error... $2\ \mu\text{m}$  or less
- Repeated accuracy... $2\ \mu\text{m}$  or less

CC-1R



CC-3R



Cylinder Gauges

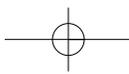
### Specifications for CC-"R" series

| Model  | Range    | Length below grip | Number of feelers  | Thickness of washers | Extension collar |
|--------|----------|-------------------|--------------------|----------------------|------------------|
| CC-01R | 10~ 18mm | 100mm             | Intervals 0.5mm× 9 | 0.5mm                | —                |
| CC-1R  | 18~ 35mm | 150mm             | Intervals 2mm× 9   | 0.5, 1mm each        | —                |
| CC-2R  | 35~ 60mm | 150mm             | Intervals 5mm× 6   | 1, 2, 3mm each       | —                |
| CC-3R  | 50~100mm | 150mm             | Intervals 5mm× 11  | 1, 2, 3mm each       | —                |
| CC-3CR | 50~150mm | 150mm             | Intervals 5mm× 11  | 1, 2, 3mm each       | 50mm             |

### Specifications for CC-"R" series

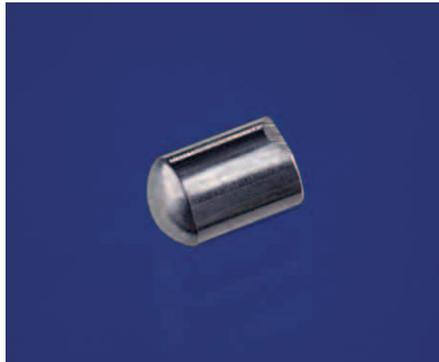
| Model  | Range    | Length below grip | Number of feelers  | Thickness of washers | Extension collar |
|--------|----------|-------------------|--------------------|----------------------|------------------|
| CG-01R | 10~ 18mm | 100mm             | Intervals 0.5mm× 9 | 0.5mm                | —                |
| CG-1R  | 18~ 35mm | 150mm             | Intervals 2mm× 9   | 0.5, 1mm each        | —                |
| CG-2R  | 35~ 60mm | 150mm             | Intervals 5mm× 6   | 0.5, 1, 2, 3mm each  | —                |
| CG-3R  | 50~100mm | 150mm             | Intervals 5mm× 11  | 0.5, 1, 2, 3mm each  | —                |
| CG-3CR | 50~150mm | 150mm             | Intervals 5mm× 11  | 0.5, 1, 2, 3mm each  | 50mm             |

Note: CG-01, in case 10~11mm measurement, the measuring depth is 5mm but 11~18mm is 3mm measuring depth.



**Contact Point Hv700±50 (Tip heat treatment and hardened)**

CC-01R  
CG-01R



CC-1R · CG-1R · CG-2R  
CG-3R · CG-3CR



CC-2R · CC-3R  
CC-3CR



Cylinder Gauges

**Feeler Hv700±50 (Tip heat treatment and hardened)**

CC-01R  
CG-01R



CC-1R



CC-2R · CC-3R  
CC-3CR



**Feeler Hv700±50 (Tip heat treatment and hardened)**

CG-1R

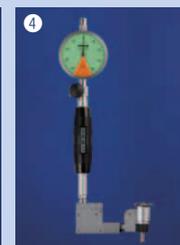


CG-2R · CG-3R  
CG-3CR



**"R" Series Cylinder Gauges can be made Special Production as following:**

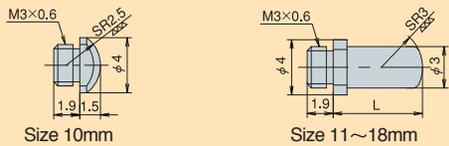
- ① Long Size of Length below grip Cylinder Gauge
- ② Short Size of Length below grip Cylinder Gauge
- ③ Short Size of the overall length Cylinder Gauge
- ④ L-shaped Cylinder Gauge



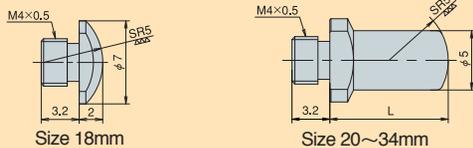


**Dimensions for Feeler and Washer for R series Cylinder Gauges:**

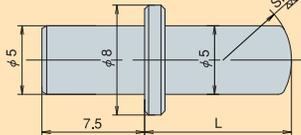
**CC-01R Feeler**



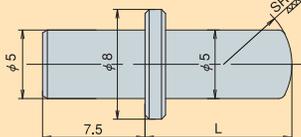
**CC-1R Feeler**



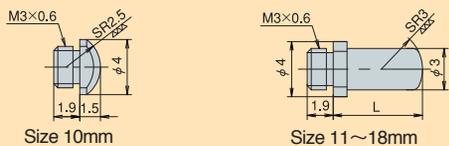
**CC-2R Feeler**



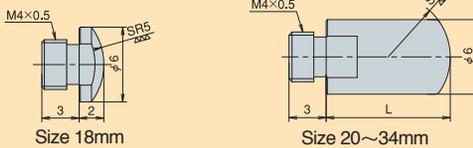
**CC-3R • CC-3CR Feeler**



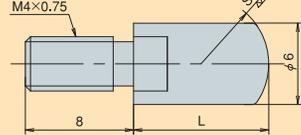
**CG-01R Feeler**



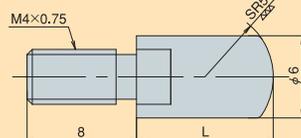
**CG-1R Feeler**



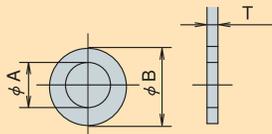
**CG-2R Feeler**



**CG-3R • CG-3CR Feeler**



**R type Washer**



| Size (mm) | L (mm) | Size (mm) | L (mm) |
|-----------|--------|-----------|--------|
| 10        | 1.5    | 15        | 6.5    |
| 11        | 2.5    | 16        | 7.5    |
| 12        | 3.5    | 17        | 8.5    |
| 13        | 4.5    | 18        | 9.5    |
| 14        | 5.5    |           |        |

| Size (mm) | L (mm) | Size (mm) | L (mm) |
|-----------|--------|-----------|--------|
| 18        | 2      | 28        | 12     |
| 20        | 4      | 30        | 14     |
| 22        | 6      | 32        | 16     |
| 24        | 8      | 34        | 18     |
| 26        | 10     |           |        |

| Size (mm) | L (mm) | Size (mm) | L (mm) |
|-----------|--------|-----------|--------|
| 35        | 5      | 50        | 20     |
| 40        | 10     | 55        | 25     |
| 45        | 15     | 60        | 30     |

| Size (mm) | L (mm) | Size (mm) | L (mm) |
|-----------|--------|-----------|--------|
| 50        | 5      | 80        | 35     |
| 55        | 10     | 85        | 40     |
| 60        | 15     | 90        | 45     |
| 65        | 20     | 95        | 50     |
| 70        | 25     | 100       | 55     |
| 75        | 30     |           |        |

| Size (mm) | L (mm) | Size (mm) | L (mm) |
|-----------|--------|-----------|--------|
| 10        | 1.5    | 15        | 6.5    |
| 11        | 2.5    | 16        | 7.5    |
| 12        | 3.5    | 17        | 8.5    |
| 13        | 4.5    | 18        | 9.5    |
| 14        | 5.5    |           |        |

| Size (mm) | L (mm) | Size (mm) | L (mm) |
|-----------|--------|-----------|--------|
| 18        | 2      | 28        | 12     |
| 20        | 4      | 30        | 14     |
| 22        | 6      | 32        | 16     |
| 24        | 8      | 34        | 18     |
| 26        | 10     |           |        |

| Size (mm) | L (mm) | Size (mm) | L (mm) |
|-----------|--------|-----------|--------|
| 35        | 5      | 50        | 20     |
| 40        | 10     | 55        | 25     |
| 45        | 15     | 60        | 30     |

| Size (mm) | L (mm) | Size (mm) | L (mm) |
|-----------|--------|-----------|--------|
| 50        | 5      | 80        | 35     |
| 55        | 10     | 85        | 40     |
| 60        | 15     | 90        | 45     |
| 65        | 20     | 95        | 50     |
| 70        | 25     | 100       | 55     |
| 75        | 30     |           |        |

| Model          | T               | A   | B   |
|----------------|-----------------|-----|-----|
| CC01-R         | 0.5             | 3.1 | 4.5 |
| CC-1R          | 0.5 • 1         | 4.1 | 7   |
| CC-2R          | 1 • 2 • 3       | 5.1 | 8   |
| CC-3R • CC-3CR | 1 • 2 • 3       | 5.1 | 8   |
| CG01-R         | 0.5             | 3.1 | 4.5 |
| CG-1R          | 0.5 • 1         | 4.1 | 5   |
| CG-2R          | 0.5 • 1 • 2 • 3 | 4.1 | 6   |
| CG-3R • CG-3CR | 0.5 • 1 • 2 • 3 | 4.1 | 6   |

SECTION

# 4



## Inch Scale Dial Indicators

- Dial Gages
- Dial Gages (Metric)
- Pic Test Indicators
- Dial Bore Gage Sets
- Dial Thickness Gage

4



# 4 Dial Gages

## 0.001"

- Easy-reading distinct graduations.
- Inch models have standard black needles and white dial faces or new high visibility orange needles and black faces. Metric models have yellow dial faces. (see page 72)
- Hard, satin-chrome finish.
- Superior quality of spindle rack, pinions and gear trains ensure longevity.
- Meets or exceeds applicable US federal specifications.
- Conforms to AGD specifications.



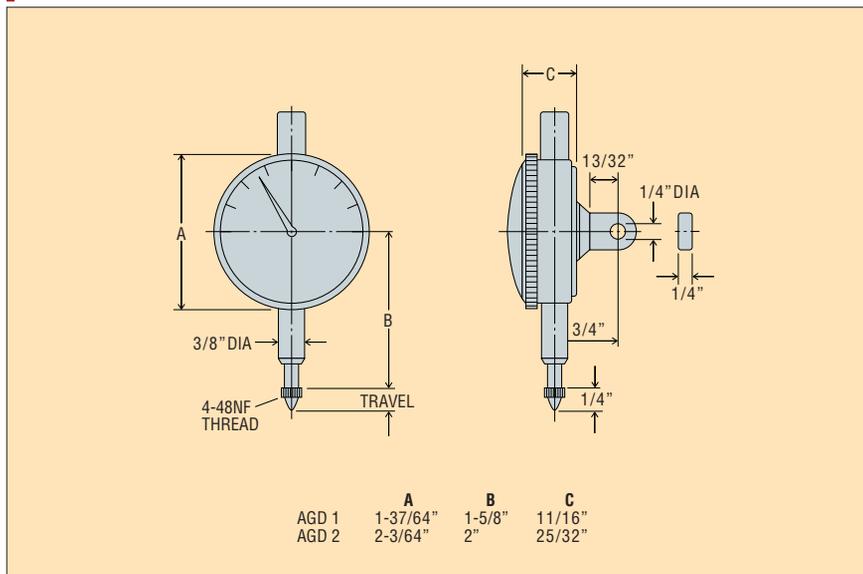
Inch Scale Dial Indicators



**1200**  
 Graduation: 0.001"  
 Range: 0.2"

- Lug back

### Dimensions



**1330**  
 Graduation: 0.001"  
 Range: 1.0"

- Lug back



**1330B**  
 Graduation: 0.001"  
 Range: 1.0"

- Lug back



**1310**  
 Graduation: 0.001"  
 Range: 0.50"

- Lug back



**1310B**  
 Graduation: 0.001"  
 Range: 0.50"

- Lug back

0.001"



**1364**  
Graduation: 0.001"  
Range: 2.0"  
● Lug back



**1364B**  
Graduation: 0.001"  
Range: 2.0"  
● Lug back



Inch Scale Dial Indicators

0.0001"



**1440**  
Graduation: 0.0001"  
Range: 0.05"  
● Lug back



**1440B**  
Graduation: 0.0001"  
Range: 0.05"  
● Lug back



**1460**  
Graduation: 0.0001"  
Range: 0.05"  
● Flat back



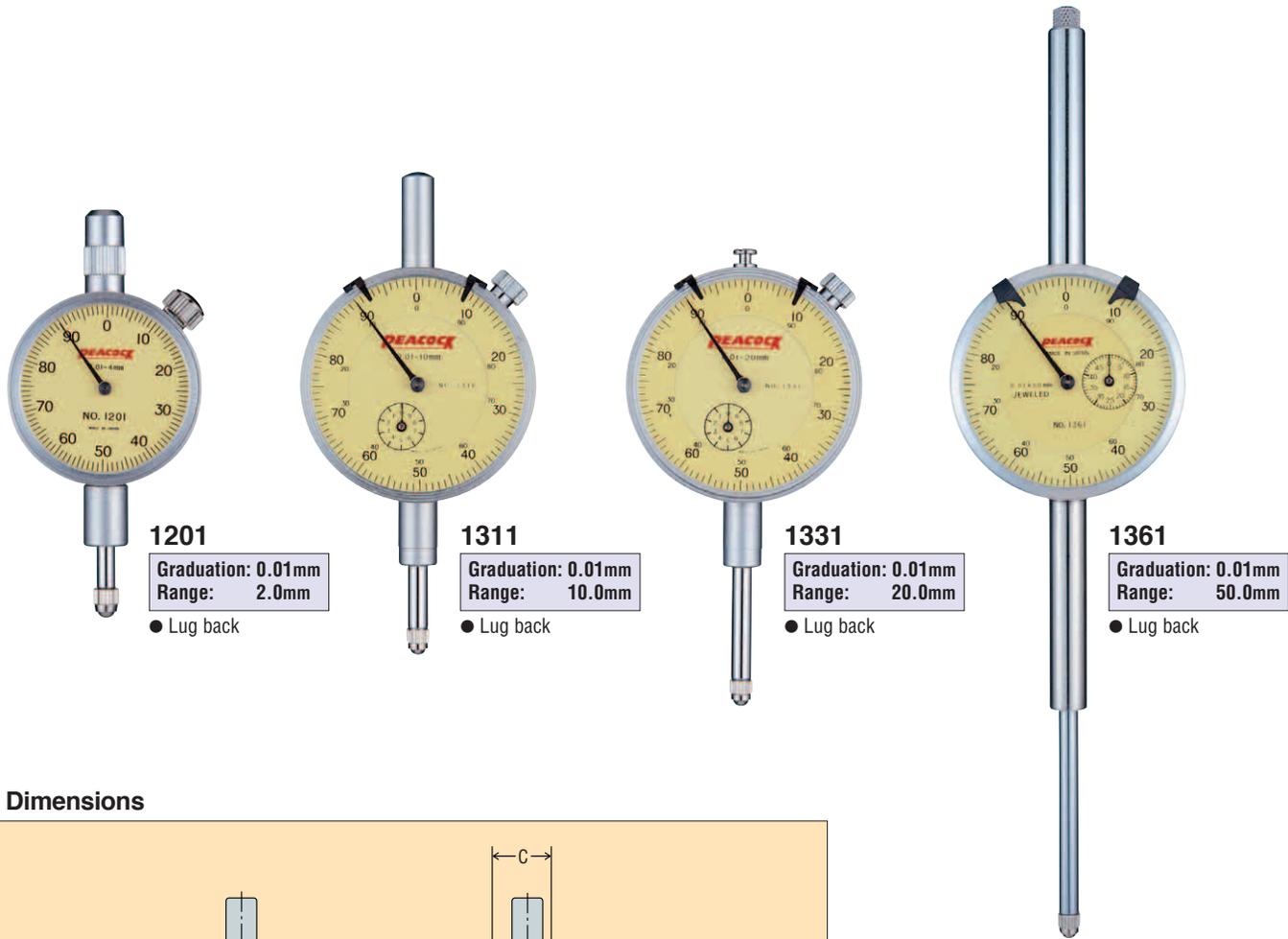
**1460B**  
Graduation: 0.0001"  
Range: 0.05"  
● Flat back

Specifications

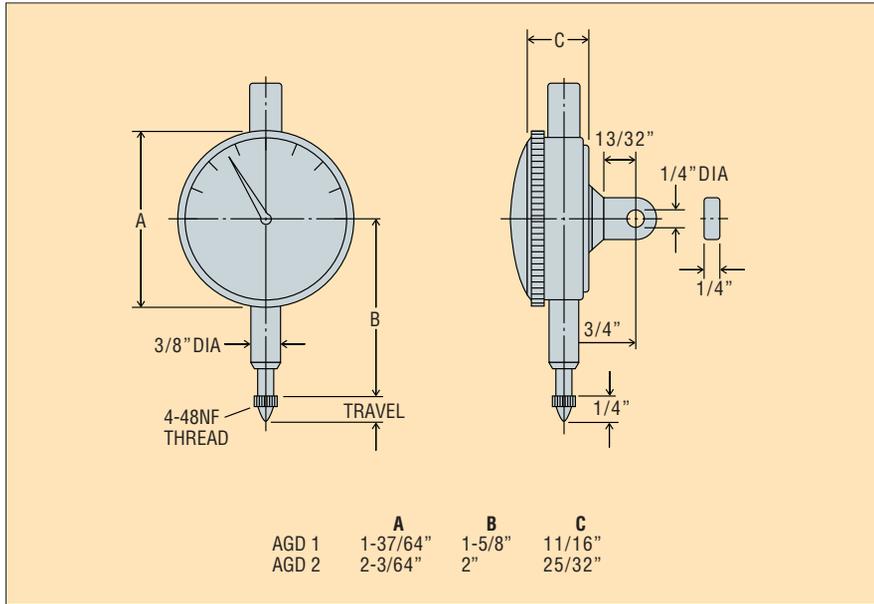
| White face Model No. | Black face Model No. | Measuring range | Graduation | Reading   | Wide range forward accuracy | Retrace error | Measuring force (less than) | Back Config. | AGD |
|----------------------|----------------------|-----------------|------------|-----------|-----------------------------|---------------|-----------------------------|--------------|-----|
| 1200                 |                      | .20"            | .001"      | ±0-50-100 | .001"                       | .0003"        | 1.4N                        | Lug          | 1   |
| 1330                 | 1330B                | 1.0"            | .001"      | ±0-50-100 | .002"                       | .0004"        | 2.0N                        | Lug          | 2   |
| 1310                 | 1310B                | .50"            | .001"      | ±0-50-100 | .001"                       | .0003"        | 1.8N                        | Lug          | 2   |
| 1364                 | 1364B                | 2.0"            | .001"      | ±0-50-100 | .005"                       | .0005"        | 2.5N                        | Lug          | 2   |
| 1440                 | 1440B                | .05"            | .0001"     | ±0-5-10   | .0003"                      | .0002"        | 1.5N                        | Lug          | 2   |
| 1460                 | 1460B                | .05"            | .0001"     | 0-5-0     | .0003"                      | .0002"        | 1.5N                        | Flat         | 2   |

# 4 Metric Graduations 0.01mm

Metric Graduations 0.01mm



## Dimensions



## Specifications

| Model No.   | Measuring range | Graduation | Reading   | Wide range forward accuracy | Retrace error | Measuring force (less than) | Back Config. | AGD |
|-------------|-----------------|------------|-----------|-----------------------------|---------------|-----------------------------|--------------|-----|
| <b>1201</b> | 4.0mm           | 0.01mm     | ±0-50-100 | 12 μm                       | 3 μm          | 1.4N                        | <b>Lug</b>   | 1   |
| <b>1311</b> | 10.0mm          | 0.01mm     | ±0-50-100 | 15 μm                       | 3 μm          | 1.4N                        | <b>Lug</b>   | 2   |
| <b>1331</b> | 20.0mm          | 0.01mm     | ±0-50-100 | 25 μm                       | 4 μm          | 2.2N                        | <b>Lug</b>   | 2   |
| <b>1361</b> | 50.0mm          | 0.01mm     | ±0-50-100 | 50 μm                       | 5 μm          | 2.5N                        | <b>Lug</b>   | 2   |

# Pic Test Indicators

- Auto-reversing.
- Comes complete with .038", .078", .125" dia hardchromed contact points, Clamping bars, wrench and three stems: 3/8", 1/4" and 5/32".
- 180° swing on point and shaft.
- Fully jeweled movements.
- White face models have black needles, numbers and graduations. Black face models have bright, fluorescent orange needles with white numbers and graduations.
- Dial diameter is 1-3/8".
- Universal positioning capability.
- Dovetails on top, back & front.
- Excellent rigid
- Non-magnetic

## Horizontal Type



**2000**  
Graduation: 0.0005"  
Range: 0.030"



**2000B**  
Graduation: 0.0005"  
Range: 0.030"



**2010**  
Graduation: 0.0001"  
Range: 0.008"



**2010B**  
Graduation: 0.0001"  
Range: 0.008"



**2030**  
Graduation: 0.0005"  
Range: 0.040"



**2030B**  
Graduation: 0.0005"  
Range: 0.040"



Inch Scale Pic Test Indicators

## Set Configurations

|                             |              |              |
|-----------------------------|--------------|--------------|
| <b>Contact points</b>       |              |              |
| $\phi$ 0.038                | $\phi$ 0.078 | $\phi$ 0.125 |
|                             |              |              |
| <b>Stems</b>                |              |              |
| 3/8"                        | 1/4"         | 5/32"        |
|                             |              |              |
| <b>Clamping bar, wrench</b> |              |              |
|                             |              |              |

## Specifications

| White face Model No. | Black face Model No. | Measuring range | Graduation | Reading | Wide range forward accuracy | Backward error | Measuring force (less than) | Contact point length |
|----------------------|----------------------|-----------------|------------|---------|-----------------------------|----------------|-----------------------------|----------------------|
| <b>2000</b>          | <b>2000B</b>         | .030"           | .0005"     | 0-15-0  | .0005"                      | .0003"         | 0.3N                        | .750"                |
| <b>2010</b>          | <b>2010B</b>         | .008"           | .0001"     | 0-4-0   | .0003"                      | .0002"         | 0.3N                        | .375"                |
| <b>2030</b>          | <b>2030B</b>         | .040"           | .0005"     | 0-20-0  | .0010"                      | .0003"         | 0.3N                        | 1.750"               |

# 4

## Vertical Type



**2050**  
Graduation: 0.0005"  
Range: 0.030"

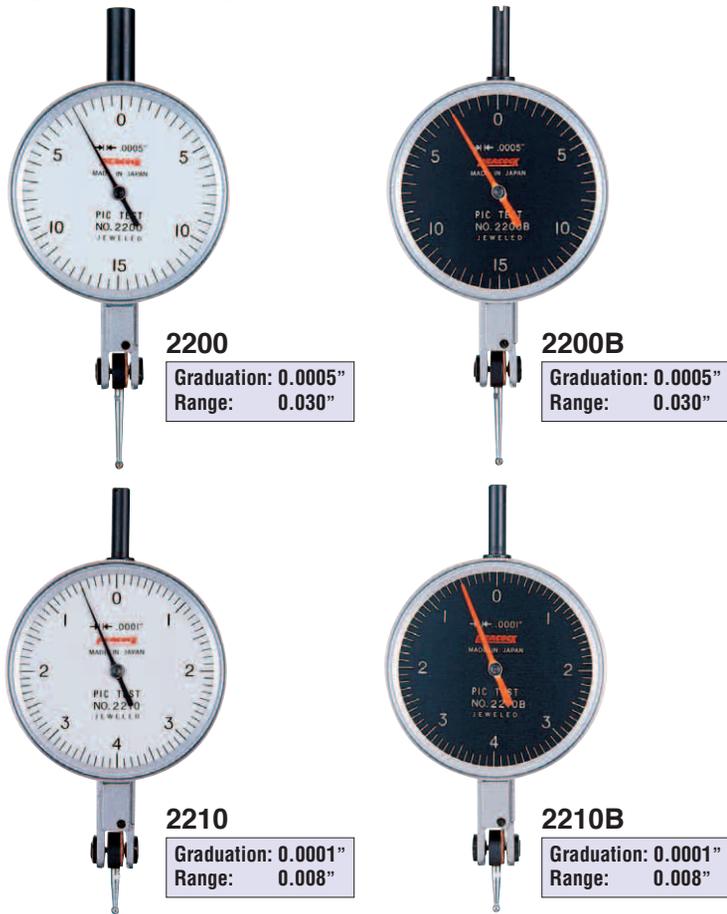
**2050B**  
Graduation: 0.0005"  
Range: 0.030"

**2060**  
Graduation: 0.0001"  
Range: 0.008"

**2060B**  
Graduation: 0.0001"  
Range: 0.008"

## Large Size Dial Face Type

The dial plate size of 2200, 2200B, 2210, and 2210B models has been enlarged, with easy reading due to the larger scale spacing, as a result.



**2200**  
Graduation: 0.0005"  
Range: 0.030"

**2200B**  
Graduation: 0.0005"  
Range: 0.030"

**2210**  
Graduation: 0.0001"  
Range: 0.008"

**2210B**  
Graduation: 0.0001"  
Range: 0.008"

## Set Configurations

**Contact points**

$\phi$  0.038       $\phi$  0.078       $\phi$  0.125

**Stems**

3/8"      1/4"      5/32"

**Clamping bar, wrench**

**Large Size Dial Face**

1-53/64"

## Specifications

| White face Model No. | Black face Model No. | Measuring range | Graduation | Reading | Wide range forward accuracy | Backward error | Measuring force (less than) | Contact point length |
|----------------------|----------------------|-----------------|------------|---------|-----------------------------|----------------|-----------------------------|----------------------|
| 2050                 | 2050B                | .030"           | .0005"     | 0-15-0  | .0005"                      | .0003"         | 0.3N                        | .750"                |
| 2060                 | 2060B                | .008"           | .0001"     | 0-4-0   | .0003"                      | .0002"         | 0.3N                        | .375"                |
| 2200                 | 2200B                | .030"           | .0005"     | 0-15-0  | .0005"                      | .0003"         | 0.3N                        | .750"                |
| 2210                 | 2210B                | .008"           | .0001"     | 0-4-0   | .0003"                      | .0002"         | 0.3N                        | .375"                |

# Dial Bore Gage Sets

- Each set includes a high quality ADG2 Dial indicator with .0001" graduations. High precision, combined with ultra smooth movement, makes this the set for the most demanding users.
- Set comes complete with protective cover and fitted case.
- For close tolerance measurements of hole sizes, ID taper dimensions and roundness.
- Each set includes a reference chart, clearly specifying Spacer and Feeler sizes, for each measurement range.



Inch Scale Dial Bore Gage Sets

5730 complete set



## Specifications

| White face Model No. | Black face Model No. | Range      | Wide range accuracy | Adjacent error | Repeated error | Length below Grip | Number of Feeler | Number of Spacer |
|----------------------|----------------------|------------|---------------------|----------------|----------------|-------------------|------------------|------------------|
| <b>5710</b>          | <b>5710B</b>         | .250-.400" | .0002"              | .00008"        | .00008"        | 1-31/32"          | 8                | —                |
| <b>5730</b>          | <b>5730B</b>         | .370-.750" | .0002"              | .00008"        | .00008"        | 3-15/16"          | 10               | 1                |
| <b>5740</b>          | <b>5740B</b>         | .750-1.50" | .0002"              | .00008"        | .00008"        | 5-29/32"          | 8                | 2                |
| <b>5750</b>          | <b>5750B</b>         | 1.50-2.50" | .0002"              | .00008"        | .00008"        | 5-29/32"          | 6                | 2                |
| <b>5770</b>          | <b>5770B</b>         | 2.00-6.00" | .0002"              | .00008"        | .00008"        | 5-29/32"          | 11               | 2                |
| <b>5790</b>          | <b>5790B</b>         | 6.00-10.0" | .0002"              | .00008"        | .00008"        | 9-29/32"          | 9                | 4                |



# 4

## Dial Thickness Gage

- Designed for quick and accurate measurement of small parts, sheet metal, paper, fabric, etc.
- Convenient, one-handed operation.
- Preloaded spindle for consistent measuring pressure.
- Adjustable zero setting with bezel.
- Baked enamel finish.
- Distinct, fine graduations for easy reading.
- Spindle made of hardened steel.



Inch Scale Dial Thickness Gages



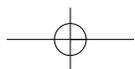
**4600**  
Graduation: 0.001"  
Range: 0.5"

### Specifications

| Model No | Range | Graduation | Throat depth | Accuracy | Measuring force (less than) |
|----------|-------|------------|--------------|----------|-----------------------------|
| 4600     | .50"  | .001"      | .78"         | .0010"   | 1.8N                        |



● For measuring thickness of paper



SECTION

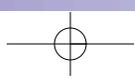
# 5

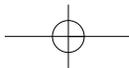


## Gauge Testers

- DGT-20G
- NB
- CCT-2

# 5





SINCE 1916  
**PEACOCK**

# 5

## Gauge Testers

### Dial Gauge Automatic Tester Model DGT-20G

When using a dial gauge, it is usually mounted on a jig for inspection. To perform its periodic inspection, it needs a lot of processes more than the other measuring instruments and further time-consuming troublesome works to graph the inspected results are required.

Model "DGT-20G" contributes to decrease such troublesome works extremely.

By only setting a pointer of dial gauge and just turning on a memory switch, gauge testing is automatically made. Everyone can use it with great ease.

#### 1 Easy operation

By only setting a pointer on the scale of dial gauge and just turning on a memory switch, measured data is processed by a micro-computer and its results are automatically printed out.

#### 2 Reducing eye strain

Only fix your eyes to a pointer of dial gauge!

Since you do not read the scale of a gauge tester, measurement for a long time will not tire your eyes.

#### 3 Reducing your inspection time extremely

It can reduce your inspection time from one third to one fifth shorter compared with the conventional method of inspection since this tester has no necessity of reading, recording, and judging the error values.

#### 4 High precision

Usual calibration is not necessary because of the optical glass scale capable of maintaining the stable accuracy with less aged deterioration. Stable inspection is possible because a spindle is not a revolutionary type but a straight one.

#### 5 Register function

Once the measuring range, pitch, and values for judgement are registered, speedy inspection can be done just by calling out these items. There include the items already registered by the maker (ROM) and the ones to be originally registered by users (RAM).

#### 6 Manual mode

Measuring items can be set by manual setting. It will be effective to inspect such a gauge that you do not usually use.



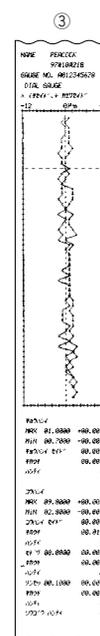
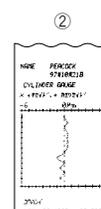
Gauge Testers

|   |   |   |
|---|---|---|
| <b>Lever-type Dial Gauge</b><br><ul style="list-style-type: none"> <li>● Reflective mirror</li> <li>● 6mm dia. holder for lever-type indicators (Standard accessory)</li> </ul> | <b>Back Plunger type Dial Gauge</b><br><ul style="list-style-type: none"> <li>● A holder for back plunger type indicators (Standard accessory)</li> </ul> | <b>Cylinder Gauge</b><br><ul style="list-style-type: none"> <li>● Adapter for cylinder gauges are optional</li> </ul> |
|    |    |                                   |

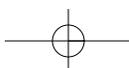


#### Line graph example

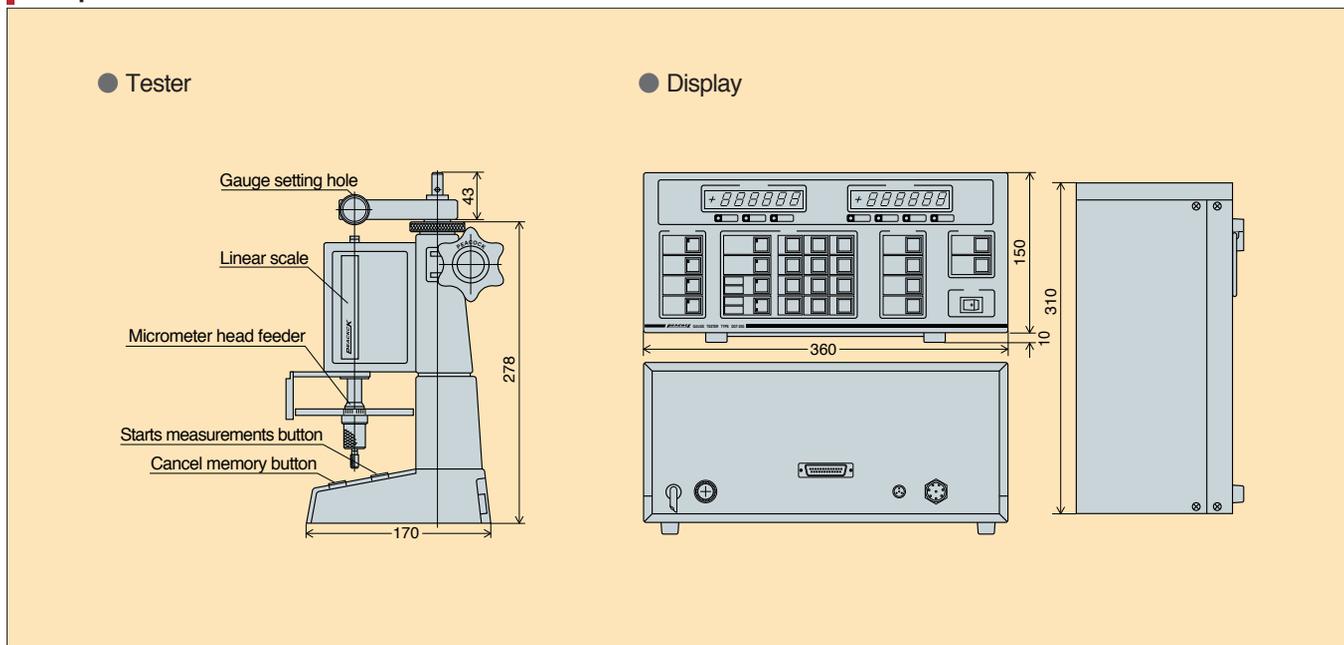
- ① Lever-type Dial Gauge
- ② Cylinder Gauge
- ③ Dial Gauge



※ Applicable gauges  
 Dial gauge (based on JIS B 7503)  
 Special type gauge (based on JIS B 7509)  
 Lever-type gauge (based on JIS B 7533)  
 Cylinder gauge (based on JIS B 7515)  
 All of these have to be typical Cylinder gauges with standard probe Depth.



**Component Names and Dimensions**



**Specifications**

| Model                 | DGT-20G  |  |                     |                    |           |         |           |       |          |       |      |             |        |      |
|-----------------------|--|--|---------------------|--------------------|-----------|---------|-----------|-------|----------|-------|------|-------------|--------|------|
| Measuring Range       | 0~20mm   |  |                     |                    |           |         |           |       |          |       |      |             |        |      |
| Resolution            | 0.2μm  |  |                     |                    |           |         |           |       |          |       |      |             |        |      |
| Accuracy              | ±1μm   |  |                     |                    |           |         |           |       |          |       |      |             |        |      |
| Standard Scale        | Incremental linear scale   |  |                     |                    |           |         |           |       |          |       |      |             |        |      |
| Feed Portion          | Micrometer head  |  |                     |                    |           |         |           |       |          |       |      |             |        |      |
| Display Portion       | ● Standard value ● Error value   |  |                     |                    |           |         |           |       |          |       |      |             |        |      |
| Applicable gauges     | ● Dial gauges (based on JIS B 7503)<br>● Lever-type gauges (based on JIS 7533)<br>● Cylinder gauges (based on JIS B 7515)  |  |                     |                    |           |         |           |       |          |       |      |             |        |      |
| Minimum pitch         | 1μm (0.5μm is impossible)  |  |                     |                    |           |         |           |       |          |       |      |             |        |      |
| Maximum input points  | 200 points   |  |                     |                    |           |         |           |       |          |       |      |             |        |      |
| Registered code       | 24 points  |  |                     |                    |           |         |           |       |          |       |      |             |        |      |
| User register code    | About 130 points (input by users)  |  |                     |                    |           |         |           |       |          |       |      |             |        |      |
| Selection of printing | ● Print all data ● Print only results ● Print line graphics  |  |                     |                    |           |         |           |       |          |       |      |             |        |      |
| Judgement             | By setting the values for judgement, NG value is printed in red letters.   |  |                     |                    |           |         |           |       |          |       |      |             |        |      |
| Display function      | Standard value is displayed on the left. Error value is displayed on the right.<br>(Narrow range, wide range, or return error is automatically switched.)  |  |                     |                    |           |         |           |       |          |       |      |             |        |      |
| Key input function    | Measuring date, measuring person, control number, code number (within ten characters)  |  |                     |                    |           |         |           |       |          |       |      |             |        |      |
| Preset function       | Measuring a long stroke gauge of 20 to 40 mm   |  |                     |                    |           |         |           |       |          |       |      |             |        |      |
| Recording paper       | Plain paper roll 57×φ50mm available in the market  |  |                     |                    |           |         |           |       |          |       |      |             |        |      |
| Power supply          | AC100V・AC220V ±10% 50/60Hz   |  |                     |                    |           |         |           |       |          |       |      |             |        |      |
| Standard accessories  | ● Attachment for lever-type dial gauge……………1 pc.<br>● Attachment for back plunger dial gauge……………1 pc.<br>● Mirror (for lever-type dial gauge, Back Plunger type Dial Gauges)……………1 pc.<br>● Connecting code 1 pc., recording paper 1 roll, ink ribbon |  |                     |                    |           |         |           |       |          |       |      |             |        |      |
| Options               | ● Attachment for cylinder gauge (DGT-CC)<br>● Attachment for back plunger dial gauge<br>● Panel in English, Line graph in inch<br>● Foot-switch (for memory)<br>● Storing data in a PC, development of software  |  |                     |                    |           |         |           |       |          |       |      |             |        |      |
| Data output           | ● Based on RS-232C output<br>● Transmit entire data upon test completion<br>● Connector D-Sub25P   | <table border="1"> <thead> <tr> <th>Transmission method</th> <th>Asynchronous style</th> </tr> </thead> <tbody> <tr> <td>baud rate</td> <td>4800Bps</td> </tr> <tr> <td>start bit</td> <td>1 bit</td> </tr> <tr> <td>stop bit</td> <td>1 bit</td> </tr> <tr> <td>code</td> <td>ASCII 8 bit</td> </tr> <tr> <td>parity</td> <td>none</td> </tr> </tbody> </table> | Transmission method | Asynchronous style | baud rate | 4800Bps | start bit | 1 bit | stop bit | 1 bit | code | ASCII 8 bit | parity | none |
| Transmission method   | Asynchronous style   |  |                     |                    |           |         |           |       |          |       |      |             |        |      |
| baud rate             | 4800Bps  |  |                     |                    |           |         |           |       |          |       |      |             |        |      |
| start bit             | 1 bit  |  |                     |                    |           |         |           |       |          |       |      |             |        |      |
| stop bit              | 1 bit  |  |                     |                    |           |         |           |       |          |       |      |             |        |      |
| code                  | ASCII 8 bit  |  |                     |                    |           |         |           |       |          |       |      |             |        |      |
| parity                | none   |  |                     |                    |           |         |           |       |          |       |      |             |        |      |

**5**

# Gauge Tester

## ( Dial Indicator Testing Equipment )

### Dial Gauge Tester Model NB

- This is a calibration tester having a high precision micrometer with the minimum scale of 1  $\mu$  m. It can be used in order to calibrate dial gauges as well as other displacement gauges.
- The stacion is vertically adjustable according to the type of gauges and reading is done while looking at the scale plate and the cursor line.



Gauge Tester

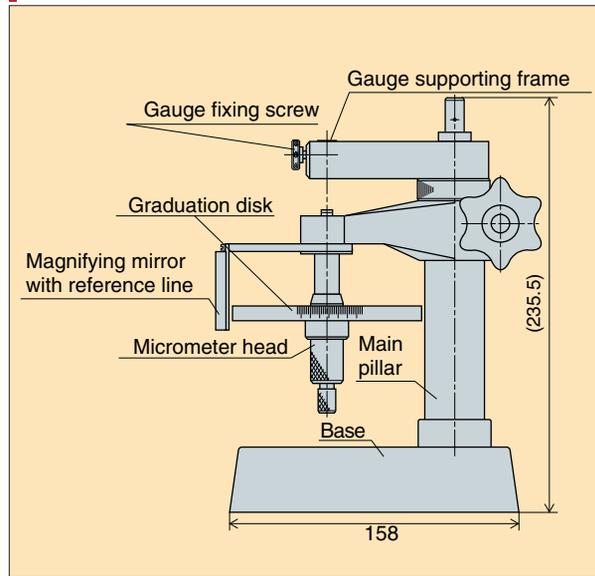
● **Lever-type dial gauge**



● **Back plunger type dial gauge**



**Component Names**



**Specifications**

| Model     | Micrometer head   |                        | Forward Accuracy ( $\mu$ m) | Feed per revolution (mm) | Spindle tip  | Gauge fixing dimension (mm) |
|-----------|-------------------|------------------------|-----------------------------|--------------------------|--------------|-----------------------------|
|           | Graduation (mm)   | Measurement Range (mm) |                             |                          |              |                             |
| <b>NB</b> | 0.001 (1 $\mu$ m) | 20                     | under $\pm 1$               | 0.5/rev.                 | Carbide chip | 8mm dia. 10mm dia.          |

# Gauge Tester

( Cylinder Gauge Testing Equipment )

## Cylinder Gauge Tester Model CCT-2

- This is a calibration tester used exclusively for cylinder gauges having a high precision micrometer with the minimum scale of 1  $\mu$  m.
- An outer cylinder is held erectly so that deflection may not affect the measurements and a center rod for pressing is provided on the moving bed in order to prevent from errors due to the difference of measuring force.



Gauge Tester

● Inspection of dial gauges is also possible.

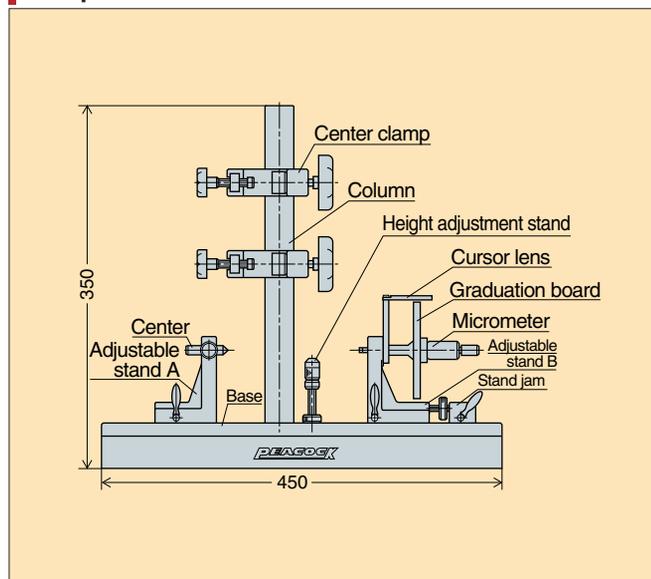


### Cylinder gauges to be possibly inspected

- All the cylinder gauges of JIS B 7515 Standards
- All the CC and CG models of "PEACOCK"

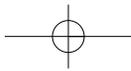
|                |                |                  |                  |
|----------------|----------------|------------------|------------------|
| $\phi$ 6~10mm  | $\phi$ 18~35mm | $\phi$ 50~100mm  | $\phi$ 160~250mm |
| $\phi$ 10~18mm | $\phi$ 35~60mm | $\phi$ 100~160mm | $\phi$ 250~400mm |

### Component Names



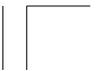
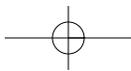
### Specifications

| Model        | Micrometer head |                        | Forward Accuracy ( $\mu$ m) | Feed per revolution (mm) | Spindle tip  |
|--------------|-----------------|------------------------|-----------------------------|--------------------------|--------------|
|              | Graduation (mm) | Measurement Range (mm) |                             |                          |              |
| <b>CCT-2</b> | 0.001           | 20                     | under $\pm 1$               | 0.5/rev.                 | Carbide chip |



# MEMO

A series of horizontal blue dotted lines for writing, spanning the width of the page.



SECTION

# 6



## Thickness Gauges

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

# 6 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

- $\phi$  10mm flat contact point and anvil (Ceramic)



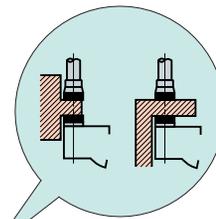
**G-0.4N**  
Graduation: 0.01mm  
Range: 0~10mm

- Measuring force initial pressure 0.4N



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

- Measuring force final pressure 2.4N



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



Dial Thickness Gauges



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

- $\phi$  20mm flat contact point and anvil (Metal)



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

- $\phi$  30mm flat contact point and anvil (Metal)



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

- $\phi$  5mm flat contact point and anvil (Metal)



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

- $\phi$  6mm flat contact point and anvil (Metal)



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

- $\phi$  10mm flat contact point and anvil (Ceramic)



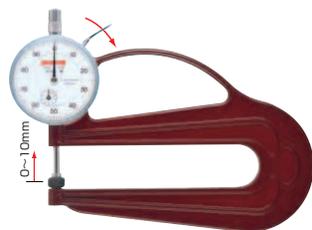
**G-3**  
Graduation: 0.01mm  
Range: 30mm

- $\phi$  10mm flat contact point and anvil (Ceramic)
- Anvil side is adjustable



**G-4**  
Graduation: 0.01mm  
Range: 65mm

- Spherical contact point
- Anvil side is adjustable



**H**  
Graduation: 0.01mm  
Range: 0~10mm

●  $\phi$  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

●  $\phi$  20mm flat contact point and anvil (Metal)



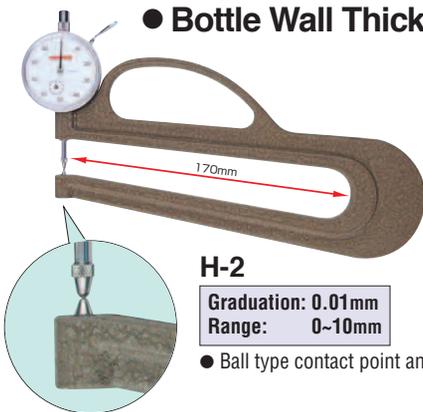
**H-30**  
Graduation: 0.01mm  
Range: 0~10mm

●  $\phi$  30mm flat contact point and anvil (Metal)



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

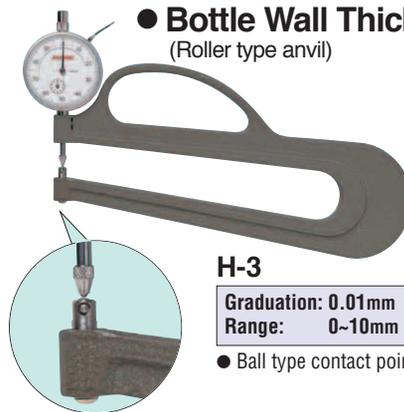
●  $\phi$  5mm flat contact point and anvil (Metal)



● **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



Dial Thickness Gauge

**Specifications**

| Model        | Graduation (mm) | Range (mm) | Throat depth (mm) | Accuracy ( $\mu$ m) | Contact Point |                        | Measuring force less than(N) |
|--------------|-----------------|------------|-------------------|---------------------|---------------|------------------------|------------------------------|
|              |                 |            |                   |                     | Dia (mm)      | Parallelism ( $\mu$ m) |                              |
| <b>G</b>     | 0.01            | 0~10       | 20                | $\pm$ 20            | 10            | 5                      | 1.8                          |
| <b>G-MT</b>  | 0.01            | 0~10       | 20                | $\pm$ 20            | 10 (Metal)    | 5                      | 1.8                          |
| <b>G-1A</b>  | 0.01            | 0~10       | 20                | $\pm$ 20            | 5             | 5                      | 1.8                          |
| <b>G-1M</b>  | 0.01            | 0~10       | 20                | $\pm$ 20            | 6             | 5                      | 1.8                          |
| <b>G-2</b>   | 0.01            | 0~20       | 33                | $\pm$ 22            | 10            | 5                      | 2.0                          |
| ※ <b>G-3</b> | 0.01            | 30         | 20                | $\pm$ 20            | 10            | 5                      | 1.8                          |
| ※ <b>G-4</b> | 0.01            | 65         | 30                | $\pm$ 20            | Spherical     | —                      | 1.8                          |
| <b>G-20</b>  | 0.01            | 0~10       | 20                | $\pm$ 20            | 20 (Metal)    | 15                     | 1.8                          |
| <b>G-30</b>  | 0.01            | 0~10       | 20                | $\pm$ 20            | 30 (Metal)    | 20                     | 1.8                          |
| <b>H</b>     | 0.01            | 0~10       | 120               | $\pm$ 20            | 10            | 5                      | 1.8                          |
| <b>H-MT</b>  | 0.01            | 0~10       | 120               | $\pm$ 20            | 10 (Metal)    | 5                      | 1.8                          |
| <b>H-1A</b>  | 0.01            | 0~10       | 120               | $\pm$ 20            | 5             | 5                      | 1.8                          |
| <b>H-2</b>   | 0.01            | 0~10       | 170               | $\pm$ 20            | Ball type     | —                      | 1.8                          |
| <b>H-3</b>   | 0.01            | 0~10       | 170               | $\pm$ 20            | Ball type     | —                      | 1.8                          |
| <b>H-20</b>  | 0.01            | 0~10       | 120               | $\pm$ 20            | 30 (Metal)    | 20                     | 1.8                          |
| <b>H-30</b>  | 0.01            | 0~10       | 120               | $\pm$ 20            | 30 (Metal)    | 20                     | 1.8                          |

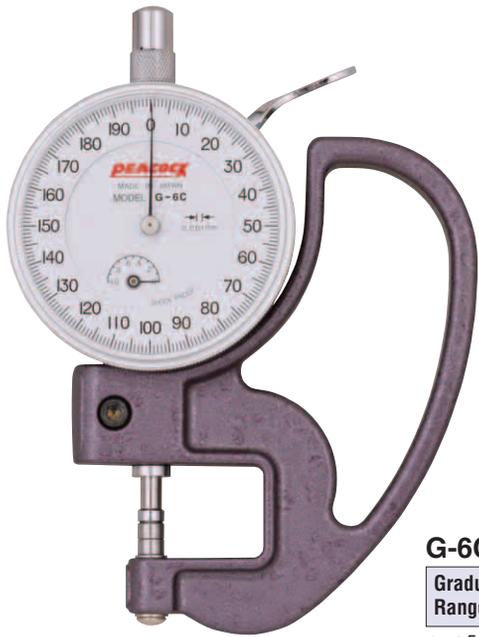
※ G-3/G-4 : Measuring range of dial gauge is 10mm.



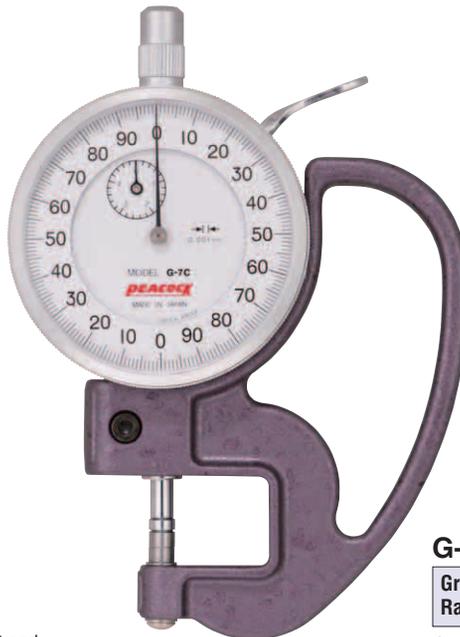
# Dial Thickness Gauges

## 6 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  
 ●  $\phi$  5mm flat contact point and anvil (Metal)



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

### Specifications

| Model | Graduation (mm) | Range (mm) | Throat depth (mm) | Accuracy ( $\mu$ m) | Contact Point |                        | Measuring force less than (N) |
|-------|-----------------|------------|-------------------|---------------------|---------------|------------------------|-------------------------------|
|       |                 |            |                   |                     | Dia (mm)      | Parallelism ( $\mu$ m) |                               |
| G-6C  | 0.001           | 0~1        | 20                | $\pm$ 5             | 5             | 3                      | 1.8                           |
| G-7C  | 0.001           | 0~5        | 20                | $\pm$ 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 ( $\mu$ m) | Contact Point |                        |
|-------|-----------------|------------|-------------------|---------------------|---------------|------------------------|
|       |                 |            |                   |                     | Dia (mm)      | Parallelism ( $\mu$ m) |
| Q-1   | 0.05            | 0~25       | 30                | $\pm$ 100           | 5.5           | 10                     |



Dial Thickness Gauges / Dial Swift Gauge

# Pearl Scale

**Handy Size:** “Pearl Scale” is compact and light.

It is so handy that you can either hang it from your neck or carry it in a pocket.

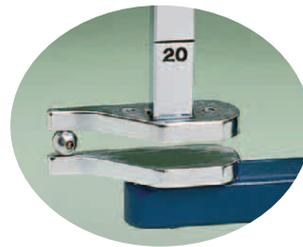
**Easy Measurement:** You can measure size or thickness of an object you want to measure, just by holding it between a contact point and anvil, and pressing a knob lightly by your finger. A division of scale shows 0.1mm, and you can measure up to 20mm by this gauge.



**PS-1**  
Graduation: 0.1mm  
Range: 20mm



A knob is up when a gauge is released. You only have to press a knob to make a quick measurement.



Since the tips of contact point and anvil are narrowed, you can hold even a small object by your fingers for measurement.



Since the back of gauge is flat, you can measure an object, while laying your gauge on a desk or table.



With 0.1mm graduation of a gauge, you can easily read measured values, which makes your work more efficient.



Pearl Scale / Snap Calipers

# Snap Calipers

- Easy measurement of thickness, outer diameter, inner diameter and depth.
- Handy size with excellent functions.
- Minimum reading : 0.1mm.

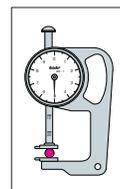


**EG-1**  
for measurement of inner diameter and outer diameter.

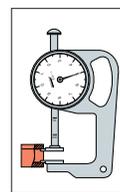
Graduation: 0.1mm  
Measurement of thickness: 0-20mm  
Measurement of inner diameter: 3-23mm  
Measurement of depth: 0-20mm  
(※EG-2 only)



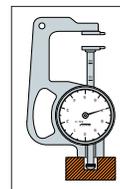
**EG-2**  
for measurement of inner diameter, outer diameter and depth.



To measure thickness and diameter of balls.



To measure groove width and inner diameter.

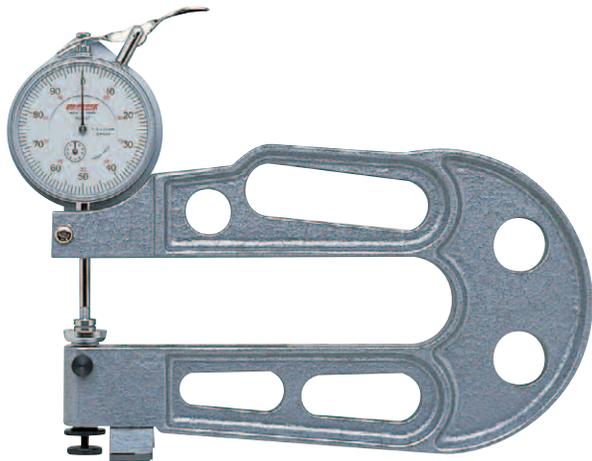


To measure depth and step depth. (EG-2 only.)

6

# Dial Thickness Gauges (Large type)

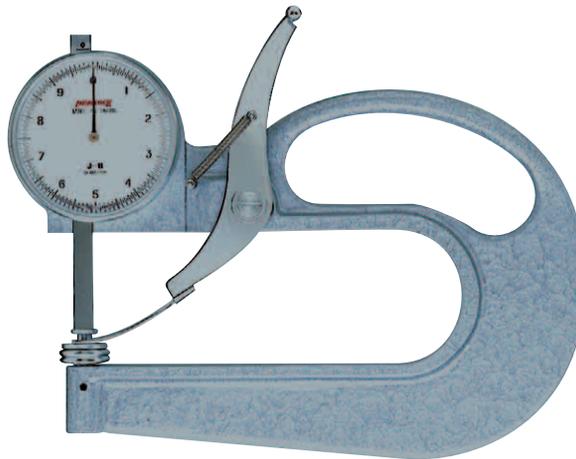
These large thickness gauges having extended throat depth to measure at the center of wide sheets.



**J-A**

Graduation: 0.01mm  
Range: 0~20mm

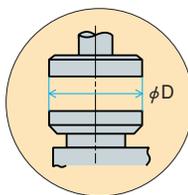
- The gauge sits by stand
- $\phi$  10mm flat contact point and  $\phi$  20mm anvil (Metal)



**J-B**

Graduation: 0.05mm  
Range: 0~35mm

- $\phi$  20mm flat contact point and anvil (Metal)



**Custom order available**

Optional  $\phi$  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 ( $\mu$ m) | Contact Point |                        | Measuring force less than (N) |
|-------|-----------------|------------|-------------------|---------------------|---------------|------------------------|-------------------------------|
|       |                 |            |                   |                     | Dia (mm)      | Parallelism ( $\mu$ 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                           |



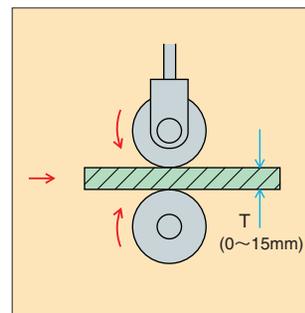
Dial Thickness Gauge (Large type) / (Roller type)

# 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 ( $\mu$ m) | Roller contact points |            |                        | Measuring force less than (N) |
|-------|-----------------|------------|-------------------|---------------------|-----------------------|------------|------------------------|-------------------------------|
|       |                 |            |                   |                     | OD (mm)               | Width (mm) | Parallelism ( $\mu$ 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

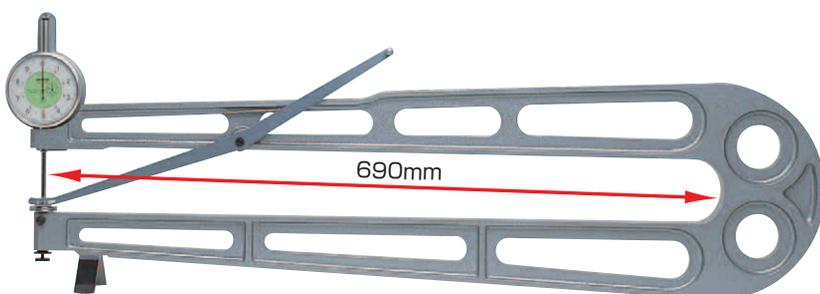
- φ 10mm flat contact point and φ 20mm anvil (Metal)



K-4

Graduation: 0.05mm  
Range: 0~50mm

- φ 25mm flat contact point and anvil (Metal)



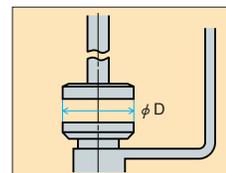
K-7 (Production on request)

Graduation: 0.05mm  
Range: 0~50mm

- φ 30mm 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).



Dial Sheet Gauges

### Specifications

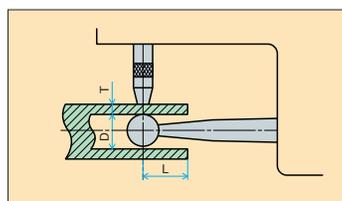
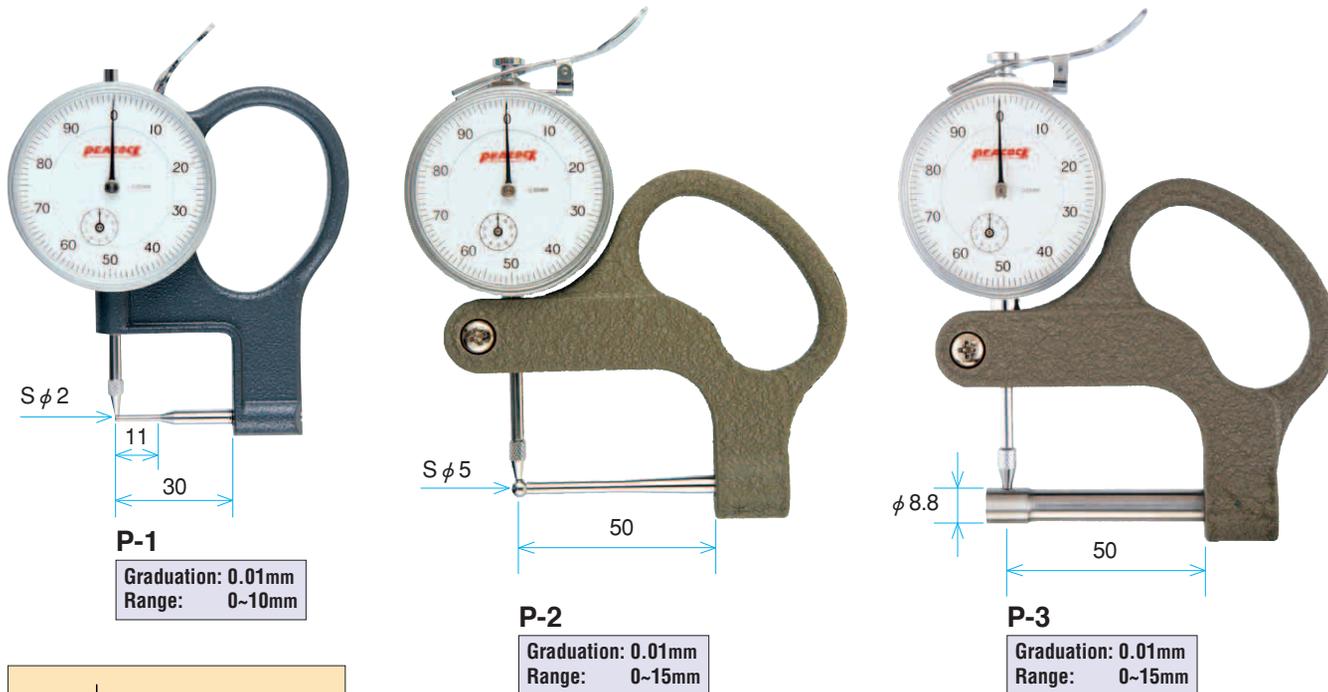
| Model | Graduation (mm) | Range (mm) | Throat depth (mm) | Accuracy (μm) | Contact Point |                  | Measuring force less than (N) |
|-------|-----------------|------------|-------------------|---------------|---------------|------------------|-------------------------------|
|       |                 |            |                   |               | Dia (mm)      | Parallelism (μm) |                               |
| K-1   | 0.01            | 0~20       | 300               | ±22           | 10            | 10               | 2.0                           |
| K-2   | 0.05            | 0~35       | 300               | ±100          | 20            | 25               | 3.0                           |
| K-3   | 0.01            | 0~20       | 500               | ±22           | 10            | 10               | 3.0                           |
| K-4   | 0.05            | 0~50       | 500               | ±100          | 25            | 25               | 3.0                           |
| K-7   | 0.05            | 0~50       | 690               | ±100          | 30            | 25               | 3.0                           |

※ Model K-7 is production on request.

# 6

## Dial Pipe Gauges

Special gauges for measuring wall thickness of pipes.

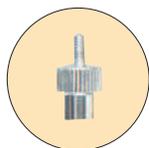


### Specifications

| Model | Graduation (mm) | Range (mm) | Accuracy ( $\mu\text{m}$ ) | Pipe size measurable (mm) |                          |         | Measuring force less than (N) |
|-------|-----------------|------------|----------------------------|---------------------------|--------------------------|---------|-------------------------------|
|       |                 |            |                            | Minimum bore D            | Maximum wall thickness T | Depth L |                               |
| P-1   | 0.01            | 0~10       | $\pm 20$                   | 2.5                       | 10                       | 10      | 1.8                           |
| P-2   | 0.01            | 0~15       | $\pm 22$                   | 5.1                       | 15                       | 50      | 1.8                           |
| P-3   | 0.01            | 0~15       | $\pm 22$                   | 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.



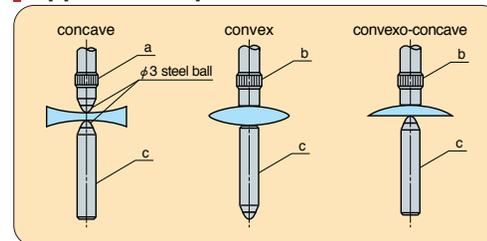
Replaceable Flat contact point (Standard accessory)



### GL

Graduation: 0.01mm  
Range: 10mm

### Applied examples



### Specifications

| Model | Graduation (mm) | Range (mm) | Accuracy ( $\mu\text{m}$ ) | Throat depth (mm) | maximum lens diameter measurable (mm) | maximum lens thickness measurable (mm) | Measuring force less than (N) |
|-------|-----------------|------------|----------------------------|-------------------|---------------------------------------|--|-------------------------------|
| GL    | 0.01            | 10         | $\pm 20$                   | 30                | $\phi 59$                             | ※ 20                                   | 1.8                           |

※ Anvil side is adjustable.

# Dial Thickness Gauge (Special Order)

**● Snap type**  
(Spindle is manually pushed down)

**● Lever type (example of use)**

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.

**● 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**

- ① Both Contact Point and Anvil needle type**  
Please specify  $\phi D$
- ② Both Contact Point and Anvil ball type**  
S  $\phi 2.4$
- ③ Both Contact Point and Anvil are 20mm diameter flat type**  
(also available in  $\phi 25$  and  $30\text{mm}$ )  
Please specify D
- ④ Both Contact Point and Anvil are horizontal blade type**  
Please specify  $\phi D$  and thickness.
- ⑤ Both Contact Point and Anvil are vertical blade type**  
Please specify  $\phi D$  and thickness.
- ⑥ Needle type Contact Point and Flat type Anvil.**  
D = 10mm diameter  
(also available in  $\phi 20$ , 25 and 30mm)
- ⑦ Ball type Contact Point and Flat type Anvil.**  
D = 10mm diameter  
(also available in  $\phi 20$ , 25 and 30mm)



Dial Thickness Gauge (Special Order)

## 6

# 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.



Dial Upright Gauges

**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

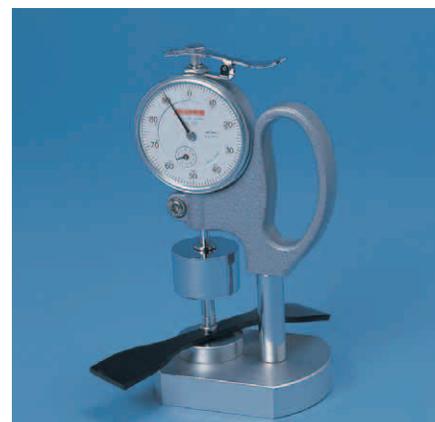
| Model | Dial Indicator (standard attachments) |            |                 | Indication error (μm) | Table diameter (mm) | Contact point dia. (mm) | Measuring force less than (N) | Measuring depth (mm) | Effective measuring range(mm) | Total height (mm) |
|-------|---------------------------------------|------------|-----------------|-----------------------|---------------------|-------------------------|-------------------------------|----------------------|-------------------------------|-------------------|
|       | 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)

6

- 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   | <b>FFG-1</b>  |
| Polyethylene package film  | Z1702   | <b>FFG-1</b>  |
| Ethylene film  | K6783   | <b>FFG-1</b>  |
| Polyvinyl chloride film  | K6732   | <b>FFG-2</b>  |
| Leather  | K6328   | <b>FFG-4</b>  |
| Vulcanized rubber / Thermoplastic rubber (Hardness 35IRHD less)    | K6250A  | <b>FFG-5</b>  |
| Vulcanized rubber / Thermoplastic rubber (Hardness 35IRHD less)    | K6250A  | <b>FFG-6</b>  |
| Vulcanized rubber / Thermoplastic rubber (Hardness 35IRHD more)    | K6250A  | <b>FFG-7</b>  |
| Vulcanized rubber / Thermoplastic rubber (Hardness 35IRHD more)    | K6250A  | <b>FFG-8</b>  |
| Urethane form  | K6402   | <b>FFG-9</b>  |
| Common fabric (basic / fuzzy material)                             | L1096   | <b>FFG-11</b> |
| Adhesive interlined cloth (common weave / common knit / non-woven) | L1086   | <b>FFG-11</b> |
| Stockinet (common knit)  | L1018   | <b>FFG-11</b> |
| Unwoven / interlined cloth   | L1085   | <b>FFG-12</b> |
| Adhesive interlined cloth (non-woven)                              | L1086   | <b>FFG-12</b> |



Constant Pressure Thickness Gauges (Special Order)

### 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) |
|---------------|-----------------|------------|-----------------------|-------------------|----------------------------|-----------------|----------------------------------|------------------|
| <b>FFG-1</b>  | 0.001           | 2          | ±10                   | 24                | 5                          | 30              | 1.25±0.15<br>(125±15)            | 5                |
| <b>FFG-2</b>  | 0.001           | 2          | ±10                   | 24                | 5                          | 30              | less than 0.8<br>(less than 80)  | 5                |
| <b>FFG-4</b>  | 0.01            | 10         | ±22                   | 24                | 10                         | 30              | less than 0.8<br>(less than 80)  | 7                |
| <b>FFG-5</b>  | 0.01            | 7          | ±22                   | 24                | 5 (19.625mm <sup>2</sup> ) | 30              | 0.2±0.04<br>(20±4)               | 5                |
| <b>FFG-6</b>  | 0.01            | 10         | ±22                   | 24                | 8 (50.24mm <sup>2</sup> )  | 30              | 0.51±0.1<br>(51±10)              | 7                |
| <b>FFG-7</b>  | 0.01            | 10         | ±22                   | 24                | 5 (19.625mm <sup>2</sup> ) | 30              | 0.44±0.1<br>(44±10)              | 5                |
| <b>FFG-8</b>  | 0.01            | 10         | ±22                   | 24                | 8 (50.24mm <sup>2</sup> )  | 30              | 1.13±0.26<br>(113±26)            | 7                |
| <b>FFG-9</b>  | 0.01            | 10         | ±22                   | 24                | 35.7 (10cm <sup>2</sup> )  | 40              | less than 0.37<br>(less than 37) | 25               |
| <b>FFG-11</b> | 0.01            | 10         | ±22                   | 24                | 25.2 (5cm <sup>2</sup> )   | 30              | less than 0.35<br>(less than 35) | 20               |
| <b>FFG-12</b> | 0.01            | 10         | ±22                   | 24                | 16 (2cm <sup>2</sup> )     | 30              | less than 0.4<br>(less than 40)  | 15               |

## 6

# Constant Pressure Thickness Gauges (Order)

## Stand type FFA series



FFA-8

| 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-11        |
| Stockinet (common knit)  | L1018   | FFA-11        |
| Unwoven / interlined cloth   | L1085   | FFA-12        |
| Adhesive interlined cloth (non-woven)                              | L1086   | FFA-12        |
| Tensile properties of plastics                                     | L7113   | FFA-13        |

### Specifications

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

## Digital type FFD series (with data output)



Printer PDP-1N  
(using by connection cable KB-P12)



FFD-3

| 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                                     | L7113   | FFD-13        |



Constant Pressure Thickness Gauges (Special Order)

### 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           | *1      | *2           | *3          | 55                | 5                          | 40              | 1.25±0.15<br>(125±15)             | 5                |
| FFD-2  | 20         | ±4                    | 0.001           |         |              |             | 55                | 5                          | 40              | less than 0.8<br>(less than 80)   | 5                |
| FFD-3  | 20         | ±20                   | 0.01            |         |              |             | 55                | 10                         | 50              | 3.93±0.1<br>(393±10)              | 10               |
| FFD-4  | 20         | ±20                   | 0.01            |         |              |             | 55                | 10                         | 50              | less than 0.8<br>(less than 80)   | 7                |
| FFD-6  | 20         | ±20                   | 0.01            |         |              |             | 55                | 8 (50.24mm <sup>2</sup> )  | 50              | 0.51±0.1<br>(51±10)               | 7                |
| FFD-7  | 20         | ±20                   | 0.01            |         |              |             | 55                | 5 (19.625mm <sup>2</sup> ) | 50              | 0.44±0.1<br>(44±10)               | 5                |
| FFD-8  | 20         | ±20                   | 0.01            |         |              |             | 55                | 8 (50.24mm <sup>2</sup> )  | 50              | 1.13±0.26<br>(113±26)             | 7                |
| FFD-10 | 20         | ±20                   | 0.01            |         |              |             | 55                | 11.3 (1cm <sup>2</sup> )   | 50              | less than 2.4<br>(less than 240)  | 10               |
| FFD-13 | 20         | ±20                   | 0.01            |         |              |             | 55                | 10 (78.5mm <sup>2</sup> )  | 50              | less than 1.57<br>(less than 157) | 7                |

\*1. LED display For 0.001mm 5digit For 0.01mm 4 digit

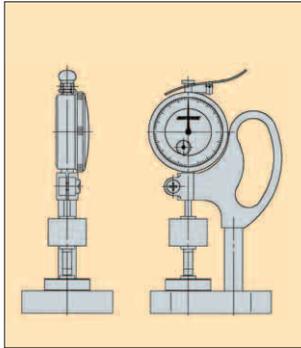
\*2. AC Adapter (120V or 240V)

\*3. BCD (dynamic) negative logic open collector.

## 6

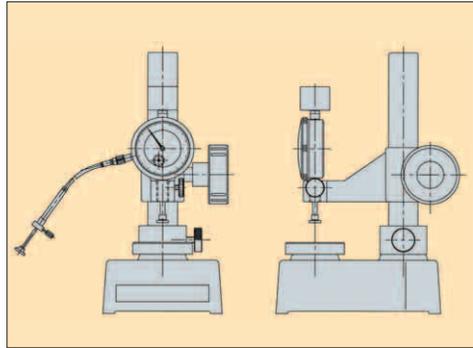
# Special Order Available

## FFG Series



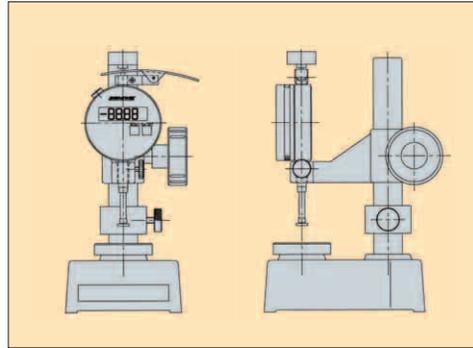
Handy type

## 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:

---



SECTION  
**7**

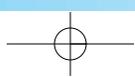


## Dial Caliper Gauges

- LA Series -Outside-
- LB Series -Inside-



**7**



# 7 Dial Calipers

## LA series (Outside measuring of ODs and thicknesses)

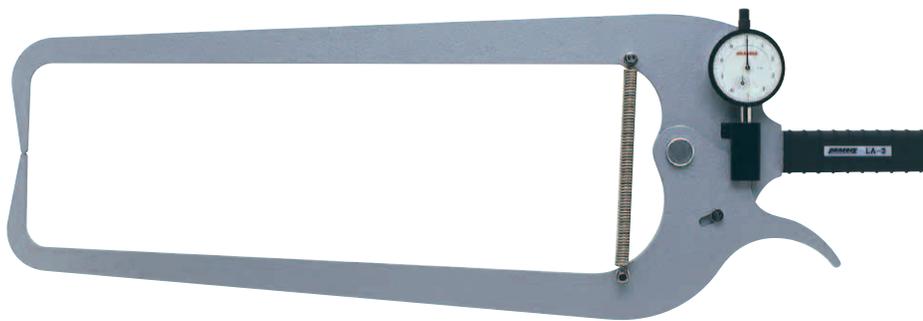
The dial caliper gauge show its great power in measurement of inside and outside sizes, wall thickness, groove width and hole diameters and any other shapes and sections that is not apparently accessible.



**LA-1**  
Graduation: 0.1mm  
Range: 0~80mm  
Throat depth: 120mm



**LA-2**  
Graduation: 0.1mm  
Range: 0~80mm  
Throat depth: 240mm



**LA-3**  
Graduation: 0.1mm  
Range: 0~80mm  
Throat depth: 400mm



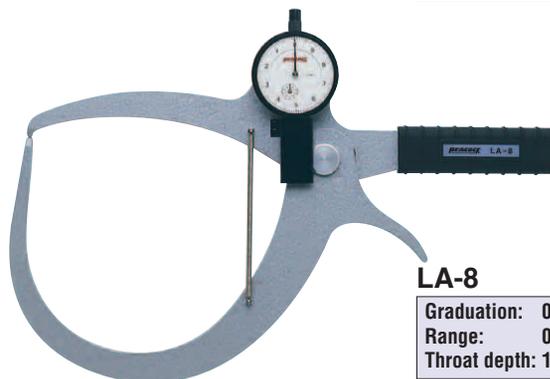
**LA-4**  
Graduation: 0.05mm  
Range: 0~50mm  
Throat depth: 90mm



**LA-5**  
Graduation: 0.05mm  
Range: 0~50mm  
Throat depth: 150mm



**LA-6**  
Graduation: 0.01mm  
Range: 0~10mm  
Throat depth: 60mm



**LA-8**  
Graduation: 0.1mm  
Range: 0~80mm  
Throat depth: 130mm



Dial Calipers

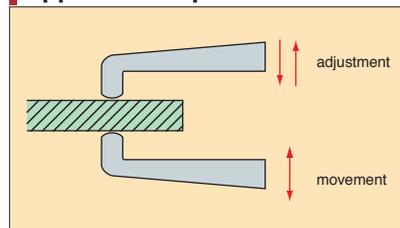


**LA-7**

Graduation: 0.01mm  
Range: 0~60mm  
Throat depth: 85mm

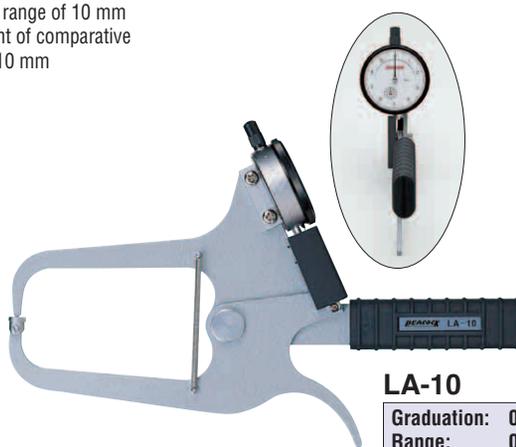
- Adjustable frame
- The LA-7 can measure an absolute value in a measuring range of 10 mm
- It allows measurement of comparative values in more than 10 mm

**Applied Example - outside -**



**LA-9**

Graduation: 0.1mm  
Range: 0~30mm  
Throat depth: 100mm



**LA-10**

Graduation: 0.01mm  
Range: 0~20mm  
Throat depth: 100mm

- The tip of the bottom frame  $\phi$ 10mm Flat Rocking Contact Point.



Dial Calipers

Note: Throat Depth is changed by Measuring Range.  
Contact us more detailed information.

**Ex. LA-13**

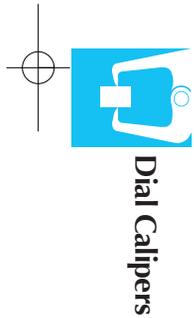
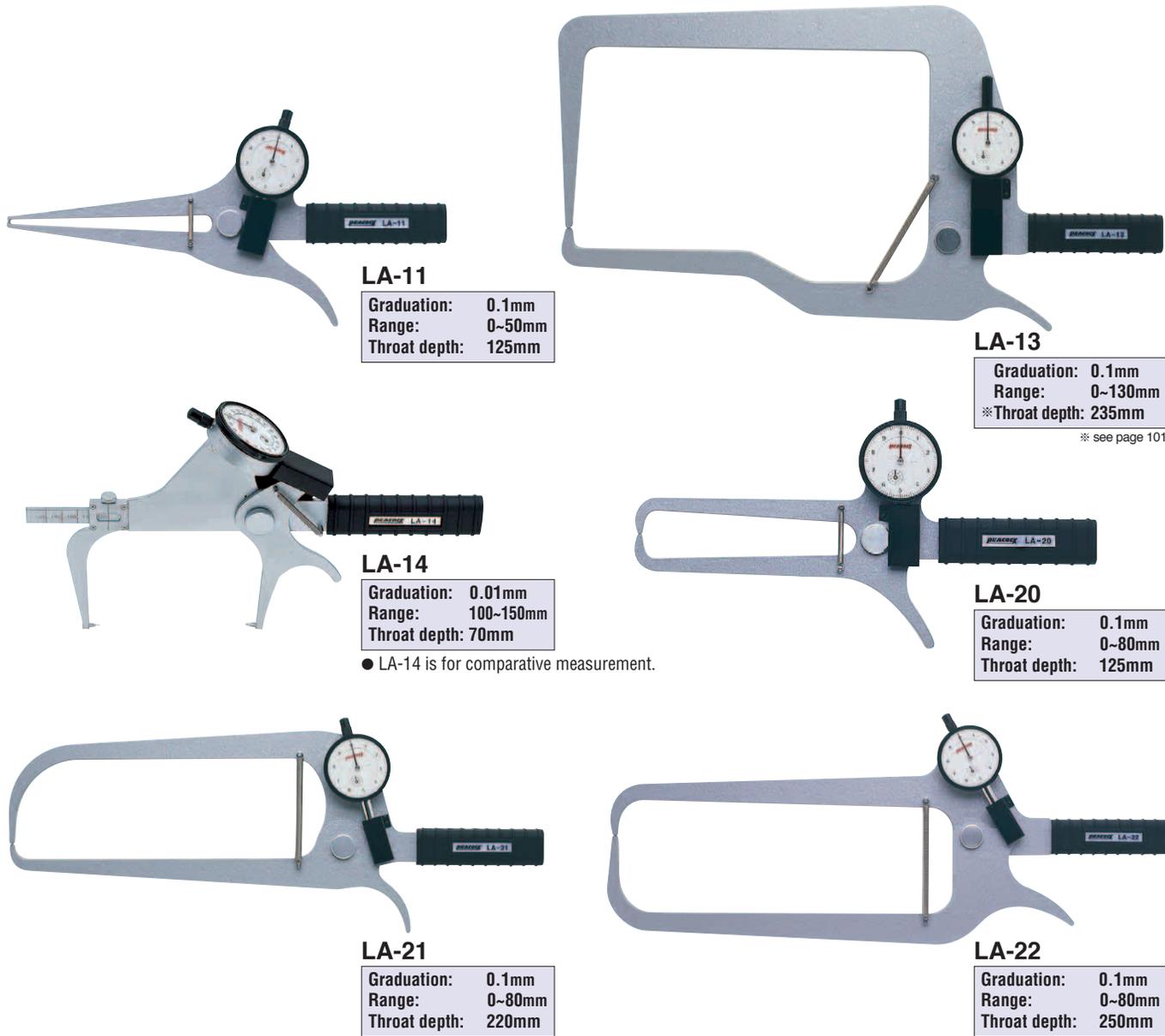
| Range   | Throat Depth |
|---------|--------------|
| 0~ 50mm | 235mm        |
| 0~ 60mm | 125mm        |
| 0~ 80mm | 102mm        |
| 0~100mm | 91mm         |
| 0~130mm | 86mm         |

**Specifications**

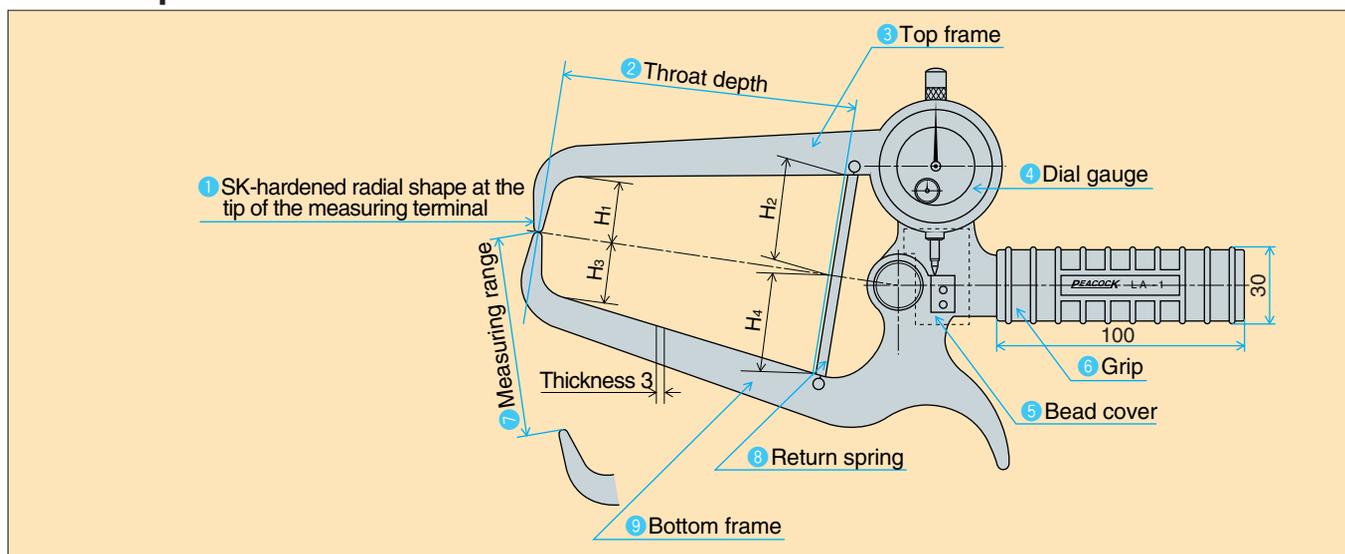
| Model | Graduation (mm) | Range (mm) | Indication error (mm) | Throat depth (mm) | Dimensions (mm) <small>see page 100</small> |    |     |    |
|-------|-----------------|------------|-----------------------|-------------------|---|----|-----|----|
|       |                 |            |                       |                   | H1  | H2 | H3  | H4 |
| LA-1  | 0.1             | 0~80       | $\pm 0.2$             | 120               | 25  | 40 | 25  | 40 |
| LA-2  | 0.1             | 0~80       | $\pm 0.2$             | 240               | 48  | 57 | 48  | 57 |
| LA-3  | 0.1             | 0~80       | $\pm 0.2$             | 400               | 60  | 60 | 58  | 79 |
| LA-4  | 0.05            | 0~50       | $\pm 0.15$            | 90                | 30  | 40 | 30  | 40 |
| LA-5  | 0.05            | 0~50       | $\pm 0.15$            | 150               | 38  | 57 | 15  | 21 |
| LA-5S | 0.05            | 0~10       | $\pm 0.15$            | 120               | 1.5   | 10 | 34  | 34 |
| LA-6  | 0.01            | 0~10       | $\pm 0.03$            | 60                | 2.5   | 18 | 2.5 | 18 |
| LA-7  | 0.01            | 0~60       | $\pm 0.03$            | 85                | 20  | 20 | 15  | 15 |
| LA-8  | 0.1             | 0~80       | $\pm 0.2$             | 130               | —   | —  | —   | —  |
| LA-9  | 0.1             | 0~30       | $\pm 0.2$             | 100               | 2   | 12 | 2   | 12 |
| LA-10 | 0.01            | 0~20       | $\pm 0.03$            | 100               | 28  | 28 | 28  | 28 |

# 7

## Dial Calipers



### Name of parts





**LA-23**

Graduation: 0.1mm  
Range: 0~80mm  
Throat depth: 300mm

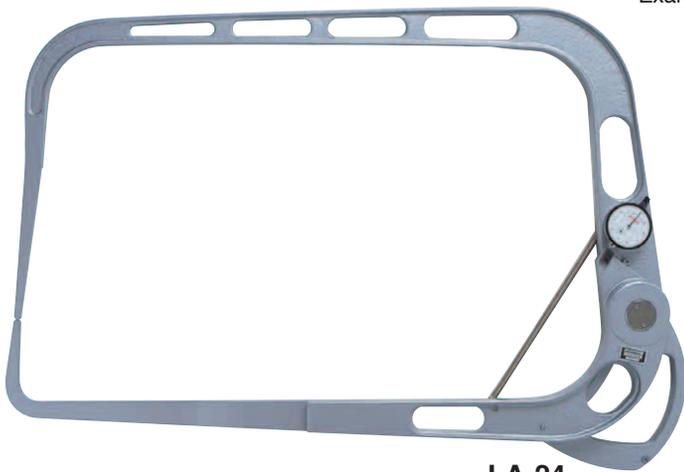


**LA-31**

Graduation: 0.01mm  
Range: 0~20mm  
Throat depth: 125mm



Example



**LA-24**

Graduation: 0.1mm  
Range: 0~100mm  
Throat depth: 600mm

● Max. opening frame 500mm



Dial Calipers

Note: Throat Depth is changed by Measuring Range.  
Contact us more detailed information.

Ex. LA-13

| Range   | Throat Depth |
|---------|--------------|
| 0~ 50mm | 235mm        |
| 0~ 60mm | 125mm        |
| 0~ 80mm | 102mm        |
| 0~100mm | 91mm         |
| 0~130mm | 86mm         |

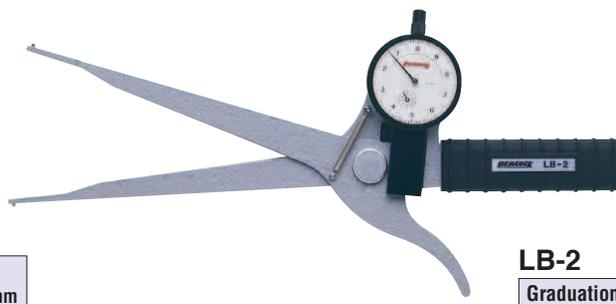
**Specifications**

| Model | Graduation (mm) | Range (mm) | Indication error (mm) | Throat depth (mm) | Dimensions (mm) <small>see page 100</small> |     |     |     |
|-------|-----------------|------------|-----------------------|-------------------|---|-----|-----|-----|
|       |                 |            |                       |                   | H1  | H2  | H3  | H4  |
| LA-11 | 0.1             | 0~50       | ±0.2                  | 125               | 2   | 5.5 | 2   | 5.5 |
| LA-13 | 0.1             | 0~130      | ±0.3                  | 235               | 134   | 134 | 15  | 37  |
| LA-14 | 0.01            | 100~150    | ±0.03                 | 70                | —   | —   | —   | —   |
| LA-20 | 0.1             | 0~80       | ±0.2                  | 125               | 17  | 11  | 17  | 11  |
| LA-21 | 0.1             | 0~80       | ±0.2                  | 220               | 66  | 69  | 12  | 10  |
| LA-22 | 0.1             | 0~80       | ±0.2                  | 250               | 28  | 23  | 62  | 62  |
| LA-23 | 0.1             | 0~80       | ±0.2                  | 300               | 45  | 50  | 48  | 43  |
| LA-24 | 0.1             | 0~100      | ±0.4                  | 600               | 300   | 300 | 100 | 100 |
| LA-31 | 0.01            | 0~20       | ±0.03                 | 125               | 60  | 63  | —   | —   |

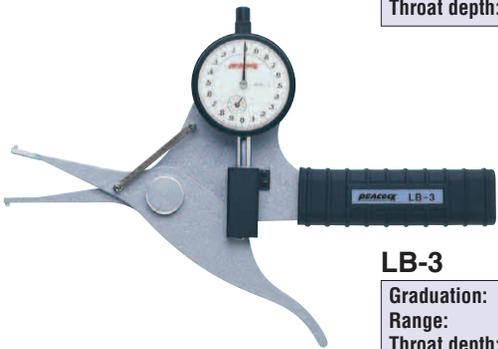
# 7 LB series (Inside measuring of ID and groove widths)



**LB-1**  
Graduation: 0.1mm  
Range: 10~90mm  
Throat depth: 125mm



**LB-2**  
Graduation: 0.1mm  
Range: 10~90mm  
※Throat depth: 180mm  
※See page 103



**LB-3**  
Graduation: 0.01mm  
Range: 10~30mm  
Throat depth: 50mm



**LB-4**  
Graduation: 0.01mm  
Range: 10~30mm  
Throat depth: 100mm



**LB-5**  
Graduation: 0.01mm  
Range: 20~40mm  
Throat depth: 150mm



**LB-6**  
Graduation: 0.01mm  
Range: 30~50mm  
Throat depth: 80mm



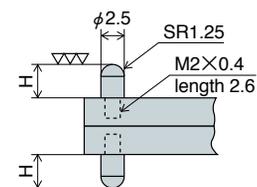
**LB-8**  
Graduation: 0.01mm  
Range: 100~120mm  
Throat depth: 90mm



**LB-9**  
Graduation: 0.01mm  
Range: 20~40mm  
Throat depth: 130mm

### Dimensions for contact point

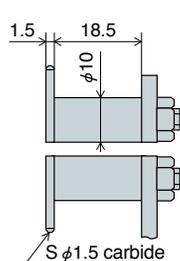
(LB-1・2・3・4・5・6・7、LB-2)



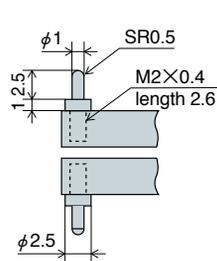
material : SK hardened

※ Hmm (height of contact point)  
3, 4, 5, 6, 7, 8, 9, 10mm type are available as options. Order pair as 1 set (2pcs).

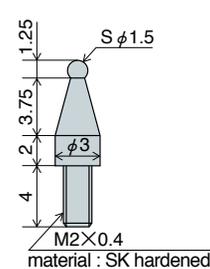
(LB-7V)



(LB-7S)



(LA-14・LB-14)



Dial Calipers

**Adjustable type**



**LB-7**  
Graduation: 0.01mm  
Range: 10~70mm  
Throat depth: 85mm  
● Adjustable frame

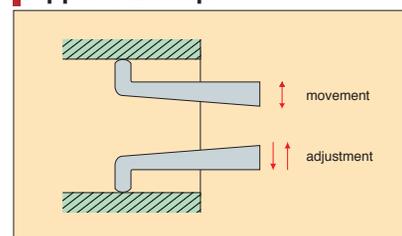


**LB-7S**  
Graduation: 0.01mm  
Range: 15~35mm  
Throat depth: 50mm  
● Adjustable frame



**LB-7V**  
Graduation: 0.01mm  
Range: 35~85mm  
Throat depth: 30mm  
● Adjustable frame

**Applied Example - inside -**



**Handy type**



**LH-2**  
Graduation: 0.01mm  
Range: 10~120mm  
Throat depth: 50mm

Note: Throat Depth is changed by Measuring Range.  
Contact us more detailed information.

Ex. LB-2

| Range | Throat Depth |
|-------|--------------|
| 10mm  | up to 20mm   |
| 15mm  | up to 45mm   |
| 20mm  | up to 70mm   |
| 30mm  | up to 84mm   |
| 90mm  | up to 180mm  |

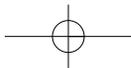
**Specifications**

| Model  | Graduation (mm) | Range (mm) | Indication error (mm) | Throat depth (mm) | Height of contact point (mm)          |
|--------|-----------------|------------|-----------------------|-------------------|---------------------------------------|
| LB-1   | 0.1             | 10~90      | ±0.2                  | 125               | 2                                     |
| LB-2   | 0.1             | 10~90      | ±0.2                  | 180               | 2                                     |
| LB-3   | 0.01            | 10~30      | ±0.03                 | 50                | 2                                     |
| LB-4   | 0.01            | 10~30      | ±0.03                 | 100               | 2                                     |
| LB-5   | 0.01            | 20~40      | ±0.03                 | 150               | 4                                     |
| LB-6   | 0.01            | 30~50      | ±0.03                 | 80                | 4                                     |
| LB-7   | 0.01            | 10~70      | ±0.03                 | 85                | 2                                     |
| LB-7S  | 0.01            | 15~35      | ±0.03                 | 50                | 3.5                                   |
| LB-7V  | 0.01            | 35~85      | ±0.03                 | 20                | 6.5                                   |
| LB-8   | 0.01            | 100~120    | ±0.03                 | 90                | 30 (SK hardened, one unit with frame) |
| LB-9   | 0.01            | 20~40      | ±0.03                 | 130               | 2 (SK hardened, one unit with frame)  |
| LB-14  | 0.01            | 100~150    | ±0.03                 | 70                | 7                                     |
| ※ LH-2 | 0.01            | 10~120     | ±0.03                 | 50                | 2                                     |

※ For LH-2, the range of accuracy is 10 to 20mm. In case of 20mm or more, check the tolerance with Master Gauge.



Dial Calipers

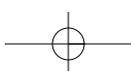
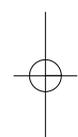


"PEACOCK" Caliper Gauges are quite useful for such measurements of O.D. or I.D. thickness and diameter which appear so difficult to measure.

# 7

## Examples

|   |   |   |  |
|---|---|---|--|
| <p>● Outside measuring (LA) type</p> <p>● Inside measuring (LB) type</p>      |   | <p>● Measuring thickness at the back end of a projecting workpiece<br/><b>LA-1~4</b><br/><b>LA-13</b><br/><b>LA-20~23</b></p> | <p>● Measuring thickness at the back end of a projecting workpiece<br/>● Dial upward type<br/><b>LA-5</b><br/><b>LA-5S</b></p> |
| <p>● Measuring thickness of a cup, hat or helmet<br/><b>LA type</b></p>       | <p>● Measuring thickness or OD in a narrow, confined place<br/><b>LA type</b></p>               | <p>● Measuring center OD of a boss<br/><b>LA-11</b></p>   | <p>● Floating type: lower contact point has a flat 10mm diameter<br/><b>LA-10</b></p>  |
| <p>● Measuring thickness by hurdling a projecting area<br/><b>LA type</b></p> | <p>● Measuring thickness by hurdling a projecting area<br/><b>LA-8</b></p>                      | <p>● Measuring thickness of a large workpiece or part.<br/>A: workpiece sizes up to 500mm are accessible (LA-24).</p>         | <p>● Measuring thickness or OD in a narrow, confined place<br/><b>LA-9</b><br/><b>LA-11</b></p>                                |
| <p>● Measuring ID or groove width<br/><b>LB-1~6</b></p>                       | <p>● Measuring ID of a very shallow hole<br/>A: approximately 2mm lip is sufficient (LB-7V)</p> | <p>● Measuring ID or an O-ring groove<br/><b>LB-1~6</b></p>   | <p>● Measuring ID by straddling the center boss<br/><b>LB-7</b><br/><b>LB-14</b></p>   |



SECTION

# 8



## Applied Dial Gauges

- Dial Depth Gauges
- Digital Depth Gauges
- Dial Inside Gauges
- Dial Hole Gauge
- Digital Hole Gauge
- Applied Contact Points
- Bench Centers

# 8

## Dial Depth Gauges

It measure a depth from top bottom of bottomed holes, a depth of narrow grooves, a value of step height of stepped surfaces and a depth of types engraved in matrices.

The dial gauge furnished offers a correct measured value since it can measure an object under measurement with a given measuring force.



**T-1**  
Graduation: 0.01mm  
Range: 0~160mm

- 8 contact points are included 20~160mm.
- Replace the contact point in accordance with the measuring range.



**T-1W**  
Graduation: 0.01mm  
Range: 0~220mm

- 4 extension rods are included 20, 40, 60 and 80mm.
- Recombine the extension rods, in accordance with the measuring range.
- Two center-pointer type.



**T-2**  
Graduation: 0.01mm  
Range: 0~10mm



**T-2W**  
Graduation: 0.01mm  
Range: 0~20mm



**T-2B**  
Graduation: 0.01mm  
Range: 0~5mm

- The dial face is at a right angle with the contact point, which facilitate easy reading from the upside.



**T-2C**  
Graduation: 0.01mm  
Range: 0~10mm

- Needle Contact Point (XT-2C)



**T-3**  
Graduation: 0.01mm  
Range: 0~10mm

- Needle Contact Point (XT-3)



**T-4**  
Graduation: 0.001mm  
Range: 0~1mm

- Needle Contact Point (XT-4)

### Specifications

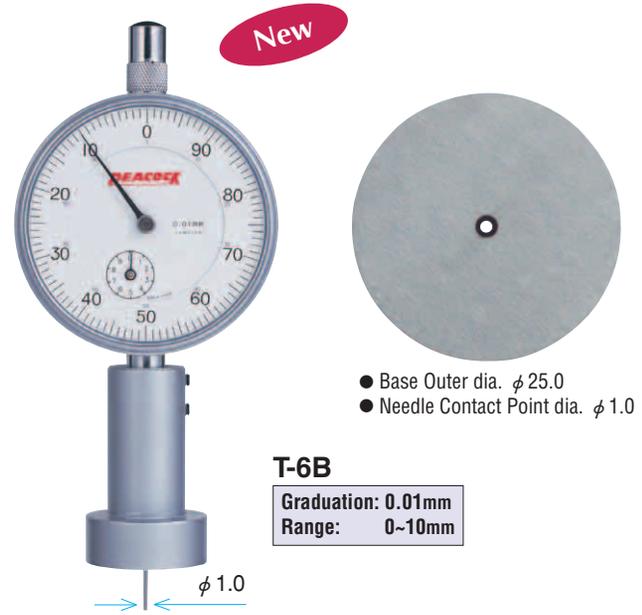
| Model | Range (mm) | Accuracy (μm) | Dial Gauge      |                 |            |                               | Base        |                       |
|-------|------------|---------------|-----------------|-----------------|------------|-------------------------------|-------------|-----------------------|
|       |            |               | Gauge installed | Graduation (mm) | Range (mm) | Measuring force less than (N) | Length (mm) | Width (mm)            |
| T-1   | 0~160      | ±20           | 207F-T          | 0.01            | 20         | 2.0                           | 120         | 14                    |
| T-1W  | 0~220      | ±20           | 207WF-T         | 0.01            | 20         | 2.0                           | 100         | 11                    |
| T-2   | 0~10       | ±15           | 107F-T          | 0.01            | 10         | 1.4                           | 60          | 14                    |
| T-2W  | 0~20       | ±20           | 207WF-T         | 0.01            | 20         | 2.0                           | 75          | 11                    |
| T-2B  | 0~5        | ±20           | 196B-T          | 0.01            | 5          | 1.4                           | 75          | 11                    |
| T-2C  | 0~10       | ±15           | 107F-T          | 0.01            | 10         | 1.4                           | 75          | 11                    |
| T-3   | 0~10       | ±15           | 107F-T          | 0.01            | 10         | 1.4                           | 60          | Shown in above figure |
| T-4   | 0~1        | ±5            | ※5F             | 0.001           | 1          | 1.5                           | 40          | 10                    |

※ 5F with Reversed Inner Dial

※ Base is hardened and polished.

# Dial Depth Gauge

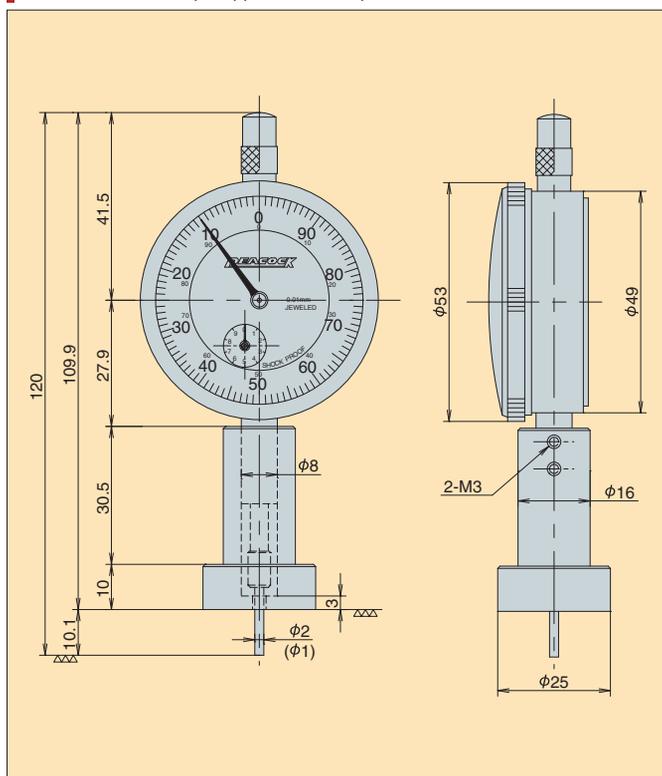
## Round Base type



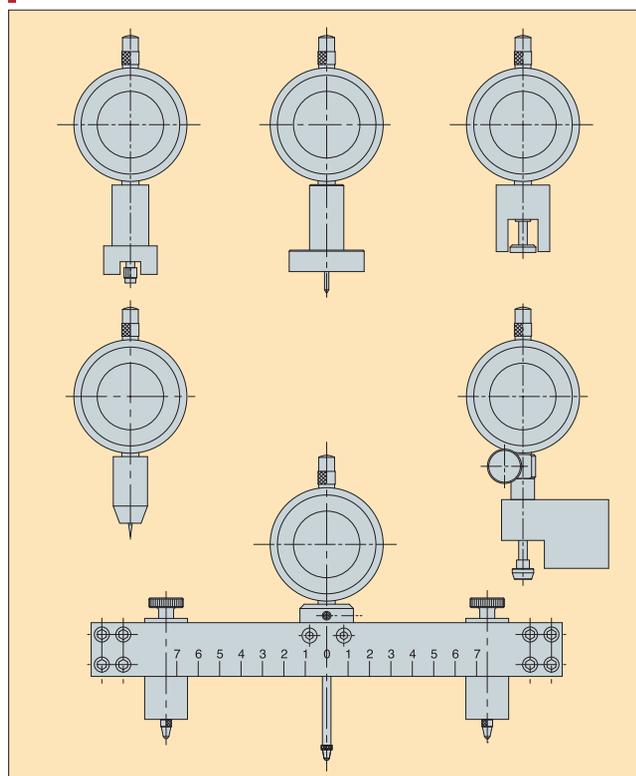
## Specifications

| Model       | Range (mm) | Accuracy (μm) | Dial Gauge      |                 |            |                               | Base        |            |
|-------------|------------|---------------|-----------------|-----------------|------------|-------------------------------|-------------|------------|
|             |            |               | Gauge installed | Graduation (mm) | Range (mm) | Measuring force less than (N) | Length (mm) | Width (mm) |
| <b>T-6A</b> | 0~10       | ±15           | 107F-T          | 0.01            | 10         | 1.4                           | —           | —          |
| <b>T-6B</b> | 0~10       | ±15           | 107F-T          | 0.01            | 10         | 1.4                           | —           | —          |

## Dimensions (※ ( ) are T-6B)



## Custom order available



Dial Depth Gauge

# Digital Depth Gauges

**T1-205**

Graduation: 0.001mm  
Range: 20mm

**T1-257**

Graduation: 0.01mm  
Range: 20mm

**T2-127**

Graduation: 0.01mm  
Range: 10mm

**T2-205W**

Graduation: 0.001mm  
Range: 20mm

**T2-257W**

Graduation: 0.01mm  
Range: 20mm

● Contact Point (XS-315)

**T3-127**

Graduation: 0.01mm  
Range: 10mm

● Contact Point (XT-3)

**T5-127**

Graduation: 0.01mm  
Range: 10mm

● Contact Point (XT-4)

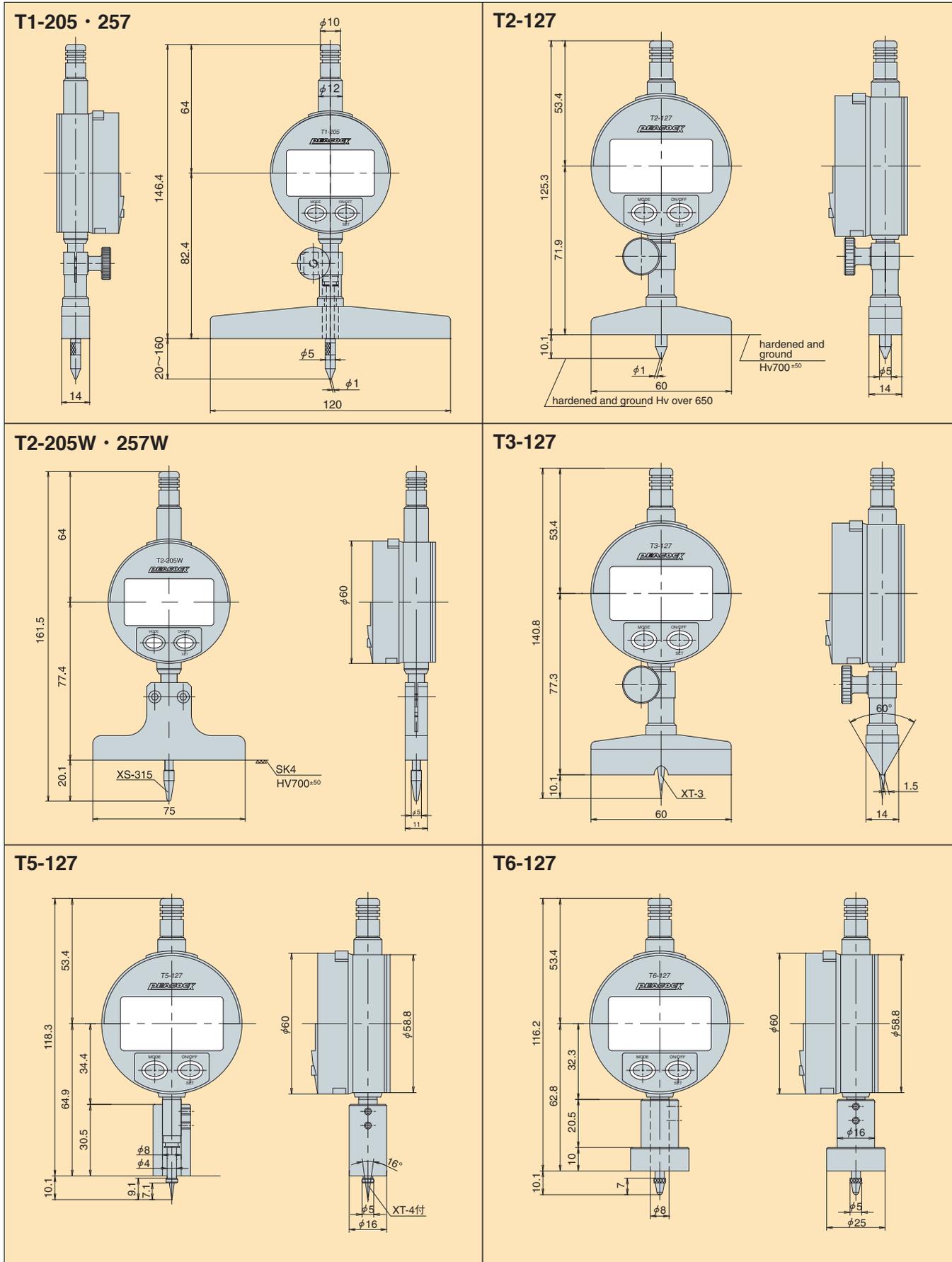
**T6-127**

Graduation: 0.01mm  
Range: 10mm

## Specifications

| Model          | Graduation (mm) | Accuracy (mm)<br>(excluding quantized error) | Gauge installed | Range (mm) | Base flatness<br>(mm) | Option  |
|----------------|-----------------|--|-----------------|------------|-----------------------|---|
| <b>T1-205</b>  | 0.001           | ±0.004                                       | DG-205          | 20         | 0.005                 | 7 contact points 40-160mm<br>(20mm intervals) |
| <b>T1-257</b>  | 0.01            | ±0.02  | DG-257          | 20         | 0.005                 |   |
| <b>T1-127</b>  | 0.01            | ±0.02  | DG-127          | 10         | 0.005                 | —   |
| <b>T2-205W</b> | 0.001           | ±0.004                                       | DG-205          | 20         | 0.005                 | —   |
| <b>T2-257W</b> | 0.01            | ±0.02  | DG-257          | 20         | 0.005                 | —   |
| <b>T3-127</b>  | 0.01            | ±0.02  | DG-127          | 10         | 0.005                 | —   |
| <b>T5-127</b>  | 0.01            | ±0.02  | DG-127          | 10         | 0.005                 | —   |
| <b>T6-127</b>  | 0.01            | ±0.02  | DG-127          | 10         | 0.005                 | —   |

# Dimensions for Digital Depth Gauges

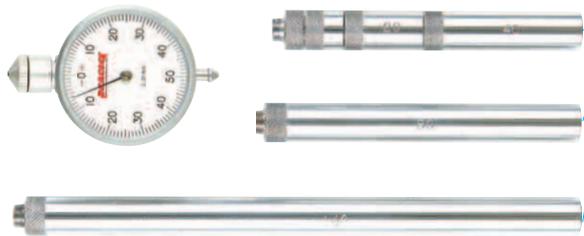


Dimensions for Digital Depth Gauges

# 8

## Dial Inside Gauge

- Capable of continuously measuring comparatively large bores or inside wall surface with a given measuring force using flexibility of the dial gauge.

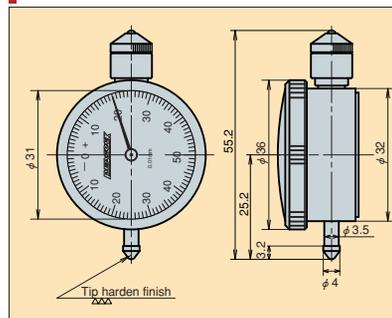


● Extension rods 6pcs.  
(5, 10, 20, 40, 80, 140mm)  
Replace the extension rods according to a measuring range.

**U-1**

Graduation: 0.01mm  
Range: 50~350mm  
(Measuring range of dial gauge: 5mm)

### Outer dimension



### With Magnetic Base

The gauge proper can be secured to the measuring position by the magnet base.



**U2HA**

Graduation: 0.01mm  
Range: 66~80mm  
(Measuring range of dial gauge: 4mm)



**U2FB**

Graduation: 0.01mm  
Range: 110~120mm  
(Measuring range of dial gauge: 5mm)

**U2HB**

Graduation: 0.01mm  
Range: 80~92mm  
(Measuring range of dial gauge: 4mm)

**U2FA**

Graduation: 0.01mm  
Range: 92~110mm  
(Measuring range of dial gauge: 5mm)

Dial Inside Gauge



**U3HA**

Graduation: 0.01mm  
Range: 66~80mm  
(Measuring range of dial gauge: 4mm)

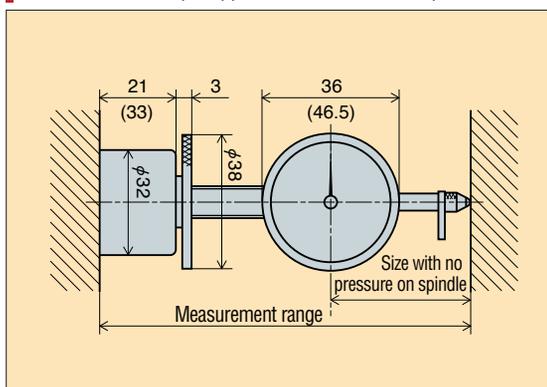
- with shorter pointer

**U3HB**

Graduation: 0.01mm  
Range: 80~92mm  
(Measuring range of dial gauge: 4mm)

- with shorter pointer

### Dimensions (※ ( ) are U2FA·U2FB)



### Specifications

(unit: μm)

| Model       | Graduation (mm) | Range (mm) | Reading    | Indication error                 |                |              |               |                       | Magnetic Power (kg) | Measuring force less than (N) |
|-------------|-----------------|------------|------------|----------------------------------|----------------|--------------|---------------|-----------------------|---------------------|-------------------------------|
|             |                 |            |            | 1/10 revolution (Adjacent error) | 1/2 revolution | 1 revolution | 2 revolutions | Whole measuring range |                     |                               |
| <b>U-1</b>  | 0.01            | 50~350     | 0 - 50 - 0 | 9                                | —              | ±13          | —             | ±20                   | 8~10kg              | 2.0                           |
| <b>U2HA</b> | 0.01            | 66~80      | 0 - 50 - 0 | 9                                | —              | ±13          | —             | ±15                   |                     | 1.4                           |
| <b>U2HB</b> | 0.01            | 80~92      | 0 - 50 - 0 | 9                                | —              | ±13          | —             | ±15                   |                     | 1.4                           |
| <b>U2FA</b> | 0.01            | 92~110     | 0 - 50 - 0 | 9                                | —              | ±13          | —             | ±20                   |                     | 2.0                           |
| <b>U2FB</b> | 0.01            | 110~120    | 0 - 50 - 0 | 9                                | —              | ±13          | —             | ±20                   |                     | 2.0                           |
| <b>U3HA</b> | 0.01            | 66~80      | 0 - 50 - 0 | 9                                | —              | ±13          | —             | ±20                   |                     | 1.4                           |
| <b>U3HB</b> | 0.01            | 80~92      | 0 - 50 - 0 | 9                                | —              | ±13          | —             | ±20                   | 1.4                 |                               |

# Dial Hole Gauge

The Dial Hole Gauge is used for measurement of a bore diameter or groove width.

- Adjustable upper frame may be changed as desired, thus securing a wide measuring range.
- The contact point has an outer dia of 2 mm and a height of 2 mm.  
(R 1mm ball, M1.7 x 0.35mm.)

## GH-1

Graduation: 0.01mm  
Range: 10mm



### Specifications

| Model | Dial Gauge      |            |                            |                |                               | Measurable bore ID (mm) | Measurable depth less than (mm) |
|-------|-----------------|------------|----------------------------|----------------|-------------------------------|-------------------------|---------------------------------|
|       | Graduation (mm) | Range (mm) | Accuracy ( $\mu\text{m}$ ) | Reading        | Measuring force less than (N) |                         |                                 |
| GH-1  | 0.01            | 10         | $\pm 20$                   | $\pm 100-50-0$ | 1.4                           | 10~50                   | 25                              |

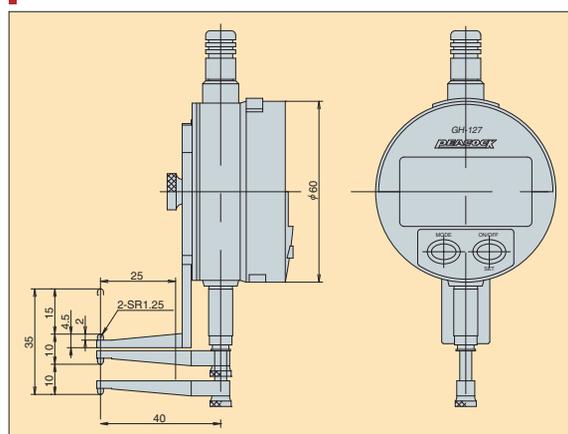
# Digital Hole Gauge

## GH-127

Graduation: 0.01mm  
Range: 10~35mm



### Dimensions



### Specifications

| Model  | Graduation (mm) | Accuracy (excluding quantized error) | Gauge installed | Range (mm) | Measurable bore ID (mm) | Measuring force | Measurable depth less than (mm) |
|--------|-----------------|--------------------------------------|-----------------|------------|-------------------------|-----------------|---------------------------------|
| GH-127 | 0.01            | $\pm 0.02$                           | DG-127          | 10-35      | 10-35                   | Less than 0.95N | 25                              |

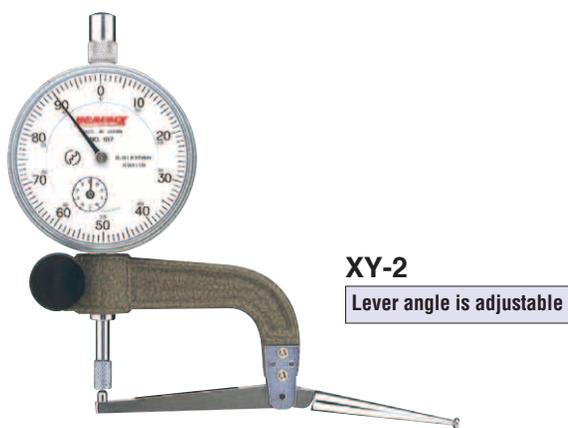
# 8

## Applied Contact Points

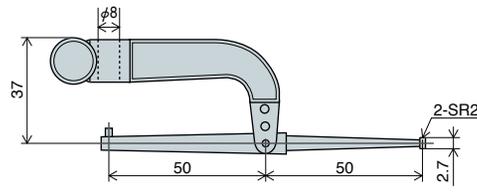
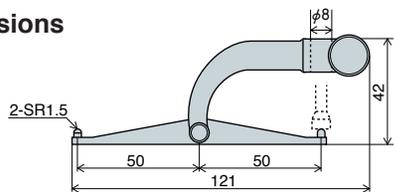
### Lever type Contact Points

Dial Gauges supplied on request (Recommend a Dial Gauge with Lug Back and install it to a Magnet Stand.)

- This instrument have a 50mm length of lever and used to measure depth of holes.  
The flat contact point (XS-2) is installed to the dial gauge to hold the back when used.



#### Dimensions



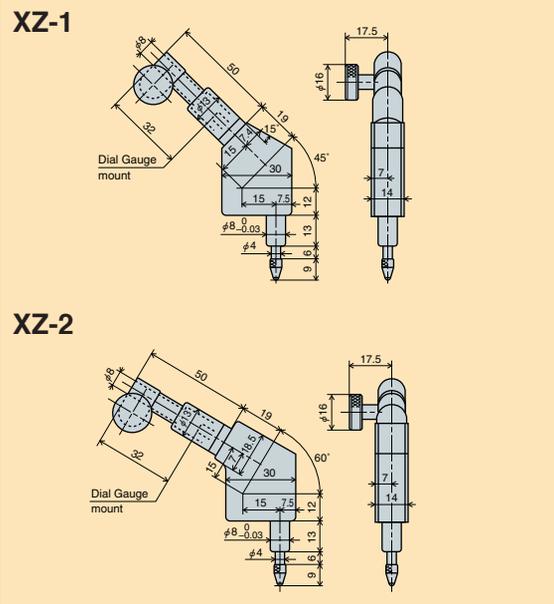
### Angle Contact Points

Dial Gauges supplied on request (Recommend a Dial Gauge with Flat Back due to light weight.)

- The contact point is tilted in its moving direction by the cam, and it includes two types; tilted to 45° and 60° .  
The contact point is convenient for measurement on locations where it is impossible to straightforwardly install the dial gauge and to use it for a jig.  
Hold the  $\phi 8$  stem when used.



#### Exterior dimensions



#### Specifications

| Model | Angle | Range (mm) | Moving distance (mm) | Measuring force less than (N) |
|-------|-------|------------|----------------------|-------------------------------|
| XZ-1  | 45°   | 1.2        | 5                    | 1.4                           |
| XZ-2  | 60°   | 1.2        | 5                    | 1.4                           |

- Angle 90° is available on request.

Applied Contact Points

# Bench Centers

High-accuracy eccentricity tester used to measure eccentricity of articles over a wide range of rotary cutting tools, arbors, crankshafts, gears, piston heads or grinding stones and to check circles for roundness. (dial gauges are not furnished)



**OA**  
Max. diameter: 300mm

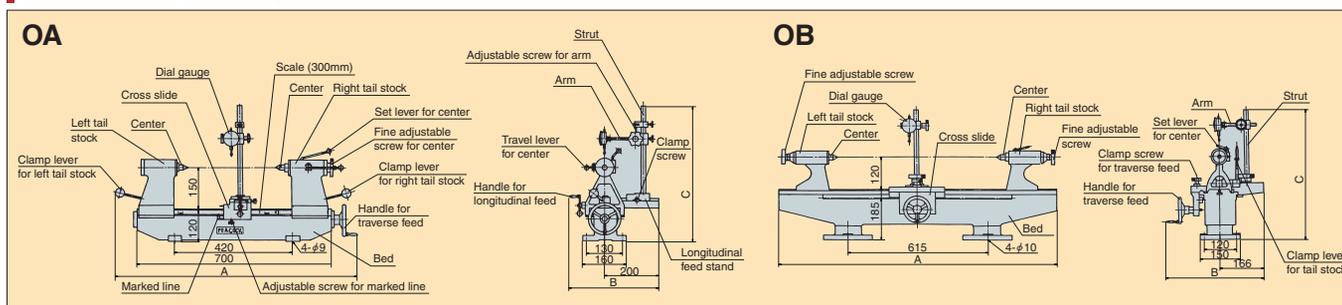


**OB**  
Max. diameter: 800mm



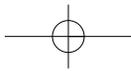
Bench Centers

## Dimensions (OA / OB)



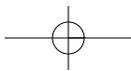
## Specifications

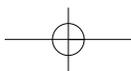
| Model     | Center distance (mm) | Max. work capacity dia. (mm) | Use center | Overall dimensions |             |        | Approx. weight (kg) | Feed gear      |                |
|-----------|----------------------|------------------------------|------------|--------------------|-------------|--------|---------------------|----------------|----------------|
|           |                      |                              |            | (A) mm             | (B) mm      | (C) mm |                     | Right and left | Back and forth |
| <b>OA</b> | 300                  | 230                          | MT No. 2   | Approx. 875        | Approx. 335 | 500    | 51                  | Screw feed     | Screw feed     |
| <b>OB</b> | 800                  | 180                          | MT No. 2   | 1140               | Approx. 360 | 470    | 75                  | Lack feed      | Hand feed      |



# MEMO

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SECTION

# 9



## Stands

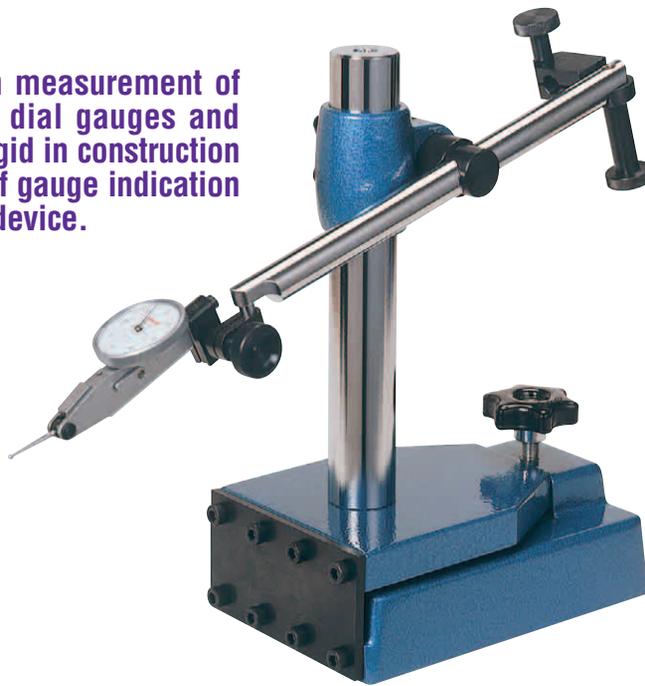
- Dial Gauge Stands
- Horizontal Stands
- Magnetic Stands
- Magnetic Holders



# 9

## Dial Gauge Stands

Stand designed for precision measurement of standard dial gauges, lever dial gauges and lever electric micrometers, rigid in construction and easy in fine adjustment of gauge indication by the original fine adjusting device.



**SIS-4**  
(Includes fine adjustment function)

### Specifications

| Model        | Base        |             |            | Main column   |             | Support column |             | Weight (kg) | Included attachments                                    |
|--------------|-------------|-------------|------------|---------------|-------------|----------------|-------------|-------------|---|
|              | Height (mm) | Length (mm) | Width (mm) | Diameter (mm) | Length (mm) | Diameter (mm)  | Length (mm) |             |   |
| <b>SIS-4</b> | 50          | 150         | 100        | 28            | 180         | 14             | 160         | 4.0         | 1. for Dial Gauges<br>2. for Lever type Dial Indicators |

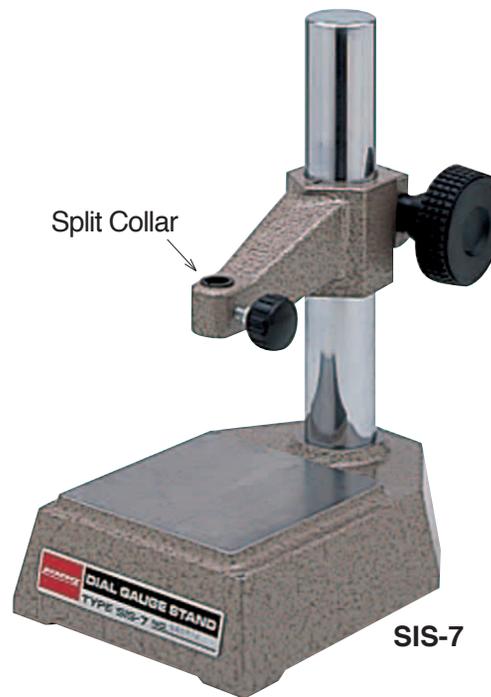
### Economy-wise popular stand



Dial Gauge Stands



**SIS-6**



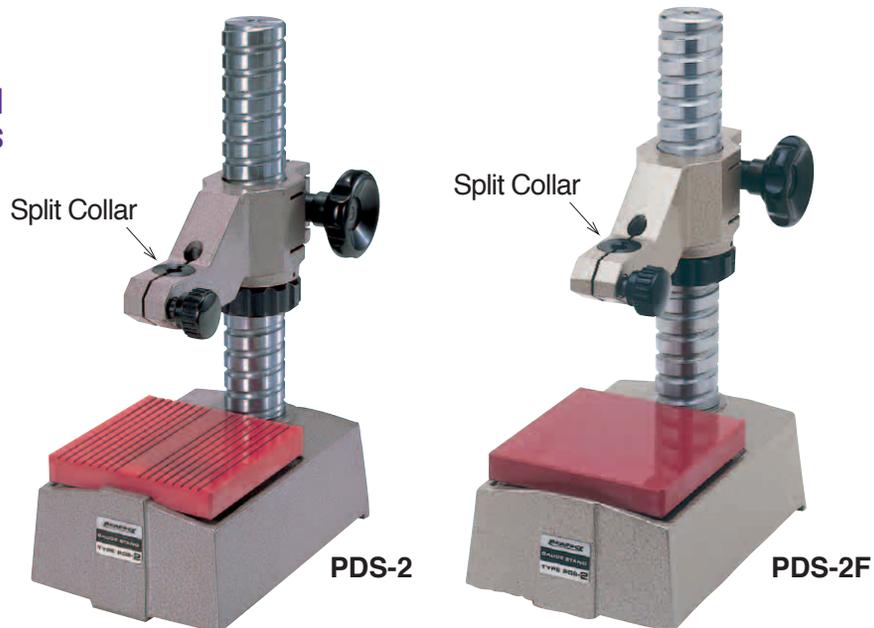
**SIS-7**

### Specifications

| Model        | Table surface                | Table size    | Effective moving range | Allowable measuring depth | Stem installed  |
|--------------|------------------------------|---------------|------------------------|---------------------------|-----------------|
| <b>SIS-6</b> | Quench-hardened and polished | 50mm diameter | 0 to about 100 mm      | Approximately 62.5mm      | φ8mm (** φ10mm) |
| <b>SIS-7</b> | Ground cast iron surface     | 74×74mm       | 0 to about 100 mm      | Approximately 52mm        |                 |

\*\* φ10mm can be installed when split collar is removed.

The stand is designed for standard dial gauges and digital linear gauges and is rigid and easy to work.



**Specifications**

| Model  | Table surface           | Table size | Effective moving range | Allowable measuring depth | Stem installed |
|--------|-------------------------|------------|------------------------|---------------------------|----------------|
| PDS-2  | Ceramic with grooves    | 100×100mm  | 0 to about 100 mm      | Approximately 60mm        | φ8mm (※ φ20mm) |
| PDS-2F | Ceramic without grooves | 100×100mm  | 0 to about 100 mm      | Approximately 60mm        |                |

※ φ20mm can be installed when split collar is removed.

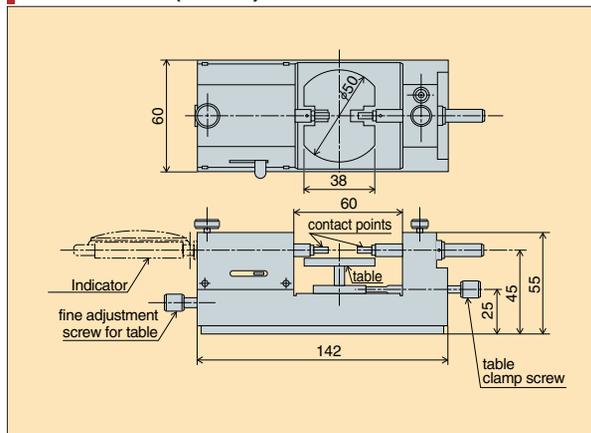
# Horizontal Stands

- Comparator type suited for measuring and inspecting small parts.

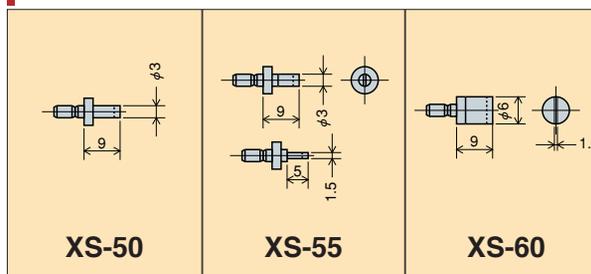


**HS-25**  
(Indicator is not furnished)

**Dimensions (HS-25)**



**Contact Point**



**Specifications**

| Model | Measuring range (mm) | Contact point       | Table height movement | Table horizontal movement | Stem installed |
|-------|----------------------|---------------------|-----------------------|---------------------------|----------------|
| HS-25 | 0 ~ 30 mm            | Both ends φ3mm flat | 12mm                  | 10mm                      | φ8mm           |



Dial Gauge Stands / Horizontal Stands

# 9

## Magnetic Stands

The stand using a powerful magnet features simple and stable holding at any place, easy handling, compactness and reasonable price. Either lever dial gauge (held by  $\phi 6$  mm stem) or standard dial gauge (held by back lug) is attachable to all types of these magnetic stands. The dial gauges are not furnished.



**YM-1**  
● Magnetic Power 30kgs



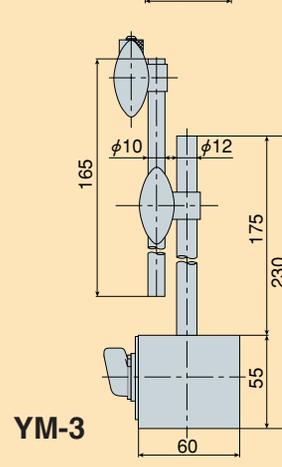
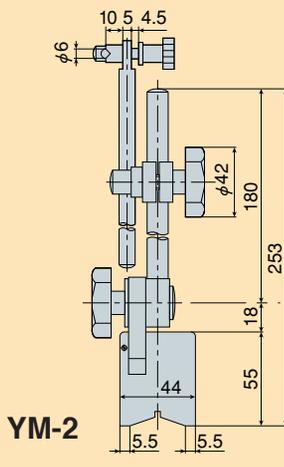
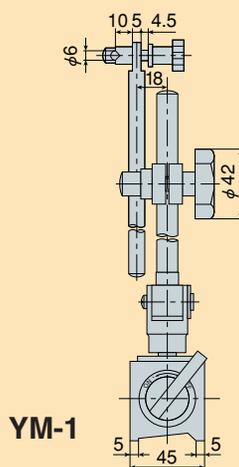
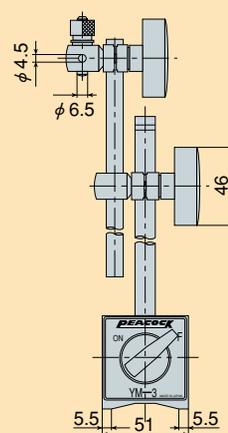
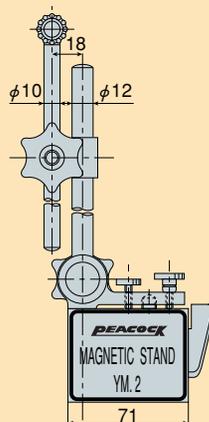
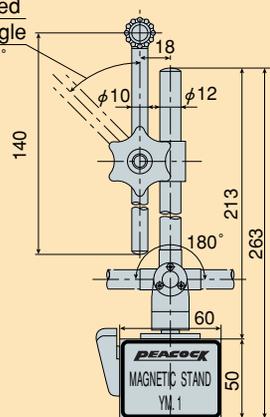
**YM-2**  
● Magnetic Power 40kgs  
● with fine adjustment



**YM-3**  
● Magnetic Power 45kgs

### Dimensions

Can be rotated a given angle 360°



Magnetic Stands

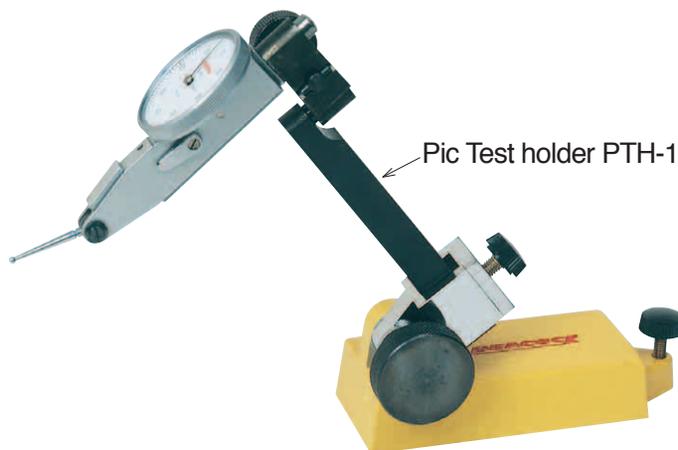
# Magnetic Holders

The magnetic holder holds a dial gauge using the attractive force of the magnet fit in the base. It has features of being compact, simple to handle and stable in holding.

- The YMH-1 is for general dial gauges and the YMH-2 is for lever type dial gauges.

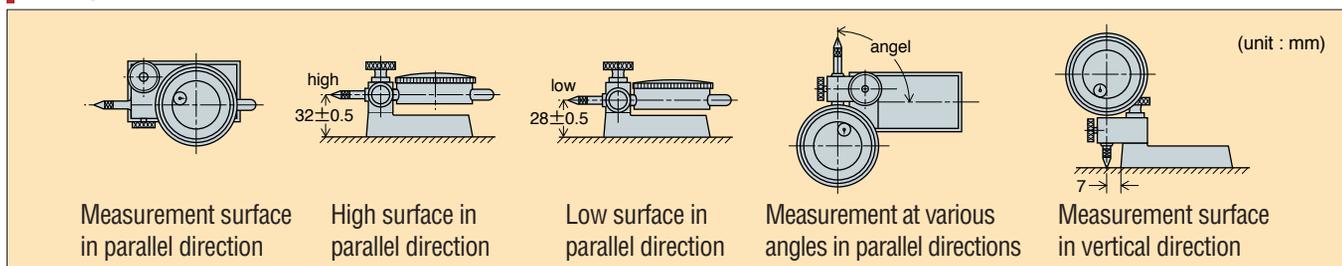


**YMH-1**  
(Dial Gauge is not furnished)  
● Magnetic Power 10kgs



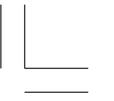
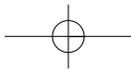
**YMH-2**  
(Lever type dial gauge and Pic Test Holder PTH-1 is not furnished)  
● Magnetic Power 10kgs

## Examples (YMH-1)



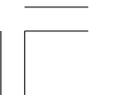
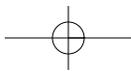
## Specifications

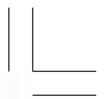
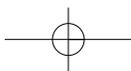
| Model | Base (mm) |        |        | Magnetic power (kgs) | Suitable indicators        |
|-------|-----------|--------|--------|----------------------|----------------------------|
|       | Width     | Length | Height |                      |                            |
| YMH-1 | 37        | 100    | 18     | 10                   | For general dial gauges    |
| YMH-2 | 39        | 100    | 19     | 10                   | For lever type dial gauges |



# MEMO

A series of horizontal blue dotted lines for writing, spanning the width of the page.





SECTION  
**10**



## Signal Indicators

- Signal Gauges
- Signal Checker
- Signal Box
- Signal Controller
- Signal Gauge Set-Up
- Signal Gauge Connections Diagram



# Signal Gauges/Signal Checker

## 0.001mm, 0.01mm and 0.05mm Type

### S-5

- With its high resolution of 0.001mm scale, it is most suitable for judgement of the values measured on finished parts with high accuracy.



### S-5

Graduation: 0.001mm  
Measurement range: 0.1(±0.05)mm

### S-7

- With its resolution of 0.01mm scale, it is generally used. Its pointer is in an anti-shock structure so as to give stable discriminating signals.



### S-7

Graduation: 0.01mm  
Measurement range: 0.1(±0.5)mm

### S-9

- With its most gross scale of 0.05mm, it is applicable to select grossly worked parts and as cast parts at the low-est costs.



### S-9

Graduation: 0.05mm  
Measurement range: 3.0(±1.5)mm

### SC-2A

- Once its tolerance is set, a dial gauge is dismantled before using it so that its endurance is really improved. With its large tolerance setting range of 3mm, it is most suitable for judgement of the measured values in a wide tolerance range.



### SC-2A

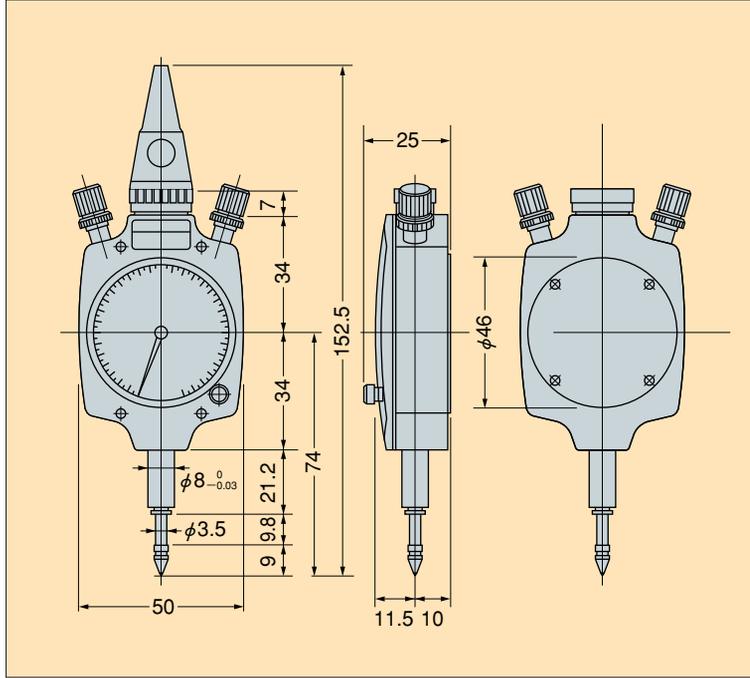
Measurement range: 3mm

## Specifications

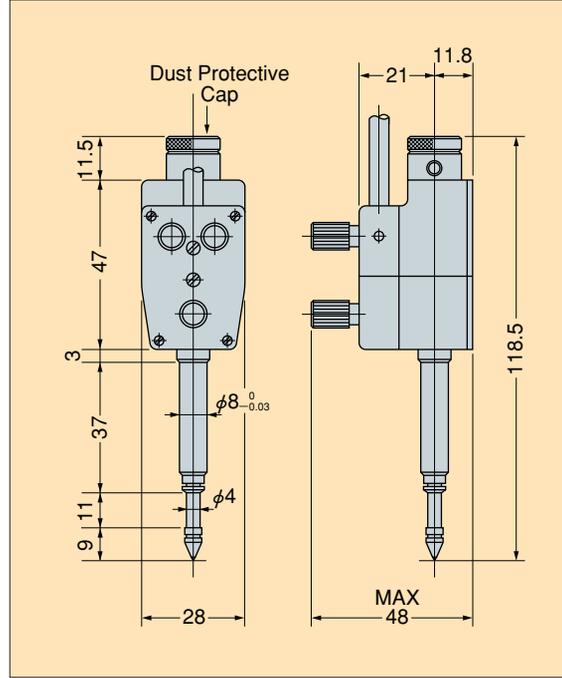
| Model                       | S-5   | S-7   | S-9           | SC-2A   |  |                      |              |  |  |   |  |                                       |                                     |  |   |   |
|-----------------------------|---|---|---------------|---|--|----------------------|--------------|--|--|---|--|---------------------------------------|-------------------------------------|--|---|---|
| Spindle Movable Range       | 3mm   | 3mm   | 4mm           | 10mm  |  |                      |              |  |  |   |  |                                       |                                     |  |   |   |
| Graduation                  | 0.001mm   | 0.01mm  | 0.05mm        | * In SC-2A type, the minimum readable value depends on a dial gauge to be attached. |  |                      |              |  |  |   |  |                                       |                                     |  |   |   |
| Tolerance Setting Range     | 0.1 (±0.05) mm  | 1.0 (±0.5) mm                                     | 3.0 (±1.5) mm | 3mm   |  |                      |              |  |  |   |  |                                       |                                     |  |   |   |
| Accuracy                    | ±0.002mm  | ±0.005mm  | ±0.025mm      | ±0.005mm  |  |                      |              |  |  |   |  |                                       |                                     |  |   |   |
| Measuring Force             | Less than 1.2N (120gf)  |   |               |   |  |                      |              |  |  |   |  |                                       |                                     |  |   |   |
| Contact capacity            | MAX DC24V 20mA  |   |               |   |  |                      |              |  |  |   |  |                                       |                                     |  |   |   |
| Number of judgement Stages  | Three stages of -NG, OK and +NG   |   |               |   |  |                      |              |  |  |   |  |                                       |                                     |  |   |   |
| Cord length                 | 2m  |   |               |   |  |                      |              |  |  |   |  |                                       |                                     |  |   |   |
| Contact point               | X-2A  |   |               |   |  |                      |              |  |  |   |  |                                       |                                     |  |   |   |
| Stem diameter               | φ 8 <sup>-0.03</sup> mm   |   |               |   |  |                      |              |  |  |   |  |                                       |                                     |  |   |   |
| Operating temperature range | 0~60°C  |   |               |   |  |                      |              |  |  |   |  |                                       |                                     |  |   |   |
| Options                     | Code Length 5m 10m / Back cover with Lug (GB-1A)  |   |               | Code Length 5m 10m  |  |                      |              |  |  |   |  |                                       |                                     |  |   |   |
| Dial indicator for setting  | —   |   |               | Model 107F, 5F  |  |                      |              |  |  |   |  |                                       |                                     |  |   |   |
| Weight                      | 180g  |   |               | 150g  |  |                      |              |  |  |   |  |                                       |                                     |  |   |   |
| Cable signal table          | <table border="0"> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;"> <b>S-5, S-7, S-9</b> </td> <td style="text-align: center;"> <b>SC-2A</b> </td> </tr> <tr> <td style="text-align: center;"> </td> <td>① ...COM (blue) black -NG with ① and ② at ON</td> <td>① ...COM (blue) black -NG with ①, ②, and ③ at OFF</td> </tr> <tr> <td style="text-align: center;"> </td> <td>② ...-NG (red) +NG with ① and ③ at ON</td> <td>② ...OK (red) OK with ① and ② at ON</td> </tr> <tr> <td style="text-align: center;"> </td> <td>③ ...+NG (white) OK with ①, ②, and ③ at OFF</td> <td>③ ...+NG (white) +NG with ①, ②, and ③ at ON</td> </tr> </table>                      |   |               |   |  | <b>S-5, S-7, S-9</b> | <b>SC-2A</b> |  | ① ...COM (blue) black -NG with ① and ② at ON | ① ...COM (blue) black -NG with ①, ②, and ③ at OFF |  | ② ...-NG (red) +NG with ① and ③ at ON | ② ...OK (red) OK with ① and ② at ON |  | ③ ...+NG (white) OK with ①, ②, and ③ at OFF | ③ ...+NG (white) +NG with ①, ②, and ③ at ON |
|                             | <b>S-5, S-7, S-9</b>  | <b>SC-2A</b>                                      |               |   |  |                      |              |  |  |   |  |                                       |                                     |  |   |   |
|                             | ① ...COM (blue) black -NG with ① and ② at ON  | ① ...COM (blue) black -NG with ①, ②, and ③ at OFF |               |   |  |                      |              |  |  |   |  |                                       |                                     |  |   |   |
|                             | ② ...-NG (red) +NG with ① and ③ at ON   | ② ...OK (red) OK with ① and ② at ON               |               |   |  |                      |              |  |  |   |  |                                       |                                     |  |   |   |
|                             | ③ ...+NG (white) OK with ①, ②, and ③ at OFF   | ③ ...+NG (white) +NG with ①, ②, and ③ at ON       |               |   |  |                      |              |  |  |   |  |                                       |                                     |  |   |   |
| Caution                     | <ul style="list-style-type: none"> <li>● When the current of 10 to 20 mA is used to drive a photocoupler, etc., the contact may be worn a little earlier.</li> <li>● In SC-2A type, the COM terminal is body-grounded (If leak current is found in other devices, put a gauge into floating status before mounting it).</li> <li>● In SC-2A type, a spindle can be set in a range from its free status to 3mm. Although it may be movable in excess of this limit, you cannot set it in such an excessive level in order to protect the spindle.</li> <li>● In SC-2A type, when a dial gauge is dismantled after setting the tolerance, never forget to mount a dust protective cap.</li> </ul> |   |               |   |  |                      |              |  |  |   |  |                                       |                                     |  |   |   |



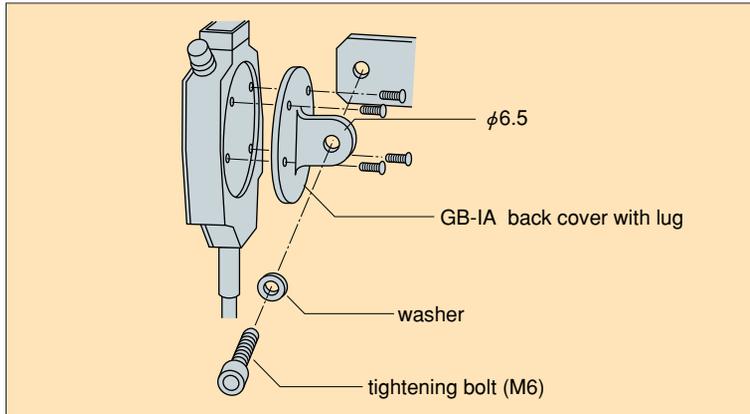
**Outer Dimension S-5, S-7 & S-9**



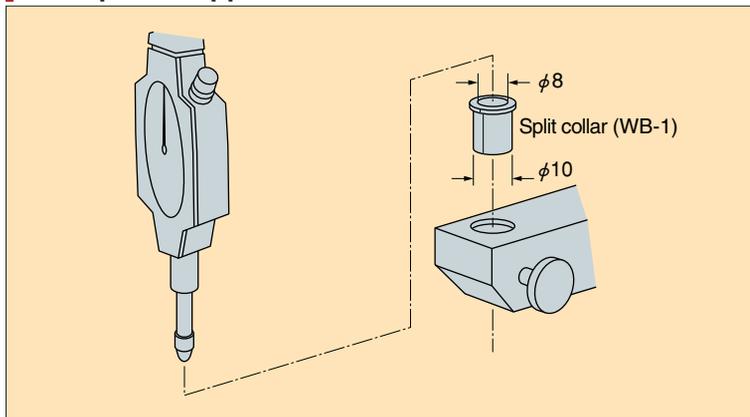
**Outer Dimension SC-2A**



**GB-1A Example of mounted back cover with lug (option)**



**Example of supported stem**



Signal Gauges / Signal Checker

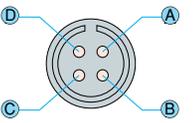
# Signal Box

- Long life LED makes a replacement of lamp unnecessary.
- It is equipped with judgement output by relay contact.



SB-3

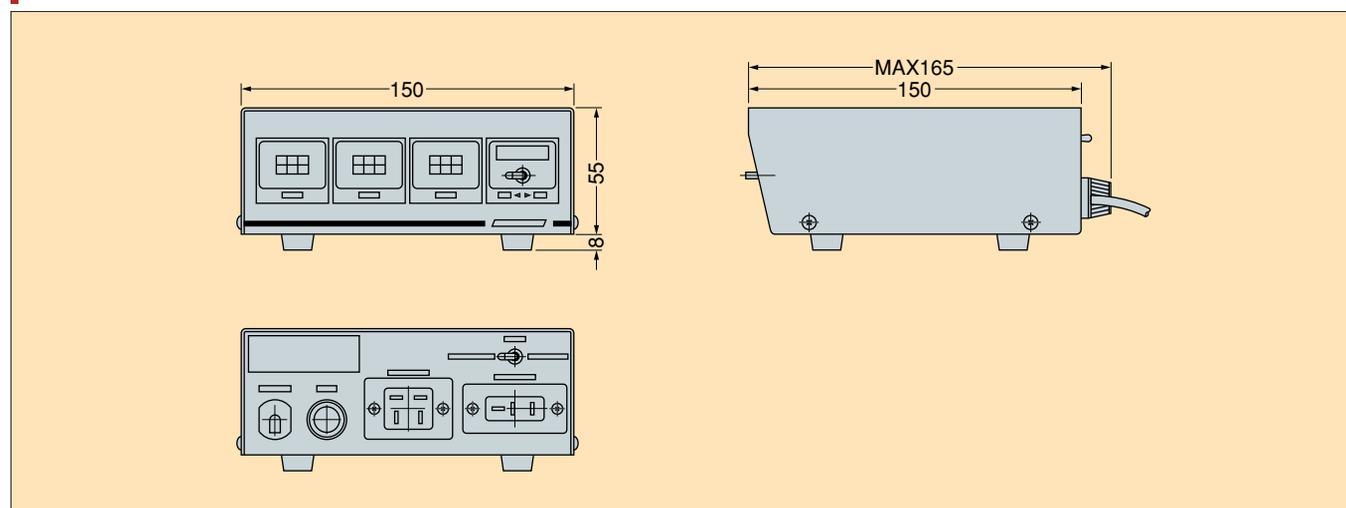
## Specifications

| Model                    | SB-3  |
|--------------------------|---|
| Display Colors           | -NG (red), OK (green), +NG (yellow)   |
| Relay contact capacity   | AC200V (5VA) MAX (resistance load)  |
| Outer Dimensions         | (L)150mm×(H)63mm×(D)160mm   |
| Cord length              | 2m (with plug)  |
| Power supply             | AC100V, AC200V 50 / 60Hz  |
| Usable Gauges            | S-5, S-7, S-9, SC-2A  |
| Relay contact output     | Three stages of -NG, OK, and +NG  |
| Weight                   | 1300g   |
| Output of Relay Contacts |  <ul style="list-style-type: none"> <li>A.....+NG</li> <li>B.....COM</li> <li>C.....OK</li> <li>D.....-NG</li> </ul> |



Signal Box

## Dimensions



# Signal Controller

10

- This is incorporated in a control panel. All its output and input terminals are connected to the terminal board.
- The large relay contact capacity eliminates previous contact troubles.

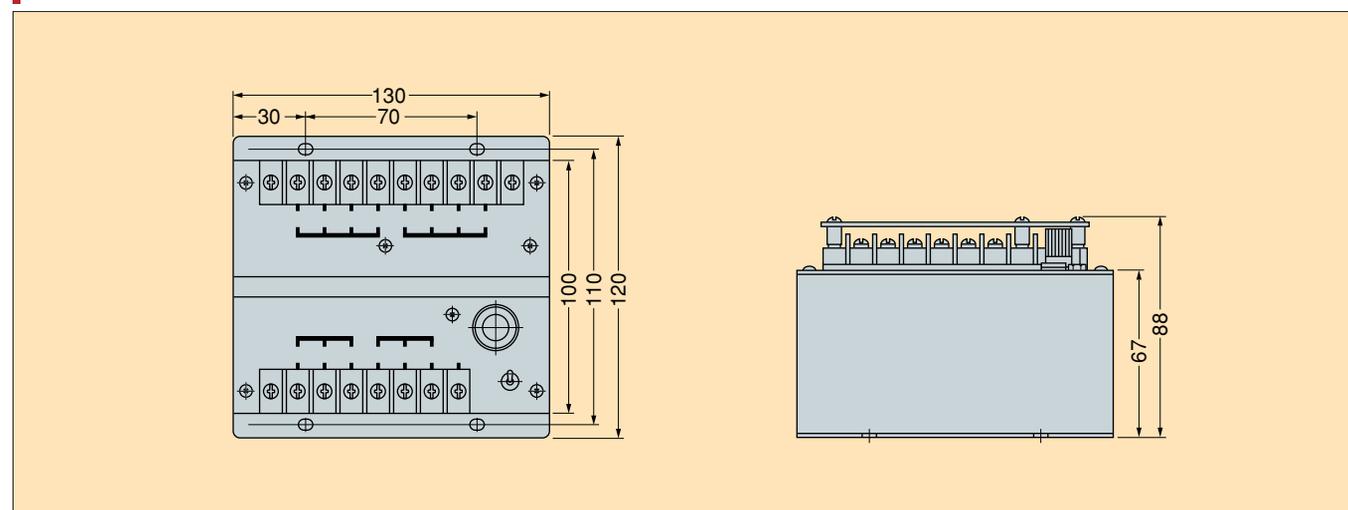


SCB-3

## Specifications

| Model                  | SCB-3   |
|------------------------|---|
| Lamp display output    | DC12V to 18V (max.110mA)  |
| Relay contact capacity | AC200V (5VA) MAX (resistance load)  |
| Outer Dimensions       | (L)130mm×(H)88mm×(D)120mm   |
| Setting hole diameter  | 70mm × 110mm  |
| Power supply           | AC100V, AC200V 50 / 60Hz  |
| Usable Gauges          | S-5, S-7, S-9, SC-2A  |
| Relay contact output   | Three stages of -NG, +NG, and OK  |
| Weight                 | 1300g   |
| Precautions            | (1) Disconnect the DC12V line when using the lamp display output to power the relay contact.<br>(Leaving it connected will make for a two-circuit control.)<br>(2) When connecting signal gauges or signal checker, remove the original connector and use crimp-style fork terminals. |

## Dimensions

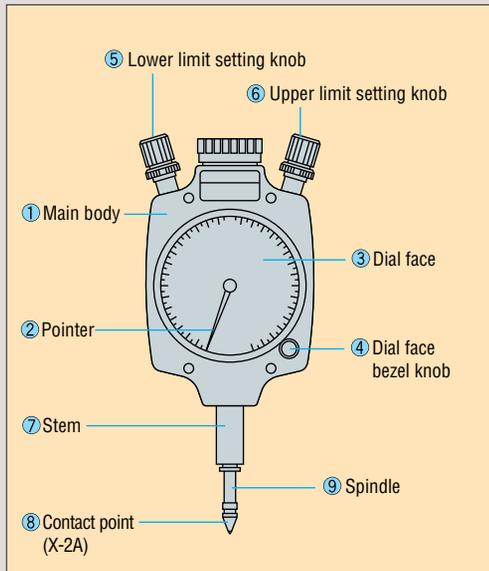


Signal Controller

# Signal Gauge Set-Up

## How to Use

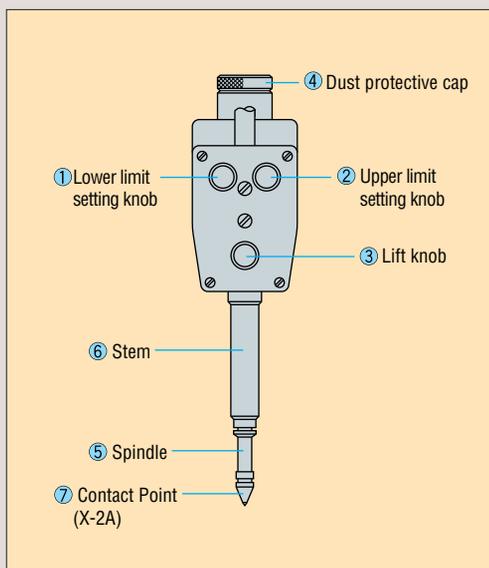
### ● Signal Gauge (S-5, S-7, S-9)



### ● Instructions

- Prepare a judgement master (standard sample) and hold a signal gauge on a stand, etc.
  - Adjust and fix the position of judgement master so that a gauge pointer indicates zero, and move the contact point ⑧ up and down several times so as to confirm the pointer's stable position.
  - When setting a lower limit of tolerance value, remove the master and turn the lower limit setting knob ⑤ so as to adjust a pointer at a certain graduation.
  - When setting an upper limit of tolerance value, turn the upper limit setting knob ⑥ so as to adjust a pointer at a certain graduation while fully pushing up the contact point ⑧.
  - After setting the upper and lower limit, move the spindle ⑨ up and down several times to confirm that a pointer's indication is within the tolerance value.
- ※ Stem or back cover with lug is used to support the gauge.

### ● Signal Checker (SC-2A)

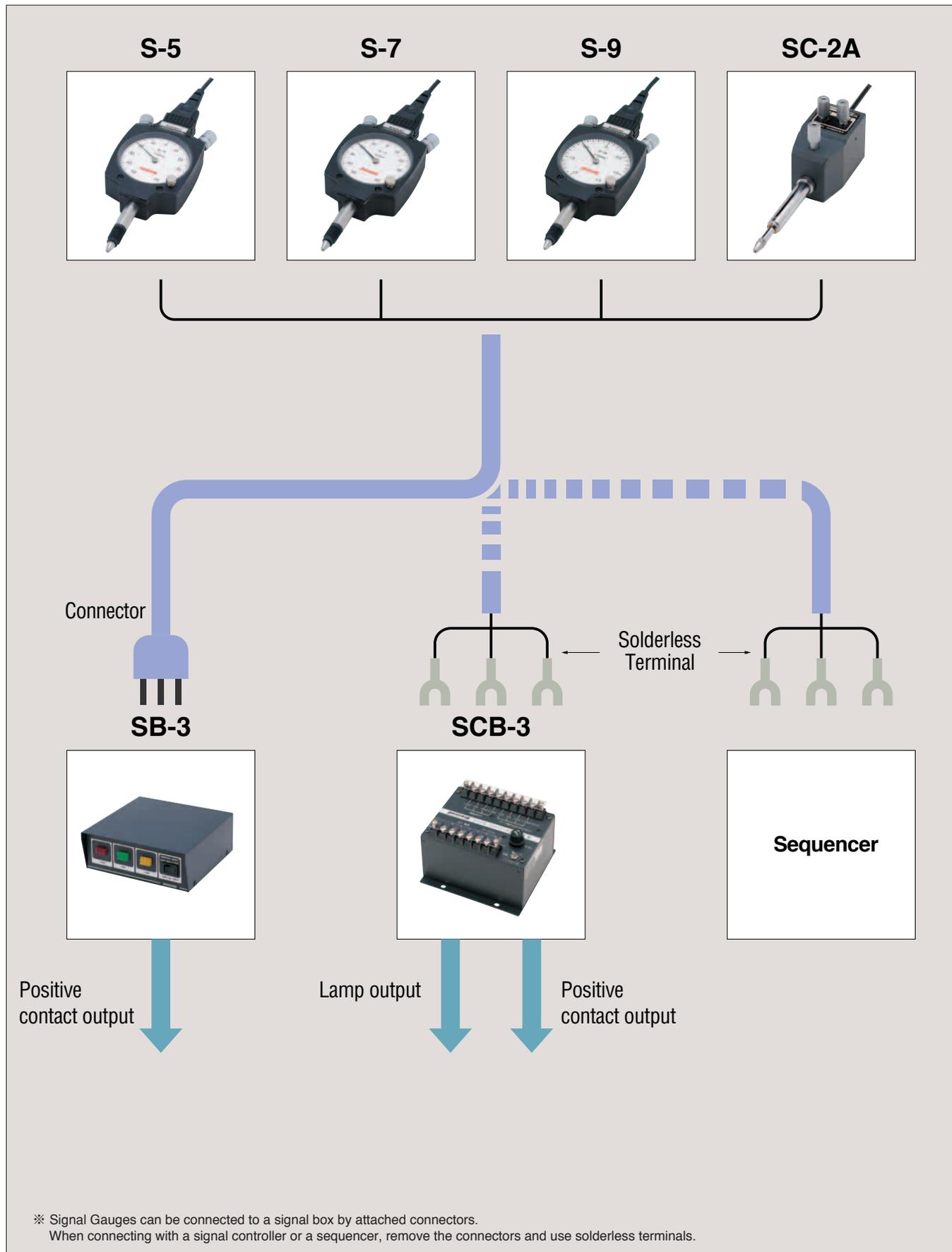


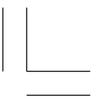
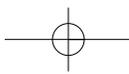
### ● Instructions

- Prepare a judgement master (standard sample) and hold a signal gauge on a stand, etc.
  - Prepare a dial gauge for setting tolerance value No.107 (0.01mm to 10mm) and remove the dust protective cap ④ by a hexagon wrench attached to the gauge.
  - Turning the lift knob ③ allows the spindle ⑤ to move up and down. The pointer of dial gauge moves according to its movement.
  - Connect this checker with a signal box or a controller.
  - Prepare a judgement master (standard sample), on which push this checker to the position where the lower limit of tolerance value can be set, and fix it by a supporting device.
  - Set the indicator of dial gauge at zero of a dial and turn the lower limit setting knob ① fully in the clockwise direction.
  - Set the upper limit of tolerance value at a certain position while turning the lift knob ③ in the clockwise direction.
  - Turn the upper limit setting knob ② in order to adjust the indications (signals) of signal box or controller to the switching position of OK and +NG at the upper limit of tolerance value.
  - Remove the master and turn the lift knob ③ in the counter clockwise direction to set the lower limit of tolerance value.
  - Turn the lower limit setting knob ① to adjust the indications (signals) of signal box or controller to the switching position of OK and -NG at the lower limit of tolerance value.
  - Move the spindle ⑤ up and down several times by the lift knob ③ to check the right adjustment.
  - After your setting, turn the lift knob ③ in the counter clockwise direction until the spindle ⑤ is fully pushed down.
  - When you use this checker without dial gauge, never forget to mount the dust protective cap ④ on it.
- ※ Stem is used to support this checker.



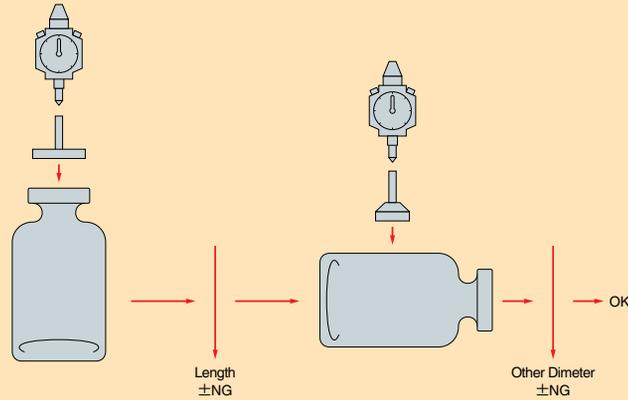
# Signal Gauge Connections Diagram





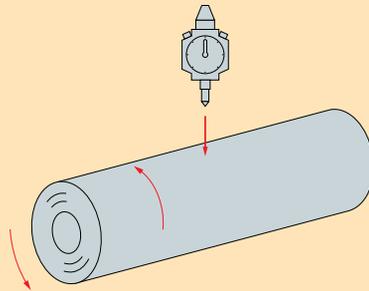
# Example of Use

## ● Measurements of Length and Outer Diameter (glass bottles, etc.)



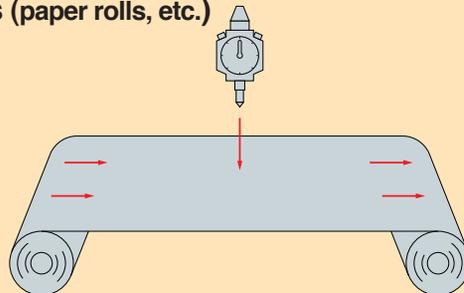
※ After measuring by two signal gauges and two signal boxes, selection (OK, ±NG) is automatically controlled.

## ● Measurement of Deviation (Wheels, etc.)



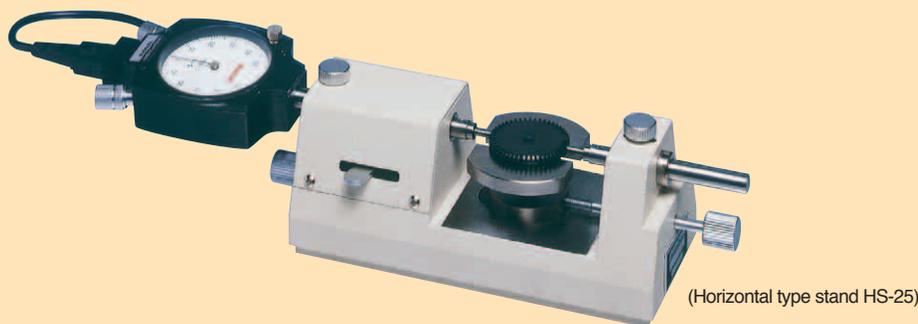
※ Selection (OK, ±NG) is performed while turning an object and measuring its deviation.

## ● Measurement of Thickness (paper rolls, etc.)



※ Multiple points are measured using a lot of signal gauges and selection (OK, ±NG) is performed by a signal box, or controller.

## ● Measurement of Outer Diameter (gears, etc.)

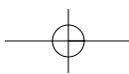


(Horizontal type stand HS-25)

※ Selection (OK, ±NG) is performed using one signal gauge, one signal box, and one horizontal type stand.  
(For the horizontal type stand HS-25, see page 117.)



Example of Use



SECTION  
**11**



## Digital Indicators

- Digital Dial Gauge
- Linear Gauge
- Digital Counter
- Digital Printer
- Application Series
- Deep Hole Bore Gauge
- Technical Glossary

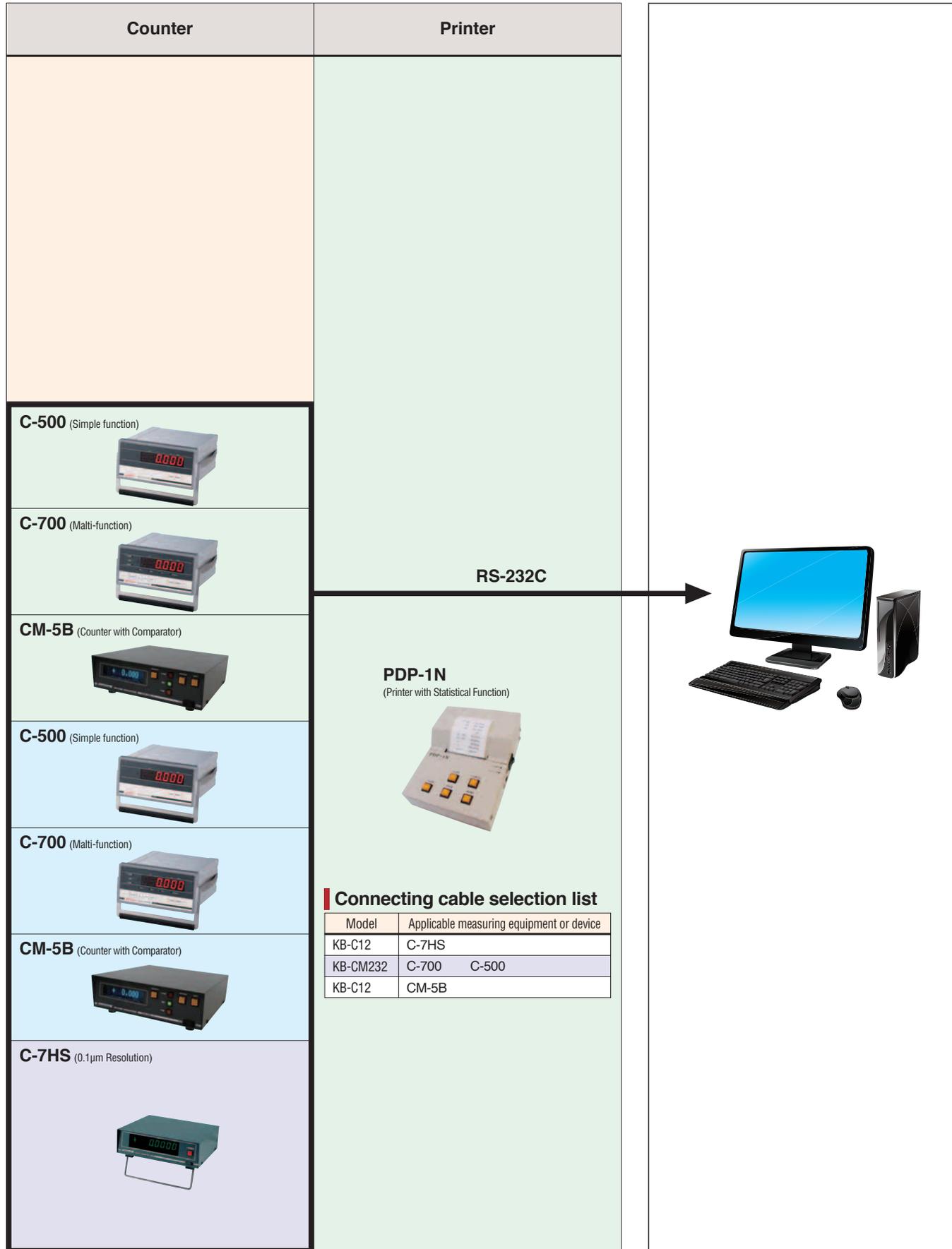
# 11

## Overview of Digital Gauges & Display Combinations

| Measuring range      | 2mm   | 5mm  | 12.5mm   | 20(25)mm  | 50mm  | 100mm   |
|----------------------|---|--|--|---|---|---|
| Resolution           |   |  |  |   |   |   |
| 0.01mm               |   |  | DG-127<br>                | DG-257<br>   |   |   |
| 0.001mm              |   |  |  | DG-205<br><br>PDN-20<br><br>0.001mm<br>(Convertible to 0.01mm) | PDN-50<br><br>0.001mm<br>(Convertible to 0.01mm) |   |
| 0.01mm               | DL-2 (Lever Type)<br>  | D-5<br><br>D-5UZ<br> | D-10<br>New DN-10<br>   | D-20<br>New DN-20<br>   | D-50<br>                                       | D-100<br>  |
| 0.001mm              | DL-2S (Lever Type)<br> | D-5S<br>  | D-10S<br>New DN-10S<br> | D-20S<br>New DN-20S<br>   | D-50S<br>                                      | D-100S<br> |
| 0.0005mm<br>(0.5 μm) |   |  | D-10SS<br>              |   |   |   |
| 0.0001mm<br>(0.1 μm) |   |  | D-10HS<br>              |   |   |   |

Overview of Digital Gauges & Display Combinations

# Display and Supporting Units





# 11

## Digital Indicators

### Cordless Type

- The batteries in these digital indicators have a service life of approximately 3000 hours under normal use.
- Digital display can be rotated (approx. 270°) to easily legible positions.
- Very compact, and long 25mm stroke. (DG-257, DG-205)
- RS-232C data output capability.
- No warm-up required. Switch on, and it's immediately ready to use.
- Clear LCD display.



**DG-127**  
Resolution: 0.01mm  
Range: 0~12.5mm

**DG-257**  
Resolution: 0.01mm  
Range: 0~25mm

**DG-205**  
Resolution: 0.001mm  
Range: 0~25mm

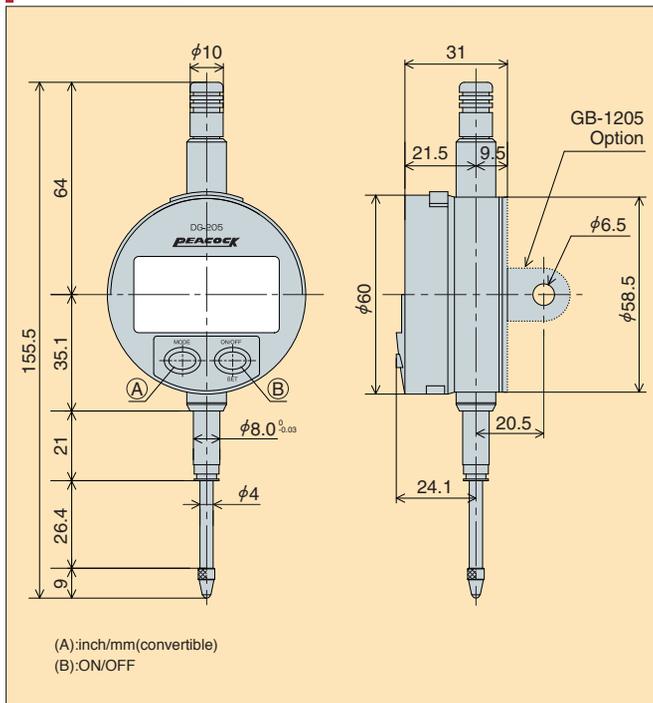
### Specifications

| Model                                       | DG-127  | DG-257         | DG-205                           |
|---|---|----------------|----------------------------------|
| Range                                       | 12.5mm  | 25mm           |                                  |
| Resolution                                  | 0.01mm  |                | 0.001mm                          |
| Accuracy (excluding quantized error)        | 0.01mm  |                | 0.003mm                          |
| Display (LCD display)                       | 5 digit -999.99 with (-) symbol   |                | 6 digit -999.999 with (-) symbol |
| Measuring force (when correctly positioned) | Less than 0.95N   | Less than 1.1N |                                  |
| Operating temperature                       | +5~40°C   |                |                                  |
| Battery                                     | One CR203 type lithium battery (included)   |                |                                  |
| Data output                                 | RS-232C port (opto-cable sold separately)   |                |                                  |
| Mounting method                             | Supported by $\phi$ 8mm stem, (Lug back, GB-1205 is optional)   |                |                                  |
| Contact point                               | M2.5 x 0.45 Thread with carbide ball (XB-1)   |                |                                  |
| Weight                                      | 230g  |                |                                  |
| Functions                                   | <ul style="list-style-type: none"> <li>● ZERO RESET----- Resetting to zero at any desired position</li> <li>● PRESET----- Preset at a desired value</li> <li>● DATA HOLD----- Data can be held for direct data output to outside computer</li> <li>● MM/INCH----- Easily switch between metric and inch systems</li> <li>● Low battery warning display----- "B" signifies low battery (Battery dies within 2~3 hours after "B" is first displayed)</li> <li>● Display rotation----- Display can be rotated up to 270° for easy reading</li> <li>● Counting direction conversion----- Plus and minus directions, for spindle movement, can be selected.</li> </ul> |                |                                  |

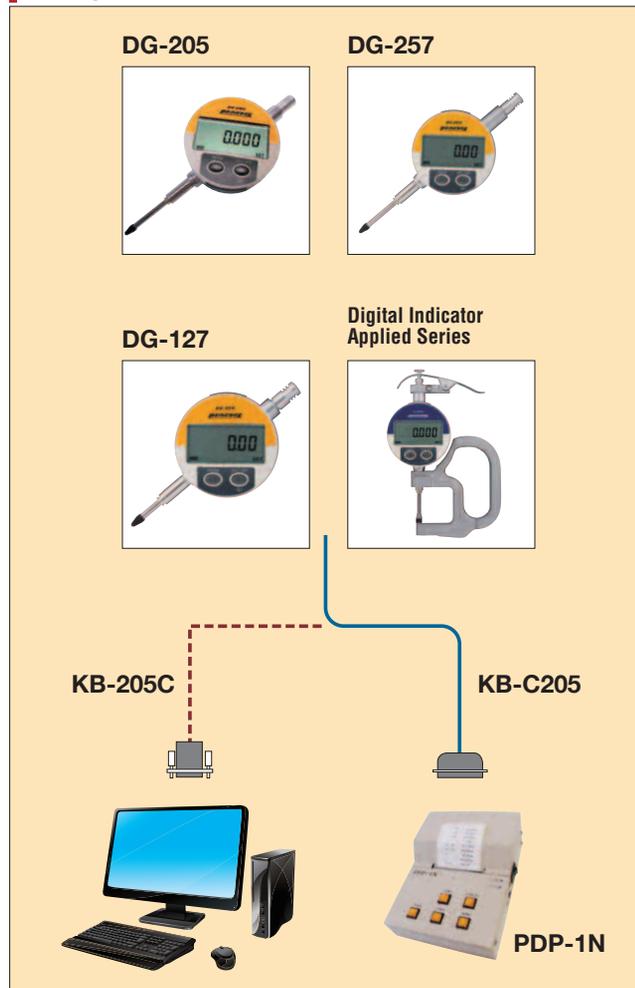


Digital Indicators

**Dimensions (DG-205/DG-257/DG-127)**



**Example of Connection**



**Optional accessories**

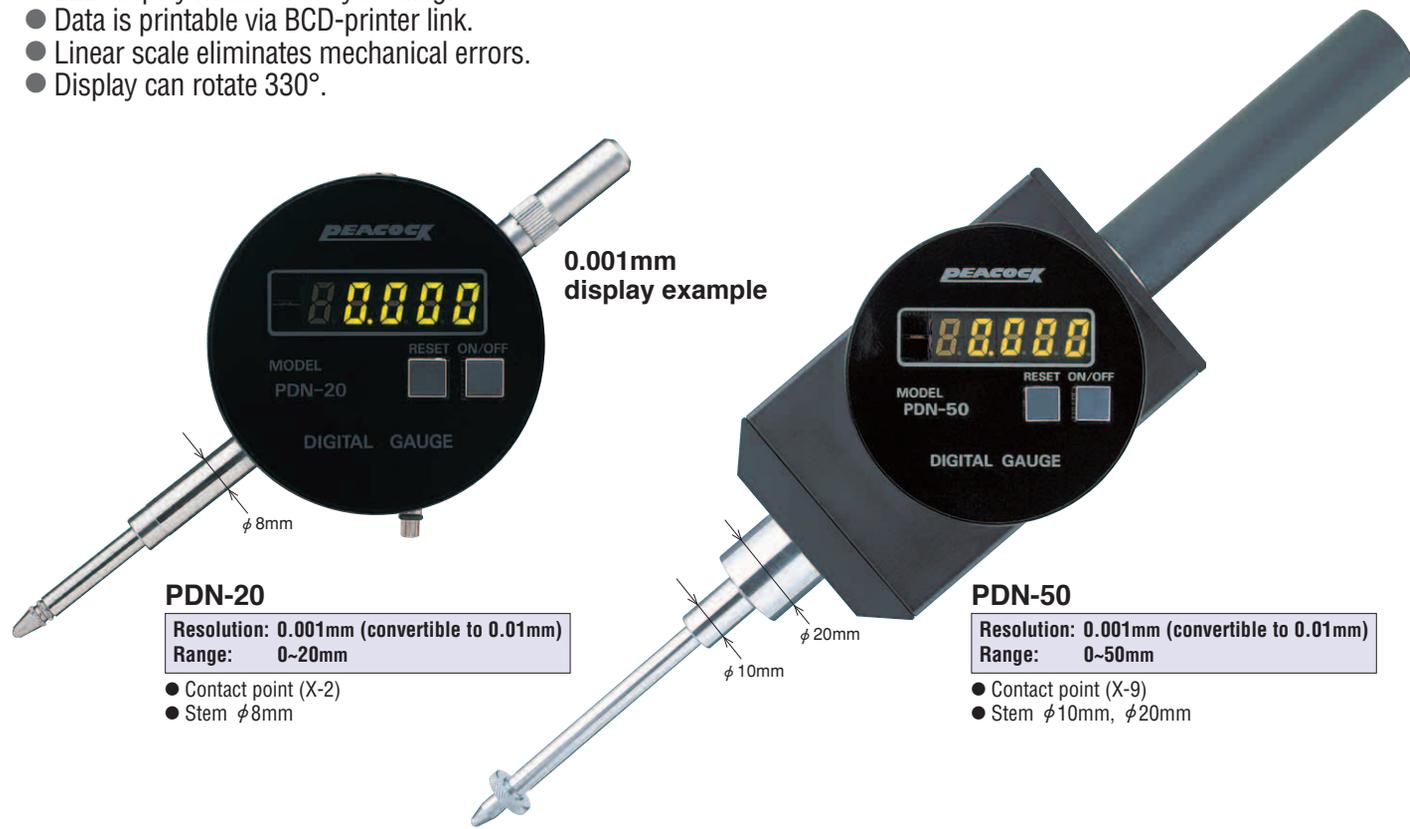


Digital Indicators

# 11 Digital Gauges

## Integrated Display Type

- LED display make for easy reading.
- Data is printable via BCD-printer link.
- Linear scale eliminates mechanical errors.
- Display can rotate 330°.

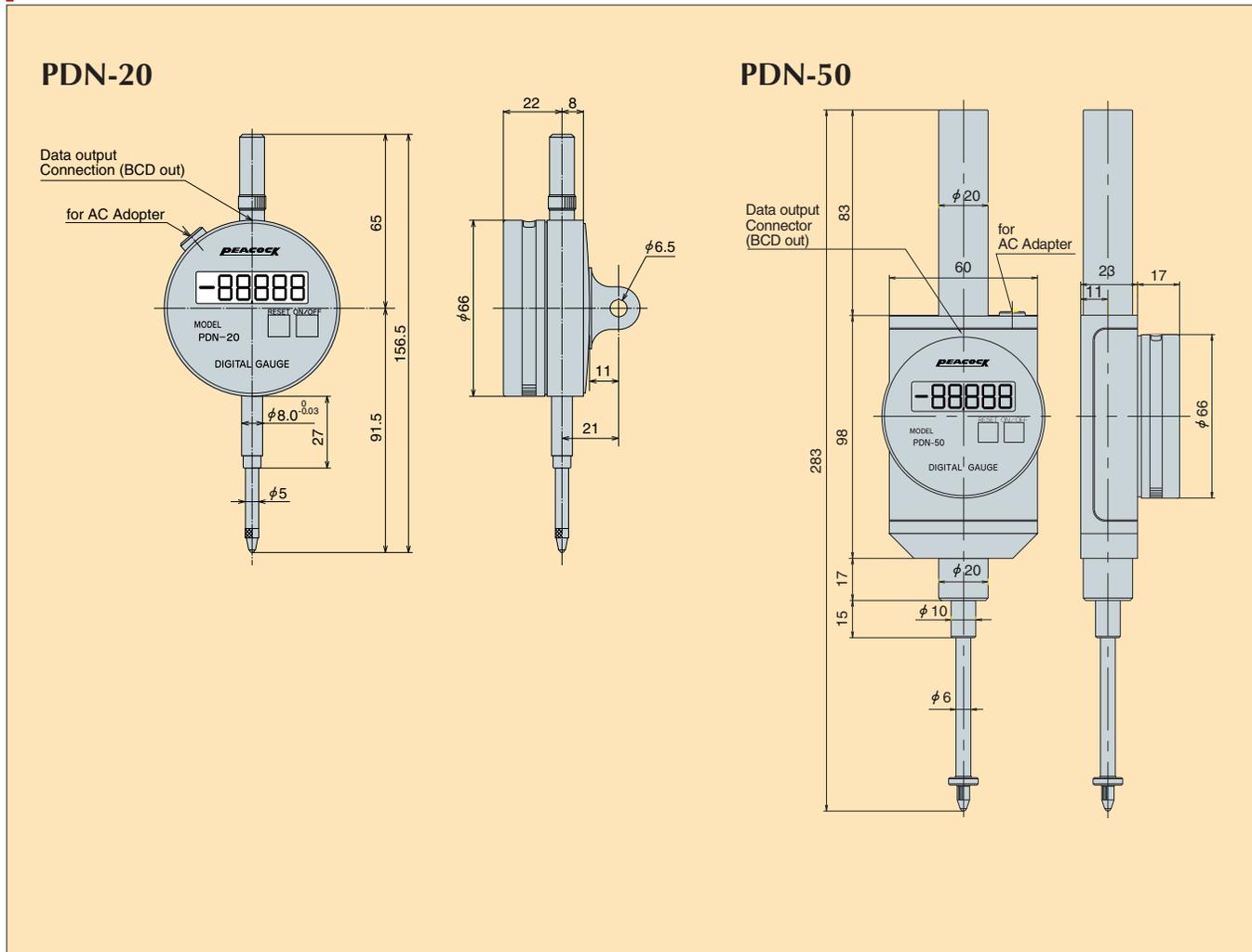


### Specifications

| Model                                | PDN-20  | PDN-50  |
|--------------------------------------|---|---|
| Range                                | 20mm  | 50mm  |
| Resolution                           | 0.001mm (convertible to 0.01mm) (Please specify either 0.001 or 0.01mm display at the time of purchase.)  |   |
| Accuracy (excluding quantized error) | 0.003mm (0.01mm)  | 0.004mm (0.01mm)  |
| Display                              | For 0.001mm 5 digit —999.99 with (—) symbol<br>For 0.01mm 4 digit —99.99 with (—) symbol  |   |
| Measuring force                      | Standard (spindle downward) less than 1.3N<br>(spindle upward) less than 0.8N<br>Without spring (spindle downward) less than 0.4N   | Standard (spindle downward) less than 3.0N<br>(spindle upward) less than 2.5N<br>Without spring (spindle downward) less than 1.0N |
| Response speed                       | 500mm/sec   |   |
| Data output                          | BCD (dynamic) negative logic open collector   |   |
| Mounting method                      | Supported by stem ( $\phi$ 8mm) or lug ( $\phi$ 6.5mm hole on lug back)   | Supported by stem ( $\phi$ 10mm, $\phi$ 20mm)   |
| Operating temperature                | 0~40°C  |   |
| Power supply                         | AC adapter (AC 100V or 230V)  |   |
| Contact point                        | M2.5×0.45 Thread with steel ball (X-2)  | M2.5×0.45 Thread with steel ball (X-9)  |
| Weight                               | 280g  | 380g  |
| Functions                            | <ul style="list-style-type: none"> <li>● ZERO RESET..... Presetting to zero at any desired position</li> <li>● ERROR..... Mistaken entry will flashing</li> <li>● LED display..... Orange light of LED display makes test reading easy, even in dark places.</li> <li>● BCD OUT..... Connects with statistic computing printer to manage data.</li> <li>● Display rotation..... Display can be rotated up to 330° for easy reading.</li> </ul>  |   |
| Options                              | <ul style="list-style-type: none"> <li>● Flat back cover: GB-3PD20 (lug back is standard)---PDN-20 only</li> <li>● Lifting lever (For lifting spindle LL-PD)---PDN-20 only</li> <li>● Finger lever (For lifting spindle LL-D20)</li> <li>● Release (For lifting spindle RE-4)</li> <li>● Changing measuring force (※Measuring force can be made to customer's requirements.)</li> <li>● Replaceable contact points (※All the Contact points for Dial Gauges can be installed.)</li> </ul> |   |

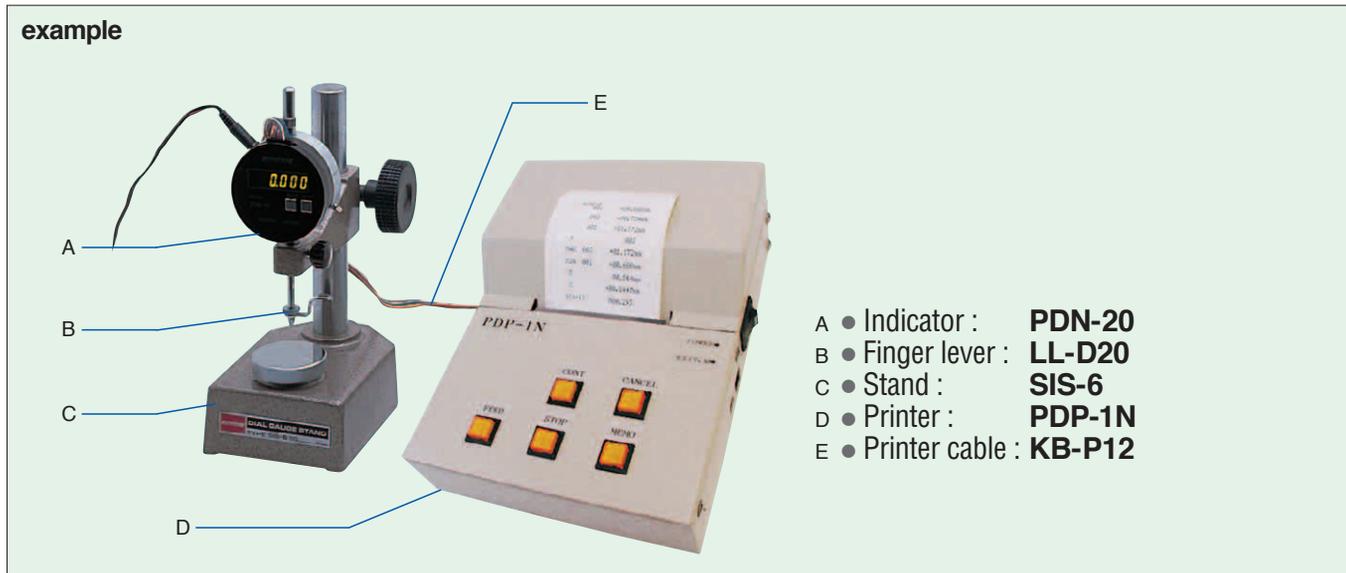
※ To change measuring force or to manufacture special contact points, please contact a sales representative near you.

**Dimensions**



**Connect with the statistic computing printer to help manage your data.**

example



Digital Dial Gauge with Stand



# 11

## Linear Gauges

### Measurement range(0~5mm)

#### Lever Type

- Best suited for deviation measurement.

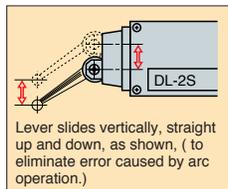


#### DL-2

Resolution: 0.01mm  
Range: 0~2mm

#### DL-2S

Resolution: 0.001mm  
Range: 0~2mm



#### Pencil Type

- Best suited for confined conditions.



#### D-5

Resolution: 0.01mm  
Range: 0~5mm

#### D-5S

Resolution: 0.001mm  
Range: 0~5mm

Contact Point (X-2)

#### Small Type

- Best suited for work in confined space measurement.



#### D-5UZ

Resolution: 0.01mm  
Range: 0~5mm

Contact Point (X-107)

### Specifications

| Model                                | DL-2  | DL-2S       | D-5   | D-5S    | D-5UZ  |
|--------------------------------------|---|-------------|---|---------|--|
| Range                                | ※ 1 2mm   |             | 5mm   |         | 5mm  |
| Resolution                           | 0.01mm  | 0.001mm     | 0.01mm  | 0.001mm | 0.01mm   |
| Accuracy (excluding quantized error) | ※ 2 0.01mm  | ※ 2 0.002mm | 0.005mm   | 0.002mm | 0.01mm   |
| Measuring force                      | Less than 0.3N  |             | Less than 0.5N  |         | Less than 1.0N   |
| Mounting method                      | φ 6.5mm hole on lug or dovetail at bottom   |             | φ 8mm stem  |         | φ 6.5mm hole on lug back   |
| Contact point                        | S φ 2mm carbide   |             | S φ 2.4mm steel (X-2)   |         | S φ 2.4mm steel (X-107)  |
| Weight                               | 180g  |             | 160g  |         | 200g   |
| Cable length                         | 2m (Standard) Option ● Extention cables of 2, 3, 5 and 10 meters are available (see page P.143)   |             |   |         |  |
| Operating temperature                | 0~40°C  |             |   |         |  |
| Output signal                        | 90° phase difference, 20μm pitch (R03-PB8M Tajimi connector)  |             |   |         |  |
| Features                             | <ul style="list-style-type: none"> <li>● Lever type probe is best recommended for measuring TIR or narrow space.</li> <li>● Contact point easy adjustable to any desired position.</li> </ul> |             | <ul style="list-style-type: none"> <li>● Pencil type is especially made for setting up in extremely confined conditions.</li> <li>● Dust proof rubber attached. Gauge suitable for use in dusty and moist environment.</li> </ul> |         | <ul style="list-style-type: none"> <li>● The gauge height is extremely short to fit in limited spaces.</li> <li>● Set by lug on the back of the gauge ( φ 6.5mm hole)</li> </ul> |
| Compatible standard counters         | C-500<br>C-700<br>CM-5B   |             |   |         |  |
| Options                              | —   |             | <ul style="list-style-type: none"> <li>● Customer must specify if application is up-side-down. The measuring force changes when the gauge is inverted.</li> </ul>   |         | <ul style="list-style-type: none"> <li>● Replaceable Contact Point XS-6</li> <li>● Other Optional Contact Points</li> </ul>  |

※1 Lever moves linearly, unlike the arc movement in a lever type dial indicator.

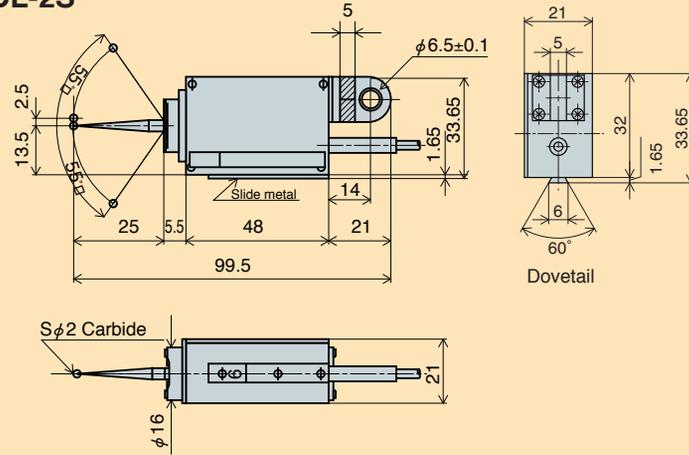
※2 Largest deviation value if narrow range for every 0.5mm step.



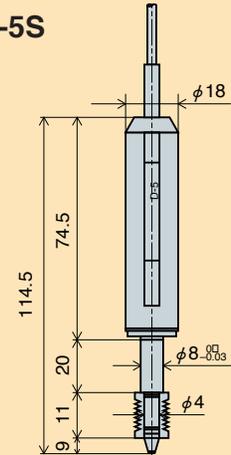
Linear Gauges

**Dimensions**

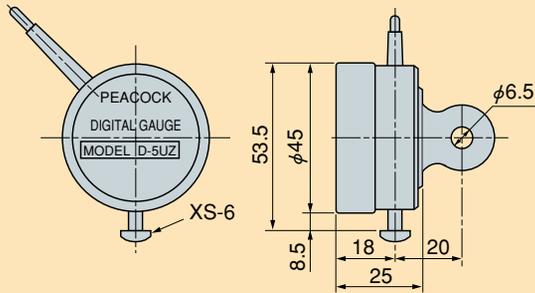
**DL-2 / DL-2S**



**D-5 / D-5S**

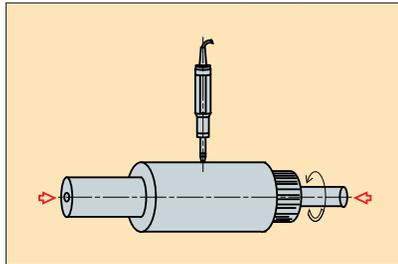


**D-5UZ**

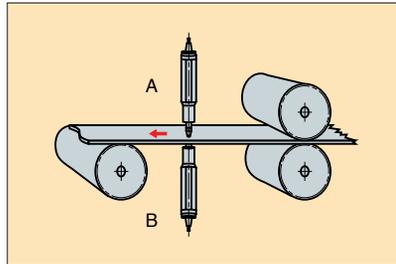


**Examples**

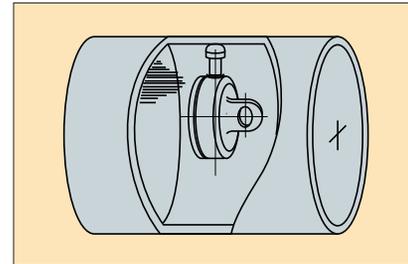
- Testing TIR (Total Indicator Run-out) of a cylinder



- Multi-point testing of a thick board

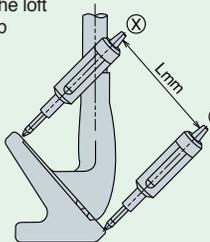


- Internal surface measurement of a cylinder



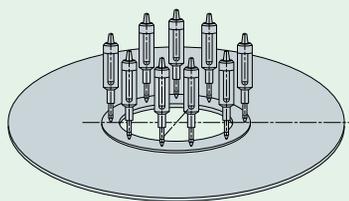
- Measuring Angles

Gauges are set at position X and Y and the difference between them is converted into angle for judgement. (In this example, the loft angle of a golf club is measured and printed out)



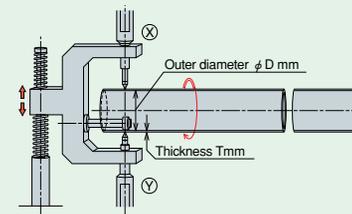
- Multi-Point Measuring

Mount the same number of linear gauges to measure the numbers of points where measurement is needed. Measured data is processed by a multi-counter with CPU and printed out on a printer.



- Measuring Glass Tubes

Outer diameter, thickness, and thickness variation of glass tubes such as fluorescent tubes are measured and displayed. Built-in printer prints out the measured data.



Linear Gauges



# 11 Measurement range (0~10mm, 0~20mm)

- 10mm and 20mm measurement ranges are the easiest to use.
- Used in conjunction with digital counters, these gauges can be set up in places where dial gauges are now being used.
- Set the gauge by either stem or lug back.
- For lifting spindle, both lever and release types are available.

## Rectangular wave output type

DN-10・DN-10S・DN-20・DN-20S

- For use in electrically noisy environments.
- For applications requiring extra long cables.(10 to 50 meters are available)



**D-10**  
Resolution: 0.01mm  
Range: 0~10mm

**D-10S**  
Resolution: 0.001mm  
Range: 0~10mm



**DN-10** New  
Resolution: 0.01mm  
Range: 0~10mm

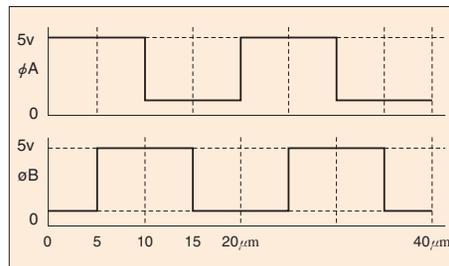
**DN-10S** New  
Resolution: 0.001mm  
Range: 0~10mm



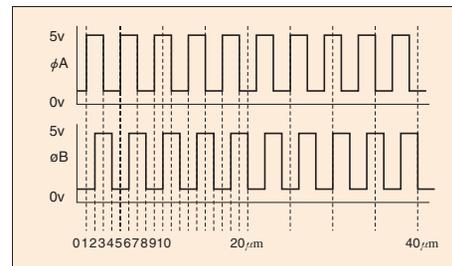
**DN-20** New  
Resolution: 0.01mm  
Range: 0~20mm

**DN-20S** New  
Resolution: 0.001mm  
Range: 0~20mm

Output wave-form (DN-10・DN-20)



Output wave-form (DN-10S・DN-20S)

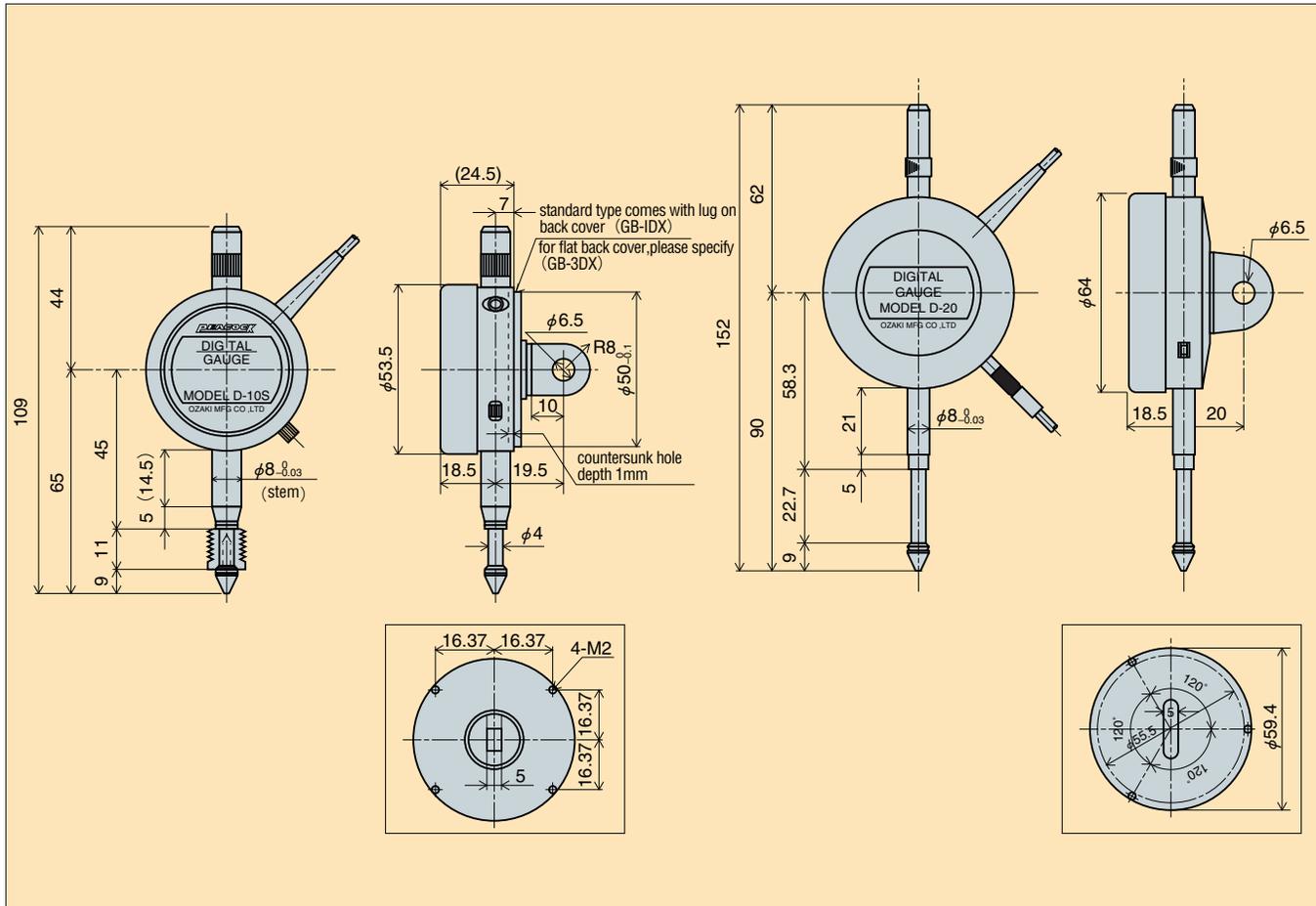


### Specifications

| Model                                | D-10   | D-10S   | DN-10  | DN-10S  | D-20   | D-20S   | DN-20  | DN-20S  |
|--------------------------------------|--|---------|--------|---------|--|---------|--------|---------|
| Range                                | 10mm   |         |        |         | 20mm   |         |        |         |
| Resolution                           | 0.01mm   | 0.001mm | 0.01mm | 0.001mm | 0.01mm   | 0.001mm | 0.01mm | 0.001mm |
| Accuracy (excluding quantized error) | 0.005mm  | 0.002mm | 0.01mm | 0.002mm | 0.005mm  | 0.003mm | 0.01mm | 0.003mm |
| Measuring force                      | Less than 1.0N   |         |        |         | Less than 1.5N   |         |        |         |
| Cable length                         | 2m   |         |        |         |  |         |        |         |
| Mounting method                      | φ 8mm stem or 6.5mm hole on lug back   |         |        |         |  |         |        |         |
| Contact point                        | M2.5 × 0.45 S φ 2.4mm steel (X-2)  |         |        |         |  |         |        |         |
| Operating temperature                | 0~40°C   |         |        |         |  |         |        |         |
| Weight                               | 220g   |         |        |         | 300g   |         |        |         |
| Output Signal                        | 90° phase difference, 20μm pitch (R03-PB8M Tajimi connector) Rectangular wave (Low=0V High=8V)   |         |        |         |  |         |        |         |
| Compatible standard counters         | C-500<br>C-700<br>CM-5B (※except DN-10S, DN-20S)   |         |        |         |  |         |        |         |
| Options                              | <ul style="list-style-type: none"> <li>● Release (RE-4) Lifting lever (LL-1)</li> <li>● Dust proof rubber (BG-10)</li> <li>● Flat back (GB3-D10), screws (S-110)</li> <li>● Customer must specify if application is up-side-down.</li> </ul> The measuring force changes when the gauge is inverted. |         |        |         | <ul style="list-style-type: none"> <li>● Release (RE-4)</li> <li>● Flat back (GB3-D20)</li> <li>● Customer must specify if application is up-side-down.</li> </ul> The measuring force changes when the gauge is inverted. |         |        |         |

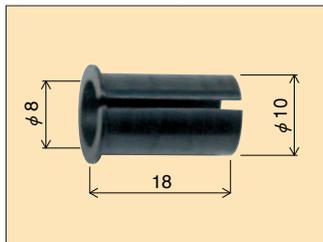
※Features  
 DN-10 DN-10S DN-20 DN-20S  
 ●1 Recommended for locations where cable extension (10 to 50 meters) is necessary.  
 ●2 Recommended for use in electrically noisy environments.  
 Notes of wiring : A signal wire should be duct wiring apart from other power lines.

**Dimensions (D-10/D-10S/D-10SS/D-20/D-20S/DN-10/DN-10S/DN-20/DN-20S)**



**Options**

**Split collar (WB-1)**



Split collar above is used on the  $\phi 8$ mm stem during mounting to prevent malfunction due over tightening. Securing by means of screw directly in stem may result in malfunction.

**Dust proof rubber (BG-10)**



Compressible dust proof rubber fits all D-5, D-5S, D-10S, D-10SS, DN-10, DN-10S gauges. (Stroke under 10mm)

**Release (RE-4)**



Total length 305mm

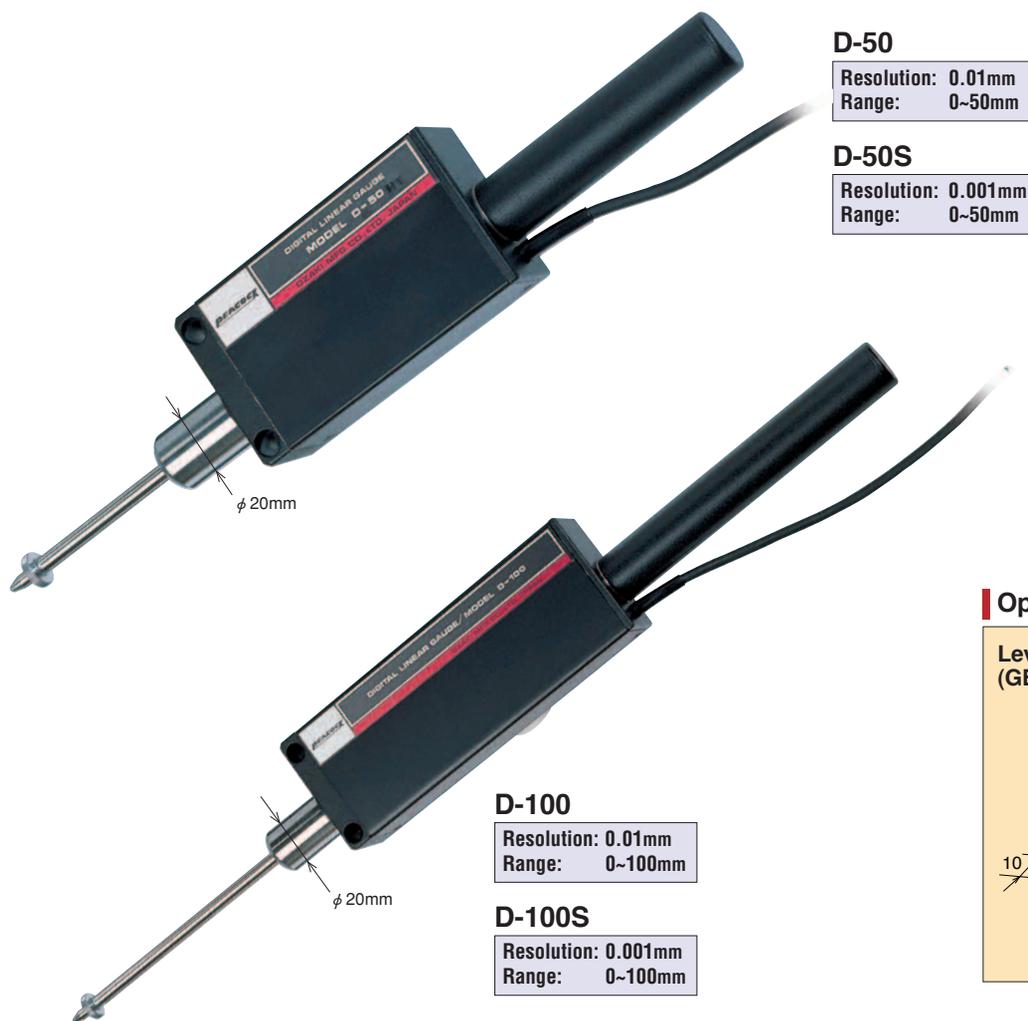
**Lifting lever (LL-1)**



Linear Gauges

# 11 Measurement Range (0~50mm, 0~100mm)

- With very sturdy  $\phi$  20mm stem.
- Ultra-high precision achievable with exclusive gauge stand (PDS-2)



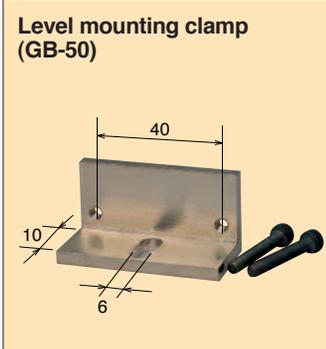
**D-50**  
Resolution: 0.01mm  
Range: 0~50mm

**D-50S**  
Resolution: 0.001mm  
Range: 0~50mm

**D-100**  
Resolution: 0.01mm  
Range: 0~100mm

**D-100S**  
Resolution: 0.001mm  
Range: 0~100mm

### Option



### Specifications

| Model                                | D-50   | D-50S   | D-100          | D-100S  |
|--------------------------------------|--|---------|----------------|---------|
| Range                                | 50mm   |         | 100mm          |         |
| Resolution                           | 0.01mm   | 0.001mm | 0.01mm         | 0.001mm |
| Accuracy (excluding quantized error) | 0.01mm   | 0.004mm | 0.01mm         | 0.005mm |
| Measuring force                      | Less than 3.0N   |         | Less than 3.5N |         |
| Cable length                         | 2m   |         |                |         |
| Mounting method                      | $\phi$ 20mm stem or fastening by M4 screws at two positions  |         |                |         |
| Contact point                        | M2.5 $\times$ 0.45 S $\phi$ 2.4mm steel (X-9)  |         |                |         |
| Operating temperature                | 0~40°C   |         |                |         |
| Weight                               | 450g   |         | 520g           |         |
| Output signal                        | 90° phase difference, 20 $\mu$ m pitch (R03-PB8M Tajimi connector)   |         |                |         |
| Compatible standard counters         | C-500<br>C-700<br>CM-5B  |         |                |         |
| Accessories                          | ● Finger lever for lifting spindle (LL-D50) .....1 pc  |         |                |         |
| Features                             | ● If Spindle inner spring is removed, measuring force will be that of spindle itself (only when in upright position)<br>● D-50, D-50S .....1.0N (100gf)      D-100, D-100S .....1.1N (110gf)<br>● Recommended Gauge stand is PDS-2 |         |                |         |
| Option                               | ● Level mounting clamp (GB-50) see page 141<br>● Customer must specify if application is up-side-down. The measuring force changes when the gauge is inverted.   |         |                |         |

**Special Gauges**

**For High Temperature Applications D-50HT (0.01mm Resolution)**



This special gauge can be used up to +65°C temperature.  
0.01mm (0.005mm) Resolution  
(D-50S is not suited for high temperature)

**For Dusty Applications D-50WA D-50SWA**

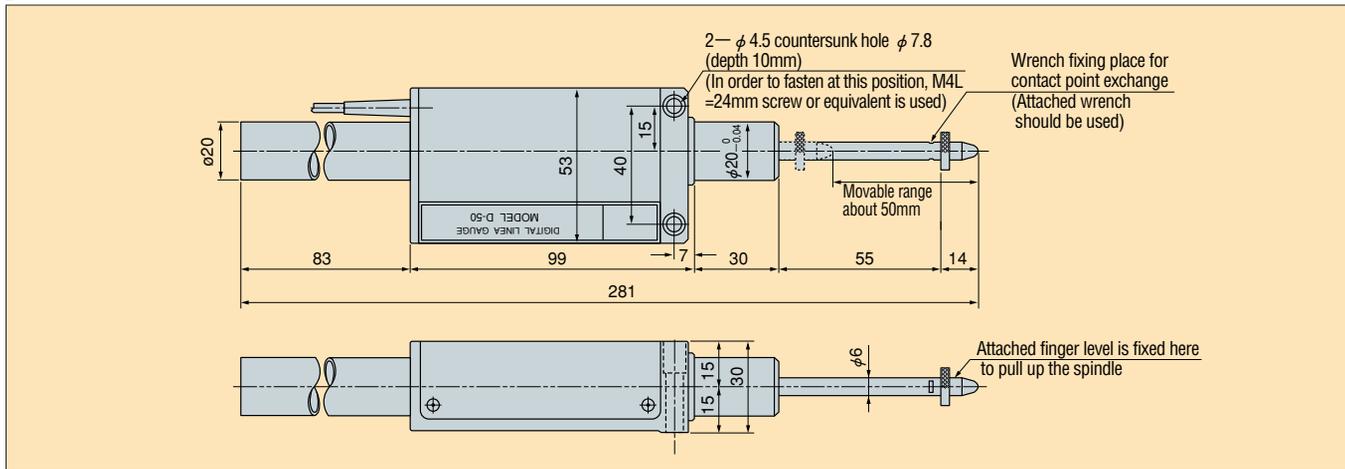


Dust-proof rubber protects spindle. Equivalent to IP-54. (Protection against oil & water is not available)

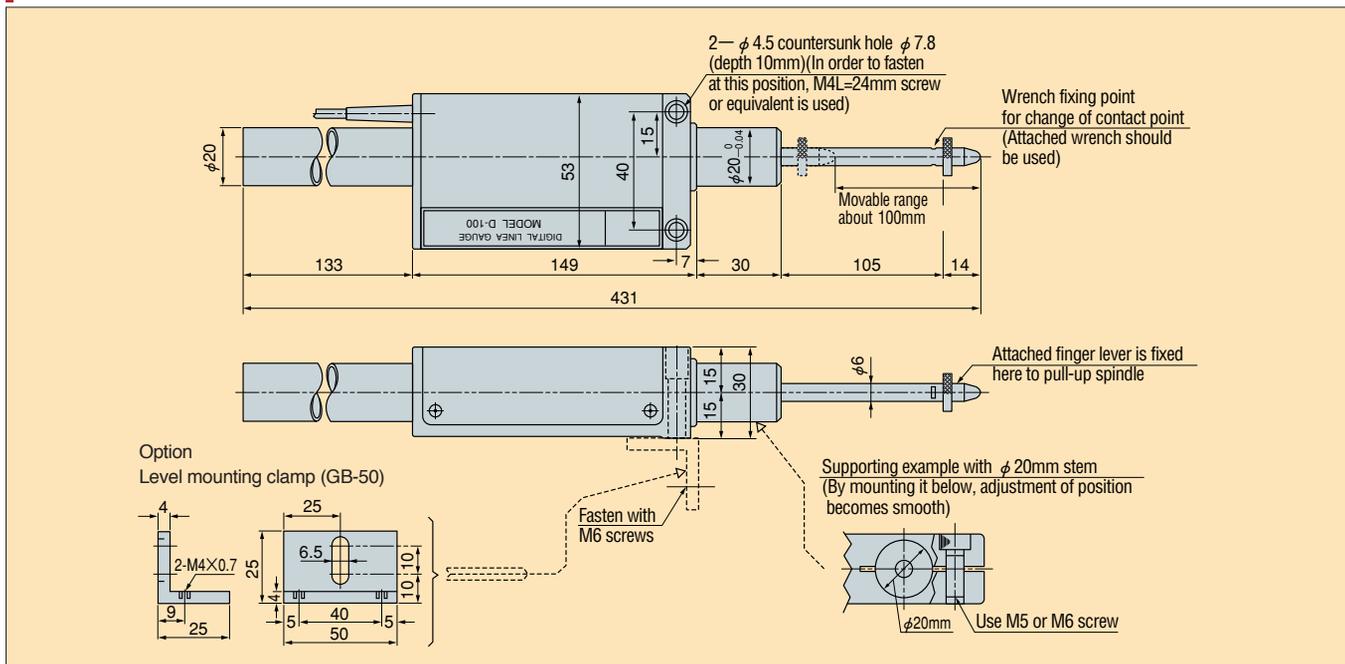
**For Dusty Applications D-100WA D-100SWA**



**Dimensions (D-50/D-50S/D-50HT)**



**Dimensions (D-100/D-100S)**



Linear Gauges



# 11 High Resolution Type 0.1μm and 0.5μm

- Use of linear scale improves accuracy and reduces error due temperature influences.



**D-10SS**  
Resolution: 0.0005mm(0.5μm)  
Range: 0~10mm



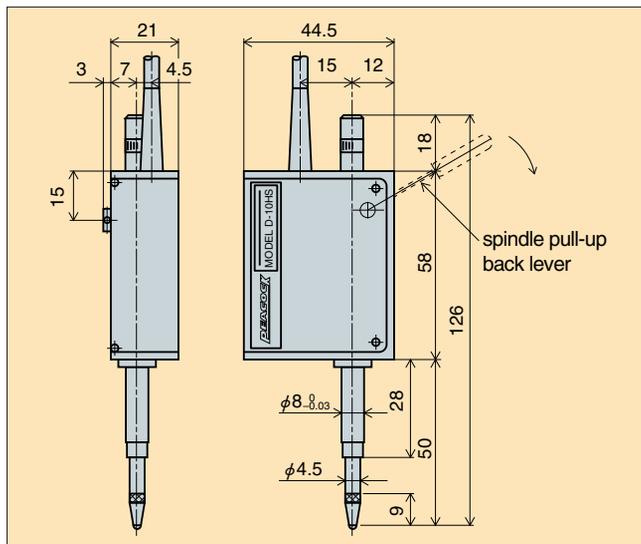
**D-10HS**  
Resolution: 0.0001mm(0.1μm)  
Range: 0~10mm  
● With spindle pull-up back lever

## Specifications

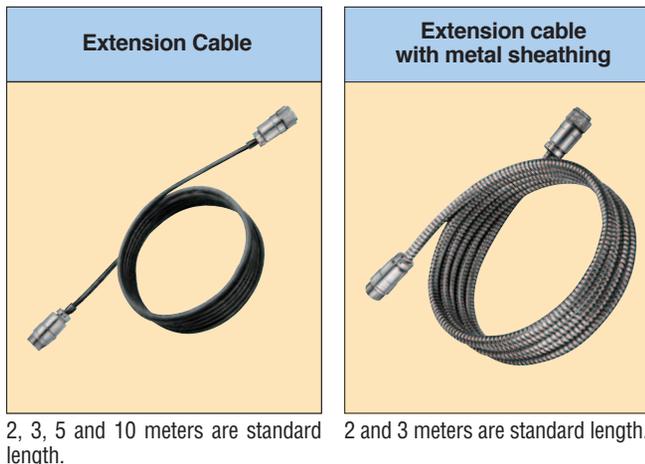
| Model                                | D - 10SS  | D - 10HS  |
|--------------------------------------|---|---|
| Range                                | 10mm  | 10mm  |
| Resolution                           | 0.0005mm  | 0.0001mm  |
| Accuracy (excluding quantized error) | 0.001mm   | 0.0005mm  |
| Measuring force                      | Less than 1.0N  |   |
| Cable length                         | 2m  |   |
| Operating temperature                | 0~40°C  |   |
| Contact point                        | M2.5 × 0.45 S φ 2.4mm steel (X-2)   | M2.5 × 0.45 S φ 2.4mm steel (X-2)   |
| Mounting method                      | φ 8mm stem or back cover with lug (φ 6.5mm hole)  | φ 8mm (no provision for back cover with lug mounting)   |
| Weight                               | 220g  | 200g  |
| Output signal                        | 90° phase difference, 8μm pitch<br>(R03-PB8M Tajimi connector)  | 90° phase difference, 8μm pitch (approximate Sinusoidal wave)<br>(R03-PB8M Tajimi connector)  |
| Compatible standard counters         | C-7HS   |   |
| Accessories                          | <ul style="list-style-type: none"> <li>● Release (RE-4)</li> <li>● Back cover with lug (GB-1DX)</li> </ul>  | Spindle pull-up back lever (exclusively for D-10HS)   |
| Options                              | <ul style="list-style-type: none"> <li>● Accuracy list</li> <li>● Parallel adjustment Contact point (X-10)</li> <li>● Printer (PDP-1N)</li> <li>● Gauge stand (PDS-2)</li> </ul>  | <p><b>X-10</b><br/>When using 'Flat' contact point, choose contact point which has parallel adjustment in relation to anvil surfaces as shown in picture.</p> |

Linear Gauges

**Dimensions (D-10HS)**



**Extension cables for Linear Gauges**



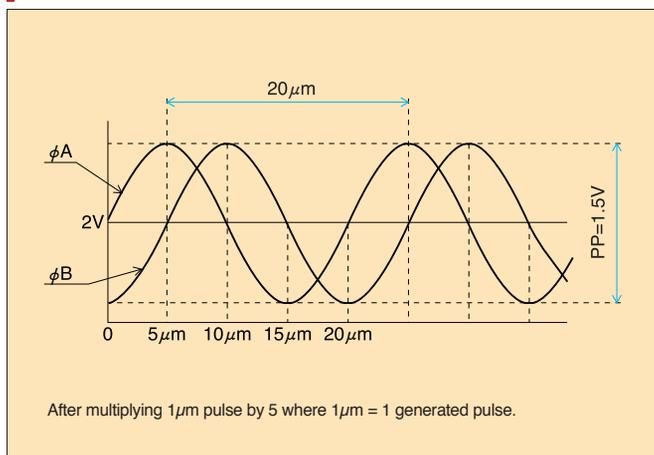
2, 3, 5 and 10 meters are standard length.

2 and 3 meters are standard length.

**Common Specifications of Linear Gauges**

| Items                                    |                   | Common specifications  |
|--|-------------------|--|
| Type of gauges                           | Output signal (A) | DL-2S, D-5S, D-10S, D-20S, D-50S, D-100S   |
|  | Output signal (B) | DL-2, D-5, D-10, D-20, D-50, D-100, D-5UZ  |
| Displacement transducer type             |                   | Glass linear scale (scale pitch 20μm) (D-10SS・D-10HS: pitch 8μm)                                   |
| Power supply                             |                   | +12DCV ±5% (consumed current 40mA)   |
| Signal cable length                      |                   | 2m (2,3,5 and 10m extension cables are available) 4 core shield cable & oil proof type             |
| Output connector, Receiver connector     |                   | Gauge side (R03-PB8M) Counter side (R03-R8F) Tajimi connectors                                     |
| Output signal (A) 1μm resolution         |                   | 2 phase signal with 90° phase difference, 20μm pitch, sinusoidal wave-form                         |
| Output signal (B) 5μm/10μm resolution    |                   | 2 phase signal with 90° phase difference, 20μm pitch, approximate sinusoidal wave-form             |
| Output signal (C) 5μm/10μm resolution    |                   | 2 phase signal with 90° phase difference, 20μm pitch, square wave-form (gauges: DN-10, DN-20)      |
| Output signal (D) 0.5μm/0.1μm resolution |                   | 2 phase signal with 90° phase difference, 8μm pitch, sinusoidal wave-form (gauges: D-10SS, D-10HS) |
| Operating temperature                    |                   | 0~40°C (except for high temperature type)  |
| Output Frequency                         |                   | 0~50KHz  |
| Contact point                            |                   | M2.5 x 0.45 (contact points for dial gauge can be used)  |

**Output signal (A) wave-form (1μm resolution)**

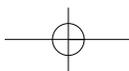


**Signal Connector R03-PB8M (manufactured by Tajimi)**

**Pin arrangement**

| Pin No. | Signal             | Wire Color |
|---------|--------------------|------------|
| A       | GND                | black      |
| B       | φ A                | blue       |
| C       | +12V               | red        |
| D       | φ B                | white      |
| E       | NC                 | unused     |
| F       | shielded wire (FG) |            |
| G       | NC                 | unused     |
| H       | NC                 | unused     |

Linear Gauges



SINCE 1916  
**PEACOCK**

# Digital Counters

## 11 New Type

Equipped with large display functions and various measurement functions, our Digital Counters can be installed in a Control Panel or placed on a desk due to their compact designs.

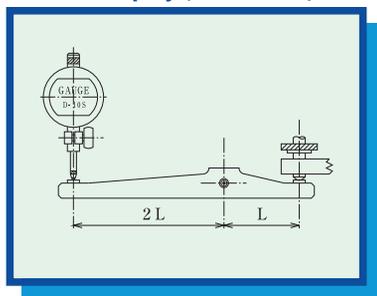


**Simple type**  
Priority on user  
friendliness.  
**C-500**



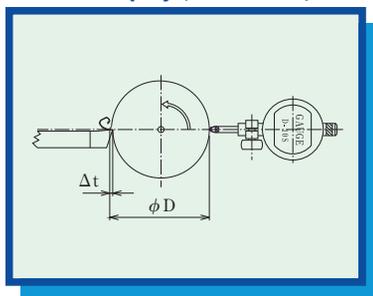
**Multi-type**  
User friendliness combined  
with multi-functionality.  
**C-700**

### 1/2 Display (C-500/C-700)



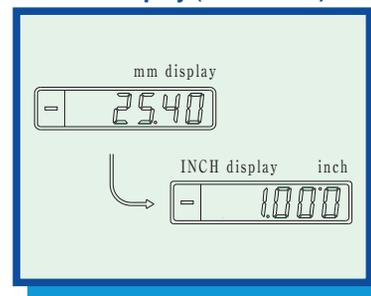
Displays the displacement after halving it.

### ×2 Display (C-500/C-700)



Displays the displacement after doubling it.

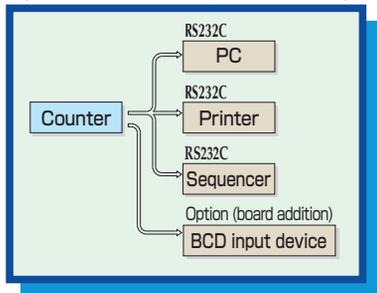
### Inch Display (C-500/C-700)



Displays the displacement in terms of inches.

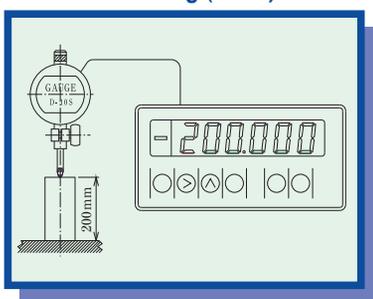
### Data Output (C-500/C-700)

(Standard function of RS-232C, optional function of BCD)



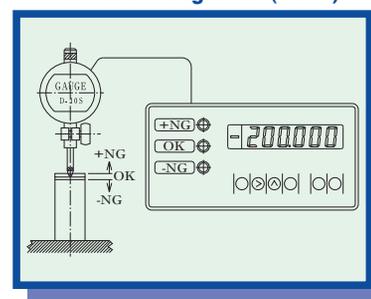
Outputs data

### Presetting (C-700)



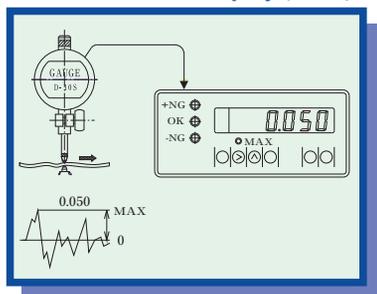
Displays preset values.

### OK±NG Judgment (C-700)



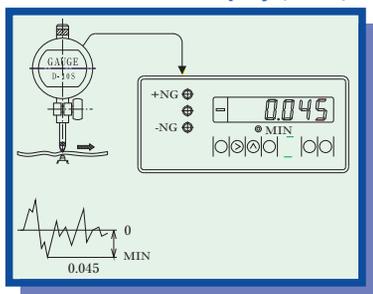
Outputs OK±NG judgment.

### Maximum Value Display (C-700)



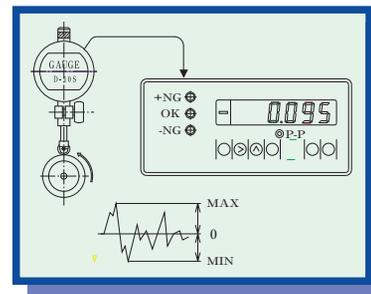
Holds the maximum positive value and makes OK±NG judgment.

### Minimum Value Display (C-700)



Holds the minimum negative and makes OK±NG judgment.

### Deflection Measurement Display (C-700)



Holds the difference between the maximum and minimum values (deflection) and makes OK±NG judgment.



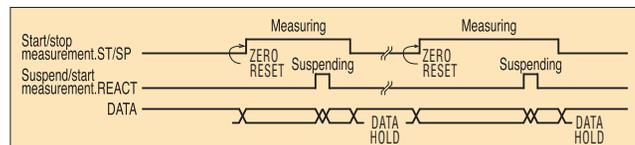
Digital Counters



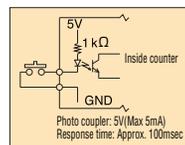
# Specifications of Digital Counters

| Model   | Model No. C-500  | Model No. C-700  |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
|---|--|--|------|----------------------|--|-------------------------------|-------|---|------|--|--|--------------------------|-------|--|------|--|---------------------|--|-----|--|-----|-----|---|-----|-----|---|---|-----|-----|-------------|-------------|-------------|---------|---------|--------|----|----|----|---------|---------|--------|
| Displayed digits<br>* Selection of 10 μm<br>* Selection of 1 μm                     | -9999.99~00.00~9999.99<br>-999.999~0.000~999.999<br>High-luminance LED display with 7segments (red)  |  |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| Power supply voltage & power consumption  | AC100V~AC240V · 9VA or lower   |  |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| Operating temperature   | 0~+40°C  |  |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| Compatible Linear Gauges<br>Selection of 10 μm display<br>Selection of 1 μm display | DL-2 D-5 D-10 D-20 D-30 D-50 D-100 DN-10 DN-20 D-5UZ<br>DL-2S D-5S D-10S D-20S D-30S D-50S D-100S DN-10S DN-20S  |  |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| Accessories   | ◆AC power cord (2m): One cord<br>◆Metal fittings for panel installation: Two units (to be used for installation in panel and securing stand fittings)<br>◆Stand fittings: One unit (to be used when counter is used as desktop device)   |  |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| Terminal block functions (Rear panel)   | ◆Terminal block: Screwless terminal block<br>◆Usable electric cables: AWG22-28<br>◆Length of peeled wire of cables: 8~9mm<br>◆Pin alignment <table border="1" style="margin-top: 10px;"> <tr><td>* 1</td><td>St/Sp</td><td>Controls "START" and "STOP" of MAX, MIN, P-P measurement mode.</td></tr> <tr><td>* 2</td><td>React</td><td>Controls "SUSPEND" and "START" of P-P measurement mode.</td></tr> <tr><td>3</td><td>Latch</td><td>Controls "LATCH" and "CANCEL" of measured value.</td></tr> <tr><td>4</td><td>Reset</td><td>External "RESET" "PRESET" (Function available only in Model No. C-700)</td></tr> <tr><td>5</td><td>Alarm</td><td>Error signal output</td></tr> </table> <table border="1" style="margin-top: 10px;"> <tr><td>* 6</td><td>-NG</td><td>Outputs -NG based on OK±NG judgment (red LED).</td></tr> <tr><td>* 7</td><td>OK</td><td>Outputs OK based on OK±NG judgment (green LED).</td></tr> <tr><td>* 8</td><td>+NG</td><td>Outputs +NG based on OK±NG judgment (orange LED).</td></tr> </table> <table border="1" style="margin-top: 10px;"> <tr><td>9</td><td>GND</td><td>GND</td></tr> </table> <div style="margin-top: 10px;"> <table border="1"> <tr><th>Max Display</th><th>Min Display</th><th>P-P Display</th></tr> <tr><td>+NG (2)</td><td>-NG (1)</td><td>NG (2)</td></tr> <tr><td>OK</td><td>OK</td><td>OK</td></tr> <tr><td>+NG (1)</td><td>-NG (2)</td><td>NG (1)</td></tr> </table> <p>(1):NG output in first stage<br/>(2):NG output in second stage</p> </div> <p>* marked numbers indicate functions available only in Model No.C-700</p> |  | * 1  | St/Sp                | Controls "START" and "STOP" of MAX, MIN, P-P measurement mode. | * 2                           | React | Controls "SUSPEND" and "START" of P-P measurement mode. | 3    | Latch  | Controls "LATCH" and "CANCEL" of measured value. | 4                        | Reset | External "RESET" "PRESET" (Function available only in Model No. C-700) | 5    | Alarm  | Error signal output | * 6  | -NG | Outputs -NG based on OK±NG judgment (red LED). | * 7 | OK  | Outputs OK based on OK±NG judgment (green LED). | * 8 | +NG | Outputs +NG based on OK±NG judgment (orange LED). | 9 | GND | GND | Max Display | Min Display | P-P Display | +NG (2) | -NG (1) | NG (2) | OK | OK | OK | +NG (1) | -NG (2) | NG (1) |
| * 1   | St/Sp  | Controls "START" and "STOP" of MAX, MIN, P-P measurement mode.   |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| * 2   | React  | Controls "SUSPEND" and "START" of P-P measurement mode.  |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| 3   | Latch  | Controls "LATCH" and "CANCEL" of measured value.   |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| 4   | Reset  | External "RESET" "PRESET" (Function available only in Model No. C-700)   |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| 5   | Alarm  | Error signal output  |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| * 6   | -NG  | Outputs -NG based on OK±NG judgment (red LED).   |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| * 7   | OK   | Outputs OK based on OK±NG judgment (green LED).  |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| * 8   | +NG  | Outputs +NG based on OK±NG judgment (orange LED).  |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| 9   | GND  | GND  |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| Max Display   | Min Display  | P-P Display  |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| +NG (2)   | -NG (1)  | NG (2)   |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| OK  | OK   | OK   |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| +NG (1)   | -NG (2)  | NG (1)   |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| Dip sw setting functions<br>(Printed circuit board)                                 | Dip (1) <table border="1" style="margin-top: 5px;"> <tr><td>SW 1</td><td>Select 1 μm or 10 μm</td></tr> <tr><td>SW 2</td><td>Select direction of counting.</td></tr> <tr><td>SW 3</td><td>Select activation or non activation of error output.</td></tr> <tr><td>SW 4</td><td>Select activation or non activation of overflow.</td></tr> </table> Dip (2) <table border="1" style="margin-top: 5px;"> <tr><td>SW 1</td><td>Settings by Manufacturer</td></tr> <tr><td>SW 2</td><td>Select whether or not to include default values for OK ±NG judgment.</td></tr> <tr><td>SW 3</td><td>Select either "orthogonal" or "sine" for input waveform.</td></tr> <tr><td>SW 4</td><td>Select either 400msec or 100msec for RESET time.</td></tr> </table>   |  | SW 1 | Select 1 μm or 10 μm | SW 2   | Select direction of counting. | SW 3  | Select activation or non activation of error output.    | SW 4 | Select activation or non activation of overflow. | SW 1   | Settings by Manufacturer | SW 2  | Select whether or not to include default values for OK ±NG judgment.   | SW 3 | Select either "orthogonal" or "sine" for input waveform. | SW 4                | Select either 400msec or 100msec for RESET time. |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| SW 1  | Select 1 μm or 10 μm   |  |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| SW 2  | Select direction of counting.  |  |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| SW 3  | Select activation or non activation of error output.   |  |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| SW 4  | Select activation or non activation of overflow.   |  |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| SW 1  | Settings by Manufacturer   |  |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| SW 2  | Select whether or not to include default values for OK ±NG judgment.   |  |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| SW 3  | Select either "orthogonal" or "sine" for input waveform.   |  |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| SW 4  | Select either 400msec or 100msec for RESET time.   |  |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| Data output (RS-232C)<br>D-Sub9P plug INCH screw                                    | ◆Pin Alignment <table border="1" style="margin-top: 5px;"> <tr><td>1</td><td>NC</td><td>-</td></tr> <tr><td>2</td><td>Rxd</td><td>in←</td></tr> <tr><td>3</td><td>Txd</td><td>→out</td></tr> <tr><td>4</td><td>NC</td><td>-</td></tr> <tr><td>5</td><td>SG</td><td>-</td></tr> <tr><td>6</td><td>NC</td><td>-</td></tr> <tr><td>7</td><td>RTS</td><td>→out</td></tr> <tr><td>8</td><td>CTS</td><td>in←</td></tr> <tr><td>9</td><td>NC</td><td>-</td></tr> </table> <ul style="list-style-type: none"> <li>◆Communication mode: Half-duplex asynchronous communication</li> <li>◆Communication speed: 9600bps</li> <li>◆Format: 7Bit ASCII</li> <li>◆Parity: even number</li> <li>◆Stop bit: 1Bit</li> <li>◆RTS/CTS: Returned when not in use.</li> <li>◆Reception command: Transmission request ASCII [T] [t]<br/>: Reset ASCII [R] [r]</li> <li>◆Connection cables: Cross cables (not included)</li> </ul>  |  | 1    | NC                   | -  | 2                             | Rxd   | in←   | 3    | Txd  | →out   | 4                        | NC    | -  | 5    | SG   | -                   | 6  | NC  | -  | 7   | RTS | →out  | 8   | CTS | in←   | 9 | NC  | -   |             |             |             |         |         |        |    |    |    |         |         |        |
| 1   | NC   | -  |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| 2   | Rxd  | in←  |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| 3   | Txd  | →out   |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| 4   | NC   | -  |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| 5   | SG   | -  |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| 6   | NC   | -  |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| 7   | RTS  | →out   |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| 8   | CTS  | in←  |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| 9   | NC   | -  |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| Options<br>* BCD output board   | ◆CB-BCD<br>Can not be used in combination with RS-232C output.   |  |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| Display functions   | ◆1/1 display: Displays the measured value as is.<br>◆1/2 display: Displays the measured value after halving it.<br>◆×2 display: Displays the measured value after doubling it.<br>◆INCH display: Displays the value after converting it into inches.<br>Note: With 1 μm display and ×2 display, the lowest digit will be displayed as an even number.  |  |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| Presetting display function   | ◆Zero setting only   | ◆Can display preset values   |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| Measurement mode function<br>[MAX] [MIN] [P-P]                                      | _____  | ◆Current value display<br>◆Maximum value(Max)<br>◆Minimum value(Min)<br>◆Deflection(P-P) <p>RESET action is taken by ST of the ST/SP control terminal.</p> |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| OK±NG judgment function<br>(Refer to terminal output circuit)                       | _____  | ◆Current value mode: +NG OK -NG<br>◆Maximum value mode: OK +NG(1) +NG(2)<br>◆Minimum value mode: OK -NG(1) -NG(2)<br>◆Deflection mode: OK NG(1) NG(2)      |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |
| Dimensions & weight   | ◆144(W)×72(H)×160(D)mm   | ◆950g  |      |                      |  |                               |       |   |      |  |  |                          |       |  |      |  |                     |  |     |  |     |     |   |     |     |   |   |     |     |             |             |             |         |         |        |    |    |    |         |         |        |

Time Chart [Model No.C-700]

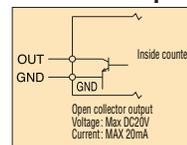


Control Terminal Input Circuit



- Pin No.1 ST/SP
- Pin No.2 REACT
- Pin No.3 LATCH
- Pin No.4 RESET

Terminal Output Circuit



- Pin No.5 ALARM
- Pin No.6 -NG
- Pin No.7 OK
- Pin No.8 +NG





# 11 with High Resolution

- Resolution capability of 0.1μm / 0.5μm.
- Recommended for very high precision measurement.



**C-7HS**  
Resolution: 0.0001mm (0.1μm) / 0.0005mm (0.5μm)

## Specifications

| Model                         | C-7HS   |
|-------------------------------|---|
| Resolution                    | 0.0001mm (0.1μm) / 0.0005mm (0.5μm) Please specify either 0.0005mm or 0.0001mm display at the time of purchase.   |
| Display                       | 6 digits display with ± sign ±99.9999   |
| Response speed                | 100mm / sec   |
| Weight                        | 2.6kg   |
| Display                       | Green fluorescent light display   |
| Power supply                  | AC100V~AC240V (90~100V) 50/60Hz   |
| Dimensions                    | 200 (W) × 230 (D) × 60 (H) mm   |
| Operating temperature         | 0 to 40°C / storage, at -5 to 50°C  |
| Compatible linear gauges      | 0.0001mm : D-10HS / 0.0005mm : D-10SS   |
| Accessories                   | ● Built-in tilt stand (tilts the front of the counter up at slight angle for easier reading)  |
| Functions                     | <ul style="list-style-type: none"> <li>● RESET.....For zero reset at any desired position</li> <li>● DIRECTION.....Numerical direction can be changed by DIRECTION switch located on back panel</li> <li>● CLOCK OUT..... Outputs BCD's signal simultaneously (1μsec)</li> <li>● ALARM OUT..... Output abnormal value when response speed is exceeded</li> <li>● LATCH IN..... Holds the display value and external output data</li> <li>● RESET IN..... For zero reset from external unit via its RESET input</li> </ul> |
| Data output (RS-232C/BCD OUT) | <ul style="list-style-type: none"> <li>● Output by positive logic, parallel digits and open collector</li> <li>● Connector..... 57-40360 DDK equivalent connector (amphenol type) should be used. It is not attached on the cable side. (57-30360 equivalent connector is recommended)</li> </ul>   |
| Options                       | <ul style="list-style-type: none"> <li>● Printer (PDP-1N)..... Statistic operation</li> <li>● External RESET/LATCH function: C-7HS-RL.</li> </ul>   |



Digital Counters

## with Judgement Function

- Equipped with Judgement function OK, ±NG (No Go).
- Either 10μm or 1μm resolution setting can be selected.
- 2X or 1/2 X Display magnification.



**CM-5B**

Resolution: 0.005mm / 0.001mm convertible

### Specifications

| Model                           | CM-5B   |   |
|---------------------------------|---|---|
| Resolution                      | 0.005mm or 0.001mm select by conversion switch  |   |
| Display capacity                | For 0.005mm, 0 ~ ±199.995mm<br>For 0.001mm, 0 ~ ±199.999mm  |   |
| Judgement setting display       | Lower and Upper limit setting via digital switch of 6 digits each   |   |
| Response speed                  | 1000mm / sec at 0.005mm setting 600mm / sec at 0.001mm setting  |   |
| Quantizing error                | ±1 count  |   |
| Judgement Output                | Output from relay contact point (a contact point) (DS1-S-DC5V Matsushita or equivalent product)   |   |
| Judgement Display               | -NG (Yellow), OK (Green) & +NG (Red)  |   |
| Operating temperature           | 0 to 40°C / for storage, at -10 to 50°C   |   |
| Power supply                    | AC100V ~ AC240V (90V ~ 110V) 50 / 60Hz  |   |
| Weight / Dimensions             | 2.2kg 200 (W) × 230 (D) × 70 (H) mm   |   |
| Functions                       | <ul style="list-style-type: none"> <li>● User selectable resolution (0.001mm at time of shipment).</li> <li>● Equipped with failure alarms (When counting error or gauge fails, display blinks)</li> <li>● Judgement output is constantly on (control output is possible with an additional optional connector)</li> <li>● Setting values for judgement is included in ±NG at shipment (Changeable)</li> <li>● BCD output can be connected to, for example, a sequencer by using open collector.</li> </ul> |   |
| Data output (RS-232C / BCD OUT) | <ul style="list-style-type: none"> <li>● Output by positive logic, parallel digits and open collector</li> <li>● Connector ..... 57-40360 DDK equivalent connector should be used.<br/>It is not attached on the cable side.</li> </ul>   |   |
| Compatible linear gauges        | At 0.005mm setting  | At 0.001mm setting                          |
|                                 | DL-2, D-5, D-10, D-20,<br>D-50, D-100,<br>D-5UZ, DN-10, DN-20   | DL-2S, D-5S, D-10S, D-20S,<br>D-50S, D-100S |
| Accessories                     | ● Judgement output connector ..... 1 pc. (PRC03-12A10-4F10.5 Tajimi brand)  |   |
| Options                         | <ul style="list-style-type: none"> <li>● Additional pass / fail detection control connector (attachable to the back panel). Includes CM-5B-CONT.</li> <li>● External RESET / LATCH connector is added (on back panel). CM-5B-RL.</li> <li>● Tilt stand is added (for tilting display for easy viewing). CM-5B-ST.</li> </ul>  |   |
| Mounting Precaution             | When mounting into rack requires the removal of bottom rubber support, screws must be applied at regular intervals. (Avoid screws penetration into body as damage to printed circuit board is high)   |   |



Digital Counters



# 11

## Printer

- Printing of statistically processed data is vital for quality management.
- Input of date and time via front control panel data keys for quality assurance data purposes.
- Items for statistic operation maybe selected from Mode 0 to 1.



### Specifications

| Description  | Specifications   |  |  |
|--|--|--|--|
| Number of channels   | Connect one channel for each measuring device  |  |  |
| Maximum no. of date  | 999 points   |  |  |
| Printing method  | Dot style graphic  |  |  |
| Recording paper  | Sensitized paper roll (38mm wide × 50mm dia.)  |  |  |
| Power supply   | AC adapter (AC100V~AC220V)   |  |  |
| Operating temperature  | 0~40°C   |  |  |
| Outer dimensions   | 130 (W) × 170 (D) × 61 (H) mm  |  |  |
| Weight   | 1kg  |  |  |
| Accessories  | <ul style="list-style-type: none"> <li>● Recording paper.....1 roll</li> <li>● AC adapter .....1 pc</li> </ul>   |  |  |
| Options  | <ul style="list-style-type: none"> <li>● Foot switch (FW-1)</li> <li>● Connecting cable (for signal input)</li> </ul>  |  |  |
| Method of date input   | BCD positive logic parallel/serial<br>RS-232C port   |  |  |
| Print-out and calculation categories   | <table border="0"> <tr> <td> <ul style="list-style-type: none"> <li>Ⓐ Measuring date</li> <li>Ⓐ Each data</li> <li>Ⓐ Max data</li> <li>Ⓐ Min data</li> <li>Ⓐ Range (R)</li> <li>Ⓑ Defect rate (BAD)</li> <li>Ⓒ Frequency distribution table</li> <li>Ⓓ Diagram</li> </ul> </td> <td> <ul style="list-style-type: none"> <li>Ⓐ Number indicating measured data</li> <li>Ⓐ Number of measured data (n)</li> <li>Ⓐ Mean value (X)</li> <li>Ⓐ Standard deviation (σ)</li> <li>Ⓑ Process capability index (Cp)</li> <li>Ⓑ Printing in red for abnormal value</li> <li>Ⓒ Histogram</li> </ul> </td> </tr> </table> | <ul style="list-style-type: none"> <li>Ⓐ Measuring date</li> <li>Ⓐ Each data</li> <li>Ⓐ Max data</li> <li>Ⓐ Min data</li> <li>Ⓐ Range (R)</li> <li>Ⓑ Defect rate (BAD)</li> <li>Ⓒ Frequency distribution table</li> <li>Ⓓ Diagram</li> </ul> | <ul style="list-style-type: none"> <li>Ⓐ Number indicating measured data</li> <li>Ⓐ Number of measured data (n)</li> <li>Ⓐ Mean value (X)</li> <li>Ⓐ Standard deviation (σ)</li> <li>Ⓑ Process capability index (Cp)</li> <li>Ⓑ Printing in red for abnormal value</li> <li>Ⓒ Histogram</li> </ul> |
| <ul style="list-style-type: none"> <li>Ⓐ Measuring date</li> <li>Ⓐ Each data</li> <li>Ⓐ Max data</li> <li>Ⓐ Min data</li> <li>Ⓐ Range (R)</li> <li>Ⓑ Defect rate (BAD)</li> <li>Ⓒ Frequency distribution table</li> <li>Ⓓ Diagram</li> </ul> | <ul style="list-style-type: none"> <li>Ⓐ Number indicating measured data</li> <li>Ⓐ Number of measured data (n)</li> <li>Ⓐ Mean value (X)</li> <li>Ⓐ Standard deviation (σ)</li> <li>Ⓑ Process capability index (Cp)</li> <li>Ⓑ Printing in red for abnormal value</li> <li>Ⓒ Histogram</li> </ul>   |  |  |
| Function of print-out according to mode  | MODE-0.....Operation printing of Ⓐ items<br>MODE-1.....Operation printing of Ⓐ to Ⓑ  |  |  |

### Connecting cable selection list

| Model                    | Applicable measuring equipment or device |
|--------------------------|--|
| KB-C12                   | C-7HS                                    |
| KB-C232                  | C-700 C-500                              |
| KB-CM12                  | CM-5B                                    |
| KB-P12                   | PDN-20 PDN-50                            |
| KB-C205 (with connector) | DG-127 DG-205 DG-257                     |



# Applied Digital Indicators

## Digital Thickness Gauges (0.01mm, 0.001mm)

- The thickness of small parts etc. can be quickly measured by lever operation.
- Contact Point and Anvil can be modified made to order.



**G2-205 · G2-257 · G2-127**

**Resolution and Range**  
(0.001×20mm) · (0.01×20mm) · (0.01×10mm)



**G2-205M · G2-257M · G2-127M**

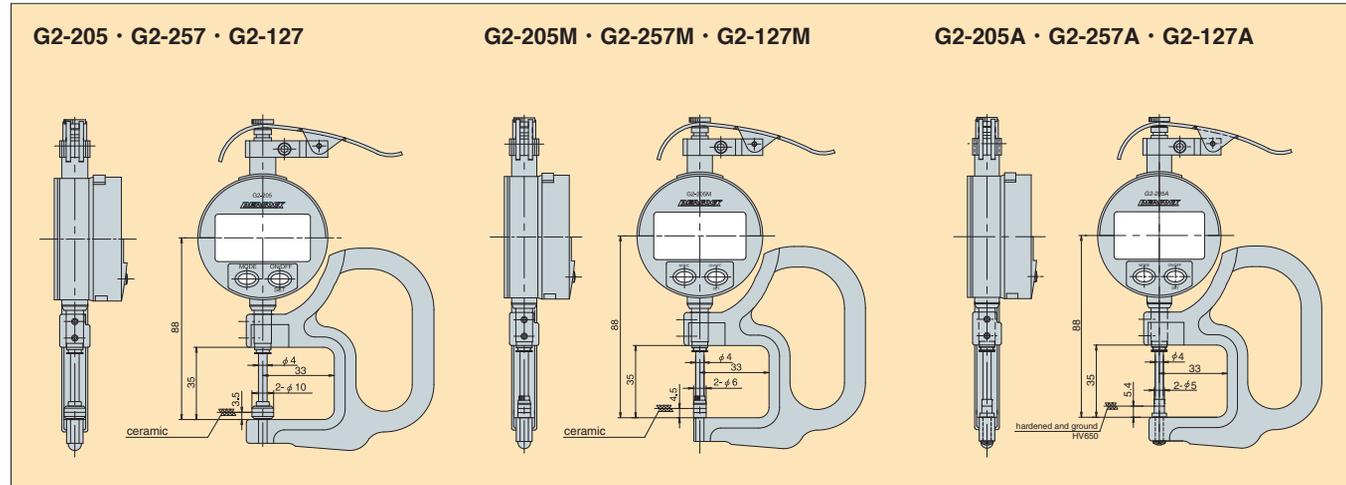
**Resolution and Range**  
(0.001×20mm) · (0.01×20mm) · (0.01×10mm)



**G2-205A · G2-257A · G2-127A**

**Resolution and Range**  
(0.001×20mm) · (0.01×20mm) · (0.01×10mm)

### Dimensions



### Specifications

| Model          | Resolution (mm) | Accuracy (excluding quantized error) (mm) | Gauge type | Measuring range (mm) | Measuring depth (mm) | Measuring force (N) | Contact point diameter (mm) | Contact point parallelism (mm) | Anvil diameter (mm) |
|----------------|-----------------|---|------------|----------------------|----------------------|---------------------|-----------------------------|--------------------------------|---------------------|
| <b>G2-205</b>  | 0.001           | ±0.008                                    | DG-205     | 20                   | 33                   | Less than 1.1       | ø10                         | Less than 0.005                | ø10                 |
| <b>G2-257</b>  | 0.01            | ±0.02                                     | DG-257     | 20                   | 33                   | Less than 1.1       | ø10                         | Less than 0.01                 | ø10                 |
| <b>G2-127</b>  | 0.01            | ±0.02                                     | DG-127     | 10                   | 33                   | Less than 0.95      | ø10                         | Less than 0.01                 | ø10                 |
| <b>G2-205M</b> | 0.001           | ±0.008                                    | DG-205     | 20                   | 33                   | Less than 1.1       | ø6                          | Less than 0.005                | ø6                  |
| <b>G2-257M</b> | 0.01            | ±0.02                                     | DG-257     | 20                   | 33                   | Less than 1.1       | ø6                          | Less than 0.01                 | ø6                  |
| <b>G2-127M</b> | 0.01            | ±0.02                                     | DG-127     | 10                   | 33                   | Less than 0.95      | ø6                          | Less than 0.01                 | ø6                  |
| <b>G2-205A</b> | 0.001           | ±0.008                                    | DG-205     | 20                   | 33                   | Less than 1.1       | ø5                          | Less than 0.005                | ø5                  |
| <b>G2-257A</b> | 0.01            | ±0.02                                     | DG-257     | 20                   | 33                   | Less than 1.1       | ø5                          | Less than 0.01                 | ø5                  |
| <b>G2-127A</b> | 0.01            | ±0.02                                     | DG-127     | 10                   | 33                   | Less than 0.95      | ø5                          | Less than 0.01                 | ø5                  |

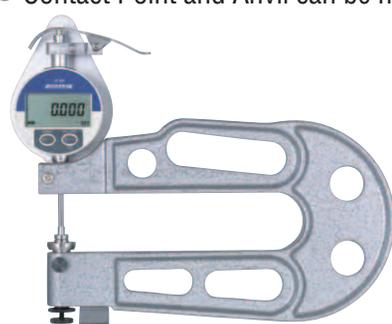


# 11

## Applied Digital Gauges

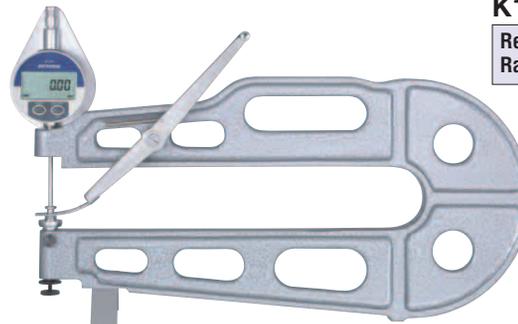
### Digital Thickness Gauges (Large Type), Digital Sheet Gauge

- Due to having throat depth 150mm or 300mm can measure a thickness at the center of wide sheets such as paper, urethane, vinyl, rubber and foil etc.
- Contact Point and Anvil can be modified made to order.



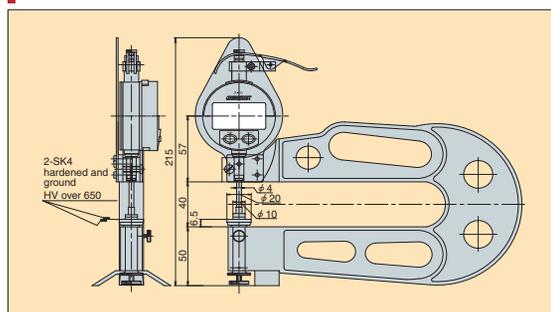
**JA-205**  
Resolution: 0.001mm  
Range: 20mm

**JA-257**  
Resolution: 0.01mm  
Range: 20mm

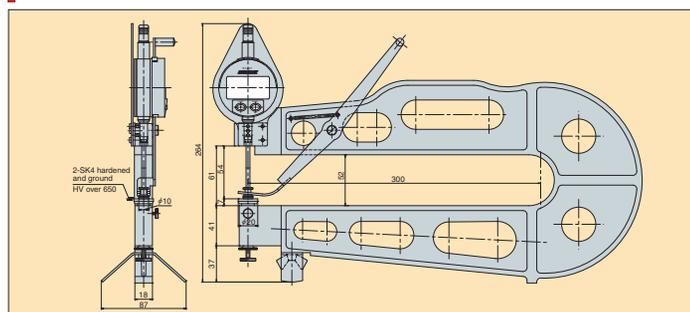


**K1-257**  
Resolution: 0.01mm  
Range: 20mm

Dimensions JA-205 · JA-257



Dimensions K1-257



#### Specifications

| Model  | Resolution (mm) | Accuracy (excluding quantized error) (mm) | Gauge type | Measuring range (mm) | Measuring depth (mm) | Measuring force (N) | Contact point diameter (mm) | Contact point parallelism (mm) | Anvil diameter (mm) |
|--------|-----------------|---|------------|----------------------|----------------------|---------------------|-----------------------------|--------------------------------|---------------------|
| JA-205 | 0.001           | ±0.01                                     | DG-205     | 20                   | 150                  | Less than 1.1       | ø10                         | Less than 0.005                | ø20                 |
| JA-257 | 0.01            | ±0.02                                     | DG-257     | 20                   | 150                  | Less than 1.1       | ø10                         | Less than 0.005                | ø20                 |
| K1-257 | 0.01            | ±0.02                                     | DG-257     | 20                   | 300                  | Less than 2.0       | ø10                         | Less than 0.01                 | ø20                 |

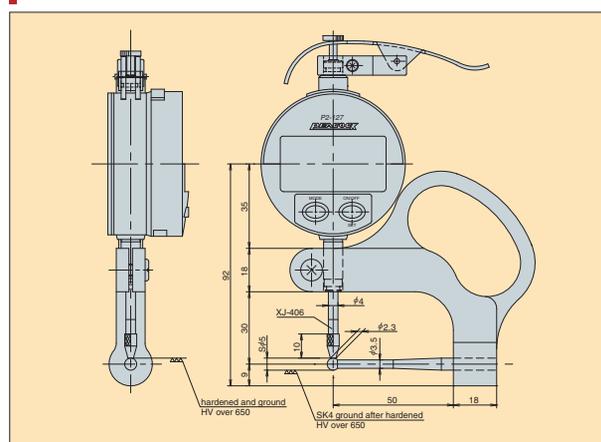
## Digital Pipe Gauge



**P2-257**  
Resolution: 0.01mm  
Range: 15mm

**P2-127**  
Resolution: 0.01mm  
Range: 10mm

#### Dimensions



#### Specifications

| Model  | Resolution (mm) | Accuracy (excluding quantized error) (mm) | Gauge type | Measuring range (mm) | Measuring depth (mm) | Measuring force (N) | Measuring hole diameter (mm) |
|--------|-----------------|---|------------|----------------------|----------------------|---------------------|------------------------------|
| P2-257 | 0.01            | ±0.02                                     | DG-257     | 15                   | 50                   | Less than 1.1       | ø5.1                         |
| P2-127 | 0.01            | ±0.02                                     | DG-127     | 10                   | 50                   | Less than 0.95      | ø5.1                         |



Applied Digital Gauges

# Applied Digital Gauges

## Digital Upright Gauges (0.001mm, 0.01mm)

11

- Best suited to inspect sizes precision parts or to measure thickness of laboratory specimens.



### R1-205

Resolution: 0.001mm  
Range: 20mm

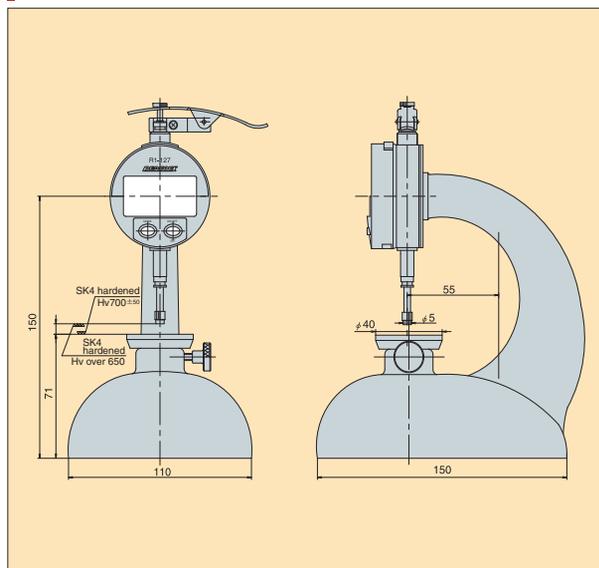
### R1-257

Resolution: 0.01mm  
Range: 20mm

### R1-127

Resolution: 0.01mm  
Range: 12mm

### Dimensions



### Specifications

| Model  | Resolution (mm) | Accuracy (excluding quantized error) (mm) | Gauge type | Measuring range (mm) | Measuring force (N) | Measuring depth (mm) | Contact point (mm) | Table diameter (mm) |
|--------|-----------------|---|------------|----------------------|---------------------|----------------------|--------------------|---------------------|
| R1-205 | 0.001           | ±0.004                                    | DG-205     | 20                   | Less than 1.1       | 55                   | ø5                 | ø40                 |
| R1-257 | 0.01            | ±0.02                                     | DG-257     | 20                   | Less than 1.1       | 55                   | ø5                 | ø40                 |
| R1-127 | 0.01            | ±0.02                                     | DG-127     | 12                   | Less than 0.95      | 55                   | ø5                 | ø40                 |

### Modification for contact point (Special order)

| Flat type                  | Replaceable Contact Point   | Needle type                                     |
|----------------------------|---|---|
| <p>Please specify "øD"</p> | <p>Accessories for Dial Gauges Replaceable contact points can be installed.</p> | <p>Please specify dimension of "H" and "øD"</p> |



Applied Digital Gauges



# 11

## Deep Hole Bore Gauge-EMCC Series

- The EMCC Series can easily measure the inside diameter of deep bore with high accuracy, which has been precision-machined.
- The EMCC Series advances a detector having an automatic alignment mechanism in line with the inside diameter.
- Measurement is possible up to the length of 10M by using an additional extension rod.



EMCC-3

Compatible Counter C-500/C-700

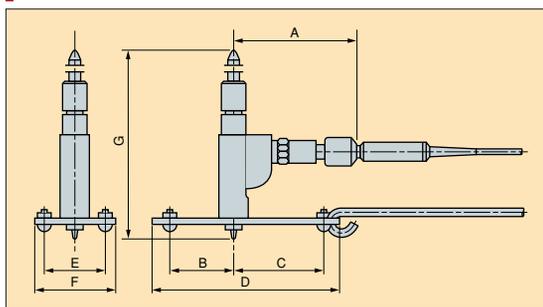


### Specifications

| Model                                      | EMCC-2   | EMCC-3           | EMCC-4             | EMCC-5            | EMCC-6            |     |
|--|--|------------------|--------------------|-------------------|-------------------|-----|
| Measuring range (ID)                       | 35 ~ 60mm  | 50 ~ 100mm       | 100 ~ 160mm        | 160 ~ 250mm       | 250 ~ 400mm       |     |
| Measuring depth                            | 70mm ~ 10M   | 90mm ~ 10M       | 120mm ~ 10M        | 130mm ~ 10M       | 150mm ~ 10M       |     |
| Provided rods Number of feeler             | Intervals 5mm×6  | Intervals 5mm×11 | Intervals 5mm×7    | Intervals 10mm×10 | Intervals 10mm×16 |     |
| Number of feeler                           | L=33mm (flat type)   |                  | L=44mm (flat type) |                   |                   |     |
| Contact point's travel and measuring force | 1.4mm / less than 2.0N   |                  |                    |                   |                   |     |
| Extension rods                             | EMCC-L (1 meter rod×10 rods = 10 meters) .....sold separately  |                  |                    |                   |                   |     |
| Compatible linear gauges                   | ● When Resolution is 10μm, use D-5B ● When Resolution is 1μm, use D-5SB  |                  |                    |                   |                   |     |
| Compatible counters                        | ● C-500 or C-700   |                  |                    |                   |                   |     |
| Operations                                 | ● Test completes only after receiving reference from a master and inserting the micrometer head through a workpiece.<br>● Automatic centering mechanism requires no manual "shaking" to center up the micrometer head. |                  |                    |                   |                   |     |
| Functions                                  | ● Workpiece has to be horizontally level (No test can be performed with the workpiece perpendicular).  |                  |                    |                   |                   |     |
| Options                                    | ● Printer (PDP-1N) Printer cable (KB-C232)   |                  |                    |                   |                   |     |
| Dimensions (mm)                            | A  | 70               | 71                 | 77                | 77                | 77  |
|  | B  | 20               | 30                 | 40                | 45                | 50  |
|  | C  | 30               | 40                 | 55                | 60                | 70  |
|  | D  | 62               | 82                 | 115               | 125               | 140 |
|  | E  | 15               | 20                 | 38                | 58                | 88  |
|  | F  | 22               | 30                 | 50                | 70                | 100 |
|  | G  | MIN              | 35                 | 50                | 100               | 160 |
|  | MAX  | 60               | 100                | 160               | 250               | 400 |

※ To make up a complete working unit, it requires an EMCC (2~6), an EMCC-L (extension rod set), a linear gauge and a counter.

### Dimensions



### Gauge Sensor

| Model                        | D-5B                                 | D-5SB   |
|------------------------------|--------------------------------------|---------|
| Resolution                   | 0.01mm                               | 0.001mm |
| Accuracy                     | 0.01mm                               | 0.002mm |
| Cable length                 | 10 meters                            |         |
| Screw pitch of Contact Point | M2.5 × 0.45                          |         |
| Measuring force              | Less than 0.5N                       |         |
| Remarks                      | Specifications are according to D-5S |         |



Deep Hole Bore Gauge-EMCC Series

## Features

- The inside diameter of extremely deep can be measured. (Max. 10M)**  
 The inside diameter of the deep hole that was not able to be measured so far can be easily measured with our development of automatic brought to a center position and added to extension rods to the Linear Gauge..
- High performance**  
 It is possible to measure with high performance as our Linear gauge is used for the detector. (0.01mm, 0.001mm)
- Easy operation**  
 Due to our development of our automatic brought to a center position, the measurement operation is easier than a general inside diameter measuring instruments as only insert the cylinder detector in the hole of measurement work-piece.
- Efficient measurement**  
 Since the easy operation, it is efficient of the measurement for an inspection of the mass production.
- Excellent indication stability**  
 It is necessary to shakes the general cylinder gauge for reads a minimum measurement. However, our EMCC can get the excellent stability of the indication as only insert the detector to the hole of measurement work-piece.
- Low measuring force**  
 The work-piece is not so damaged as the measuring force of contact point is 2.0N compared with a general cylinder gauges (5.0~6.0N)
- Data record**  
 Digital counter have the RS-232C output so that the measuring data can be processed.

## The main usage

Internal diameter measurement of extremely deep hole  
 Hydraulic Cylinder, Air Cylinder, Cylinder of Extruder, High accuracy Pipe, Mold for Pipe etc.

## Extension Rods (1M x 10 pcs) as Optional

To insert or pull-out the detector to the hole of measurement work-piece.

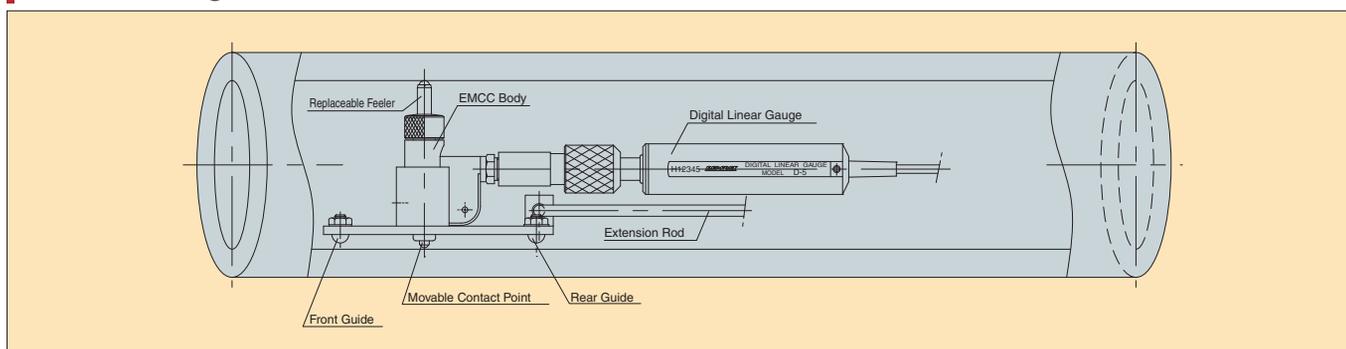
## Display Counter

Data displayed by Digitally  
 Selection of a resolution (0.01mm or 0.001mm)

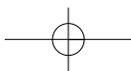
\*see page 145 for more detailed information

| Model No.        | C-500   |
|------------------|---|
| Range of Display | At the 0.01mm Selection -9999.99~00.00~9999.99<br>At the 0.001mm Selection -999.999~0.000~999.999 |
| Resolution       | 0.001mm / 0.01mm Selectable   |
| Quantized error  | ±1 count  |
| Data output      | RS-232C   |
| Power supply     | AC100V~AC240 · less 9VA   |
| Weight           | 950g  |

## Measurement figure



Custom-made Specialize Stands



# 11

## Combination example

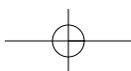


- Linear Gauge      **No. D-50S**
- Digital Counter    **No. C-700**
- Gauge Stand        **No. PDS-2**



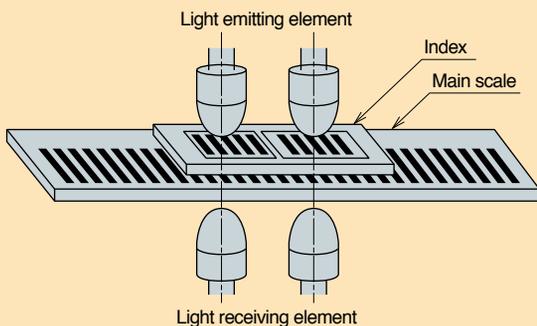
Combination example

※As for more detailed specifications, refer to page 117, 140 and 145.



# Technical Glossary

## ● What is a "Linear Scale"?



As illustrated on the left, a optical glass with vacuum deposition of chrome metal (opaque) at a constant pitch is called a linear scale (scale pitch of 20, 16 or 8 $\mu$ m is used)

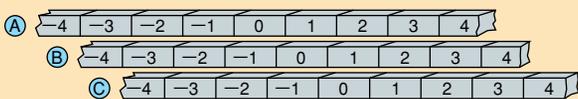
The opposite scale to this linear scale is called an Index scale. This is designed to sense two phases of signal mutually having 90° degree phase difference for the purpose of discriminating shift direction of the scale.

The light intensity of the light emitter is detected by the photo receptor located directly opposite.

When a linear scale moves, the photo receptor will receives variation of light and shade.

Linear displacement can be measured by counting these electric signals with a counter. (Counting them by 20 $\mu$ m pitch will give 5 $\mu$ m display resolution and electrically dividing the wave results in 1 $\mu$ m display resolution)

## ● About "Quantizing error"



In quantization(displacement under the minimum display digit shall be defined as 0 or 1), the point "0" has a width similar to the other numeric values; including "0" closest to "1" and also "0" closest to "-1". Therefore,  $\pm 1$  count error is generated in the minimum display digit.

(The value "0" is displayed after setting a linear gauge and then pressing the "Reset" switch.)

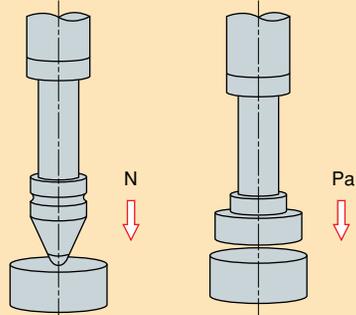
The counter "C-5" resolves the quantizing error in 1/100mm digit by setting the display value of the minimum digit to 5 $\mu$ m display.

(If you need to resolve the quantizing error in 1/1000mm display type, please use "C-5SS" with 0.0005mm display.)

A's zero reference was taken at the B's zero closer to -1.

C's zero reference was taken at the B's zero closer to +1

## ● Difference between "Measuring Force" and "Measuring Pressure"



### ■ "Measuring Force"

Pressure of a contact point pressing a workpiece is defined as measuring force. Generally, as the spindle back spring is integrated in a gauge, it indicate the state in which the spindle is possibly pressed into a workpiece.

(A weighted gauge can get a constant measuring force at any position)

Unit.....N(newton)

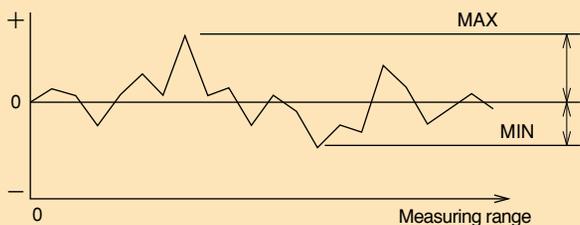
### ■ "Measuring Pressure"

It is the value indicating the force of contact point pressing a workpiece in a unit area. (measuring force per unit layer). After specifying the area (diameter) of contact point to be in contact to a workpiece, the measuring force to be pressed in a unit area is defined as measuring force.

(When it is necessary to specify measuring pressure, a type with an attached weight is usually used since there is no change in the measuring force, even in the stroke of a spindle.)

Unit 1Pa = 0.101972  $\times$  10<sup>-6</sup>kgf./mm<sup>2</sup>

## ● Expression of accuracy



Accuracy is the difference between the zero reference point and the greatest deviation across the entire measurement range. + $X\mu$ m represents the combined + error  $X\mu$ m and - error  $X\mu$ m allowed.

$X\mu$ m represents an absolute value: if an error of  $X\mu$ m occurs in +, - error is not allowed (0 $\mu$ m). Accordingly, if an error of  $X\mu$ m occurs in -, + error is not allowed (0 $\mu$ m). Thus,  $X\mu$ m error allowance is harder to achieve than + $X\mu$ m error allowance. (In this catalog, we use absolute value,  $X\mu$ m.)

### ■ Accuracy of Lever-type Linear Gauges (DL-2, DL-2S)

These DL-2 and DL-2S linear gauges are used in applications very similar to lever-type dial indicators. Their accuracy is represented every 0.5mm interval, not over the entire measurement range.

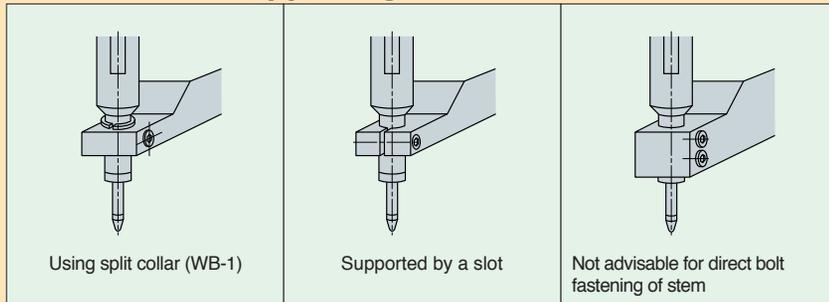
0~0.5mm                      0.5mm~1.0mm

1.0~1.5mm                    1.5~2.0mm

The entire measurement range is divided into 4 sections. The largest deviation among these 4 sections will determine accuracy.

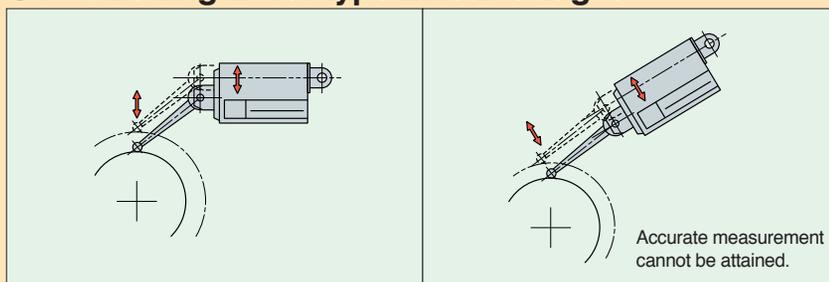


### ● Methods of Supporting Stem



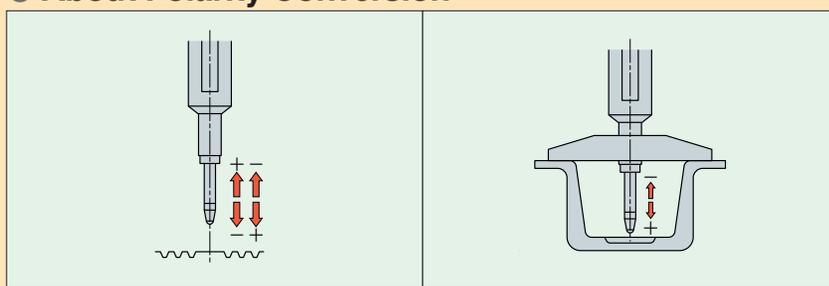
There are 2 methods for mounting of a linear gauge, namely by 'stem' or 'lug'.  
As illustrated on the left, please secure a stem by a split collar or a slot. (If a stem is secured directly by a screw or screws, the spindle may not move smoothly.)  
Please use split collar WB-1 designed exclusively for  $\phi$  8mm stem.

### ● Positioning Lever-type Linear Gauges



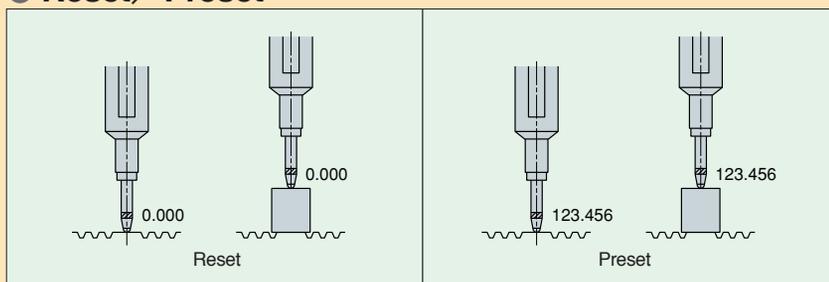
As illustrated on the left for a lever type linear gauge, the lever moves linearly, different from a lever type dial indicator.  
Lever type dial indicator can be freely set on a workpiece because of its arc movement.  
However, lever type linear gauge should be set on a workpiece extensively at right angle. (Since no deviation from arc is generated, the measuring range is set to 2mm wide.)

### ● About Polarity Conversion



When you need the reversed value to be read, for example, in case of depth measurement, "-" count should be set in the direction of pulling up of a spindle.  
In standard counters, you will find this switch on the back panel.

### ● Reset/ Preset



Linear gauges can be reset to zero at any position in the measuring range.  
Counters with preset function can be set a desired value at a desired position.  
Since values are displayed based on the preset value as a reference, it is suitable for managing the measured values by their absolute values.

### ● Protection Classifications

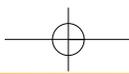
Example of protection classes based on IEC529(DIN40050)(First=protection classes for solid 0 to 6, Second=protection classes for liquid 0 to 8)

#### IP-54 Protection Class

| Type   | Class                      | Specifications  |
|--|----------------------------|---|
| Represents human body, protection and protection against foreign objects | 5: Protection against dust | Provides protection against dust.   |
| Represents protection against water                                      | 4: Splash proof type       | No harmful result caused by water splashed from all directions (water splashproof). |

#### IP-66 Protection Class

| Type  | Class                   | Specifications  |
|---|-------------------------|---|
| Represents human body, protection and protection against foreign object | 6: Anti-dust seal type  | Provides complete anti-dust protection against dust invasion.   |
| Represents protection against water                                     | 6: Full waterproof type | Protection that eliminates any water invasion including direct water jet from all directions (completely waterproof). |

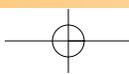


SECTION  
**12**



## Parts Drawings

- **New Pic Test**
- **Pic Test**
- **Dial Gauge**
- **Dial Thickness Gauge**
- **Dial Lens Gauge**
- **Cylinder Gauge**

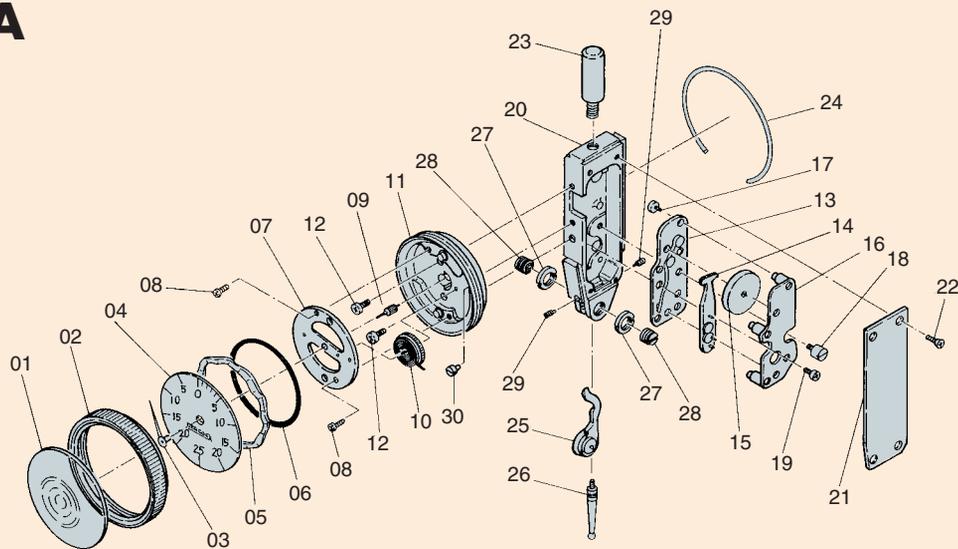




# Parts Drawings

## 12 PCN series

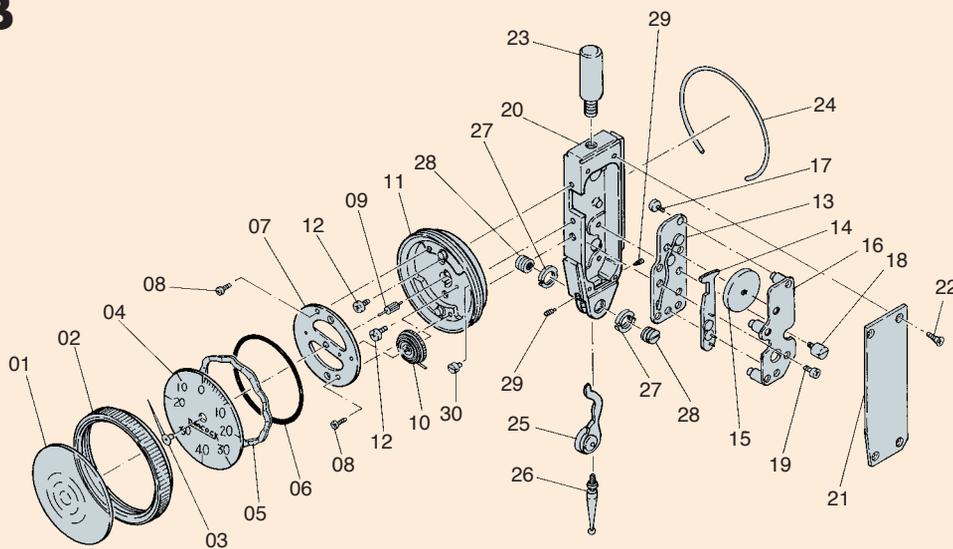
### New Pic Test PCN-1A



- |                                |  |                                       |                                    |
|--------------------------------|--|---------------------------------------|------------------------------------|
| 01 Crystal                     | 09 10Z Pinion                            | 16※Upper Plate Assy                   | 23 Stem                            |
| 02 Bezel                       | 10 60Z Idle Gear Assy (with Hair Spring) | 17※Set Screw for Metal Column (S-179) | 24 Wire Spring                     |
| 03 Pointer                     | 11※Base Metal (with Spindle Jewel)       | 18※Stopper Screw (S-092)              | 25 Lever with Bearing              |
| 04 Dial                        | 12※Set Screw for Base Metal (S-171)      | 19※Set Screw for Lower Plate (S-045)  | 26 Contact Point (XN1A-2)          |
| 05 Plate Spring                | 13※Lower Plate Assy                      | 20※Main Body                          | 27 Nut for Pivot                   |
| 06 O-Ring                      | 14 Sector Gear Assy                      | 21※Side Cover                         | 28 Pivot (with Miniature Bearings) |
| 07 Metal (with Jewel)          | 15 Crown Gear (with 26Z Pinion)          | 22 Set Screw for Side Cover (S-185)   | 29 Adjustment Screw (S-014)        |
| 08 Set Screw for Metal (S-132) |  |                                       | 30 Hair Spring Column              |

※mark are not for sell.

### New Pic Test PCN-1B



- |                                |  |                                       |                                    |
|--------------------------------|--|---------------------------------------|------------------------------------|
| 01 Crystal                     | 09 10Z Pinion                                | 16※Upper Plate Assembly               | 23 Stem                            |
| 02 Bezel                       | 10 60Z Idle Gear Assembly (with Hair Spring) | 17※Set Screw for Metal Column (S-179) | 24 Wire Spring                     |
| 03 Pointer                     | 11※Base Metal (with Spindle Jewel)           | 18※Stopper Screw (S-092)              | 25 Lever with Bearing              |
| 04 Dial                        | 12※Set Screw for Base Metal (S-171)          | 19※Set Screw for Lower Plate (S-045)  | 26 Contact Point (XN1B-2)          |
| 05 Plate Spring                | 13※Lower Plate Assembly                      | 20※Main Body                          | 27 Nut for Pivot                   |
| 06 O-Ring                      | 14 Sector Gear Assembly                      | 21※Side Cover                         | 28 Pivot (with Miniature Bearings) |
| 07 Metal (with Jewel)          | 15 Crown Gear (with 38Z Pinion)              | 22 Set Screw for Side Cover (S-185)   | 29 Adjustment Screw (S-014)        |
| 08 Set Screw for Metal (S-132) |  |                                       | 30 Hair Spring Column              |

※mark are not for sell.



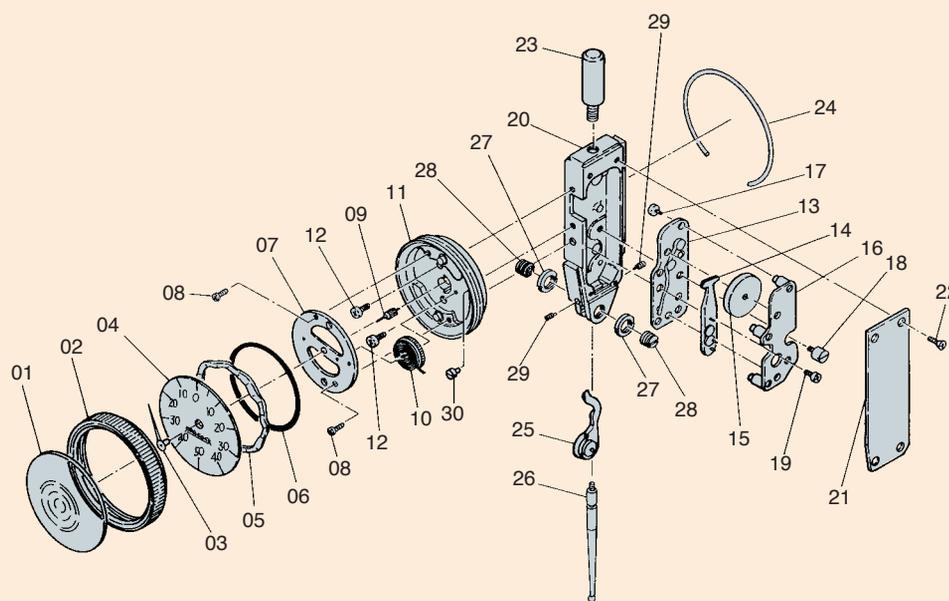
Parts Drawings

# Parts Drawings

## PCN series

12

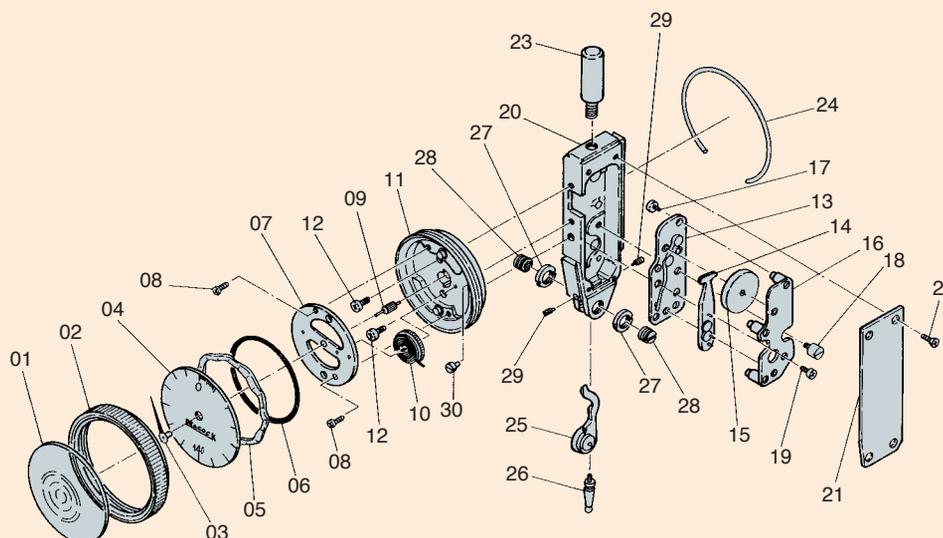
### New Pic Test PCN-1L



- |                                |  |                                       |                                    |
|--------------------------------|--|---------------------------------------|------------------------------------|
| 01 Crystal                     | 09 10Z Pinion                            | 16※Upper Plate Assy                   | 23 Stem                            |
| 02 Bezel                       | 10 60Z Idle Gear Assy (with Hair Spring) | 17※Set Screw for Metal Column (S-179) | 24 Wire Spring                     |
| 03 Pointer                     | 11※Base Metal (with Jewel)               | 18※Stopper Screw (S-092)              | 25 Lever with Bearing              |
| 04 Dial                        | 12※Set Screw for Base Metal (S-171)      | 19※Set Screw for Lower Plate (S-045)  | 26 Contact Point (XN1L-2)          |
| 05 Plate Spring                | 13※Lower Plate Assy                      | 20※Main Body                          | 27 Nut for Pivot                   |
| 06 O-Ring                      | 14 Sector Gear Assy                      | 21※Side Cover                         | 28 Pivot (with Miniature Bearings) |
| 07 Metal (with Jewel)          | 15 Crown Gear (with 26Z Pinion)          | 22 Set Screw for Side Cover (S-185)   | 29 Adjustment Screw (S-014)        |
| 08 Set Screw for Metal (S-132) |  |                                       | 30 Hair Spring Column              |

※mark are not for sell.

### New Pic Test PCN-2



- |                                |  |                                       |                                    |
|--------------------------------|--|---------------------------------------|------------------------------------|
| 01 Crystal                     | 09 10Z Pinion                            | 16※Upper Plate Assy                   | 23 Stem                            |
| 02 Bezel                       | 10 60Z Idle Gear Assy (with Hair Spring) | 17※Set Screw for Metal Column (S-179) | 24 Wire Spring                     |
| 03 Pointer                     | 11※Base Metal (with Jewel)               | 18※Stopper Screw (S-092)              | 25 Lever with Bearing              |
| 04 Dial                        | 12※Set Screw for Base Metal (S-171)      | 19※Set Screw for Lower Plate (S-045)  | 26 Contact Point (XN2-2)           |
| 05 Plate Spring                | 13※Lower Plate Assy                      | 20※Main Body                          | 27 Nut for Pivot                   |
| 06 O-Ring                      | 14 Sector Gear Assy                      | 21※Side Cover                         | 28 Pivot (with Miniature Bearings) |
| 07 Metal (with Jewel)          | 15 Crown Gear (with 18Z Pinion)          | 22 Set Screw for Side Cover (S-185)   | 29 Adjustment Screw (S-014)        |
| 08 Set Screw for Metal (S-132) |  |                                       | 30 Hair Spring Column              |

※mark are not for sell.



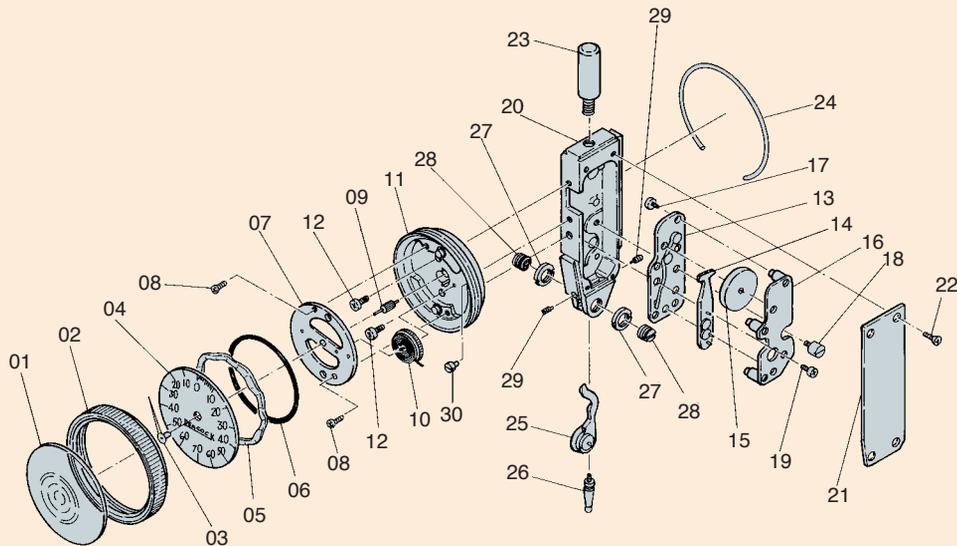
Parts Drawings



# 12 Parts Drawings

## PCN series PC series

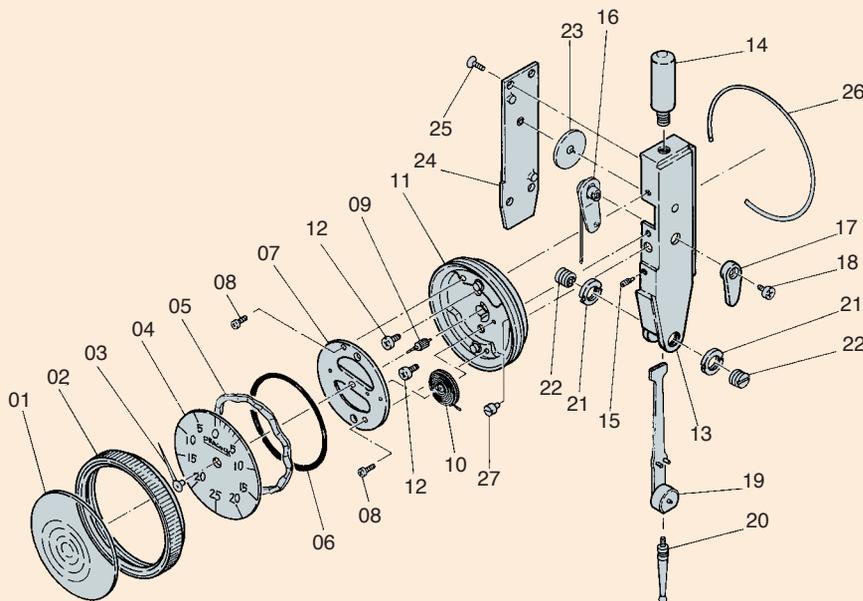
### New Pic Test PCN-S



- |                                |  |                                       |                                    |
|--------------------------------|--|---------------------------------------|------------------------------------|
| 01 Crystal                     | 09 10Z Pinion                                | 16※Upper Plate Assy                   | 23 Stem                            |
| 02 Bezel                       | 10 60Z Idle Gear Assembly (with Hair Spring) | 17※Set Screw for Metal Column (S-179) | 24 Wire Spring                     |
| 03 Pointer                     | 11※Base Metal (with Jewel)                   | 18※Stopper Screw (S-092)              | 25 Lever with Bearing              |
| 04 Dial                        | 12※Set Screw for Base Metal (S-171)          | 19※Set Screw for Lower Plate (S-045)  | 26 Contact Point (XNS-2)           |
| 05 Plate Spring                | 13※Lower Plate Assy                          | 20※Main Body                          | 27 Nut for Pivot                   |
| 06 O-Ring                      | 14 Sector Gear Assy                          | 21※Side Cover                         | 28 Pivot (with Miniature Bearings) |
| 07 Metal (with Jewel)          | 15 Crown Gear (with 14Z Pinion)              | 22 Set Screw for Side Cover (S-185)   | 29 Adjustment Screw (S-014)        |
| 08 Set Screw for Metal (S-132) |  |                                       | 30 Hair Spring Column              |

※mark are not for sell.

### Pic Test PC-1A



- |                                |  |   |                                      |
|--------------------------------|--|---|--------------------------------------|
| 01 Crystal                     | 09 10Z Pinion                            | 16※Clutch Lever Assy                    | 23 Crown Gear Assy (with 14Z Pinion) |
| 02 Bezel                       | 10 60Z Idle Gear Assy (with Hair Spring) | 17 Clutch Lever                         | 24※Side Cover                        |
| 03 Pointer                     | 11※Base Metal (with Jewel)               | 18 Set Screw for Clutch Lever (S-179)   | 25 Set Screw for Side Cover (S-163)  |
| 04 Dial                        | 12※Set Screw for Base Metal (S-171)      | 19 Sector Gear Assy                     | 26 Wire Spring                       |
| 05 Plate Spring                | 13※Main Body                             | 20 Contact Point (XP1A-2)               | 27 Hair Spring Column                |
| 06 O-Ring                      | 14 Stem                                  | 21 Nut for Pivot                        |                                      |
| 07 Metal (with Jewel)          | 15※Stopper Screw (S-164)                 | 22 Pivot Assy (with Miniature Bearings) |                                      |
| 08 Set Screw for Metal (S-132) |  |   |                                      |

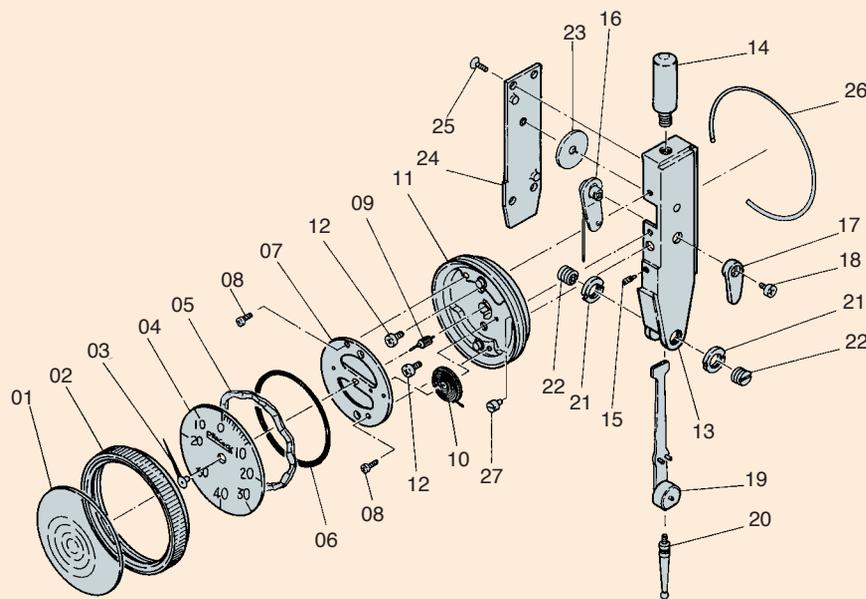
※mark are not for sell.

# Parts Drawings

## PC series

12

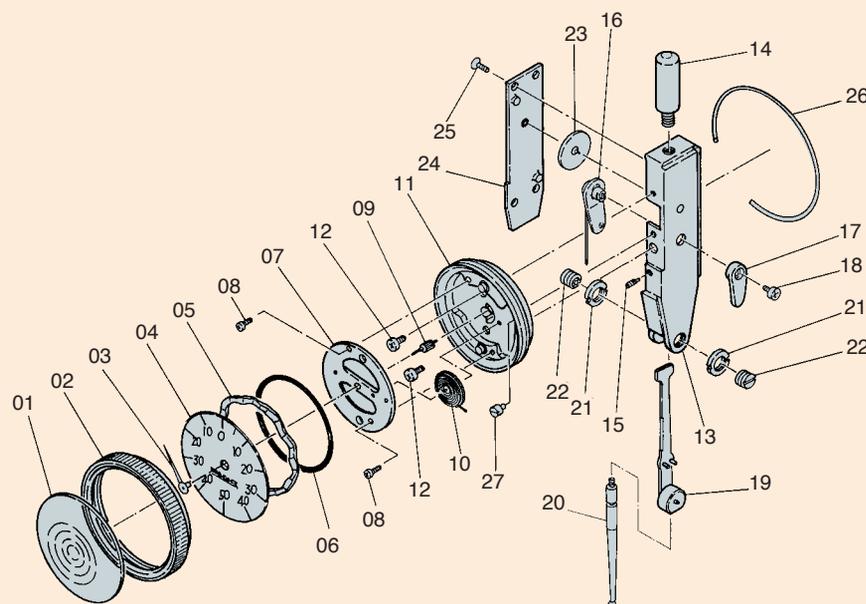
Pic Test  
**PC-1B**



- |                                |  |   |                                      |
|--------------------------------|--|---|--------------------------------------|
| 01 Crystal                     | 09 10Z Pinion                            | 16※Clutch Lever Assy                    | 23 Crown Gear Assy (with 21Z Pinion) |
| 02 Bezel                       | 10 60Z Idle Gear Assy (with Hair Spring) | 17 Clutch Lever                         | 24※Side Cover                        |
| 03 Pointer                     | 11※Base Metal (with Jewel)               | 18 Set Screw for Clutch Lever (S-179)   | 25 Set Screw for Side Cover (S-163)  |
| 04 Dial                        | 12※Set Screw for Base Metal (S-171)      | 19 Sector Gear Assy                     | 26 Wire Spring                       |
| 05 Plate Spring                | 13※Main Body                             | 20 Contact Point (XP1B-2)               | 27 Hair Spring Column                |
| 06 O-Ring                      | 14 Stem                                  | 21 Nut for Pivot                        |                                      |
| 07 Metal (with Jewel)          | 15※Stopper Screw (S-164)                 | 22 Pivot Assy (with Miniature Bearings) |                                      |
| 08 Set Screw for Metal (S-132) |  |   |                                      |

※mark are not for sell.

Pic Test  
**PC-1L**



- |                                |  |   |                                      |
|--------------------------------|--|---|--------------------------------------|
| 01 Crystal                     | 09 10Z Pinion                            | 16※Clutch Lever Assy                    | 23 Crown Gear Assy (with 14Z Pinion) |
| 02 Bezel                       | 10 60Z Idle Gear Assy (with Hair Spring) | 17 Clutch Lever                         | 24※Side Cover                        |
| 03 Pointer                     | 11※Base Metal (with Jewel)               | 18 Set Screw for Clutch Lever (S-179)   | 25 Set Screw for Side Cover (S-163)  |
| 04 Dial                        | 12※Set Screw for Base Metal (S-171)      | 19 Sector Gear Assy                     | 26 Wire Spring                       |
| 05 Plate Spring                | 13※Main Body                             | 20 Contact Point (XP1L-2)               | 27 Hair Spring Column                |
| 06 O-Ring                      | 14 Stem                                  | 21 Nut for Pivot                        |                                      |
| 07 Metal (with Jewel)          | 15※Stopper Screw (S-164)                 | 22 Pivot Assy (with Miniature Bearings) |                                      |
| 08 Set Screw for Metal (S-132) |  |   |                                      |

※mark are not for sell.



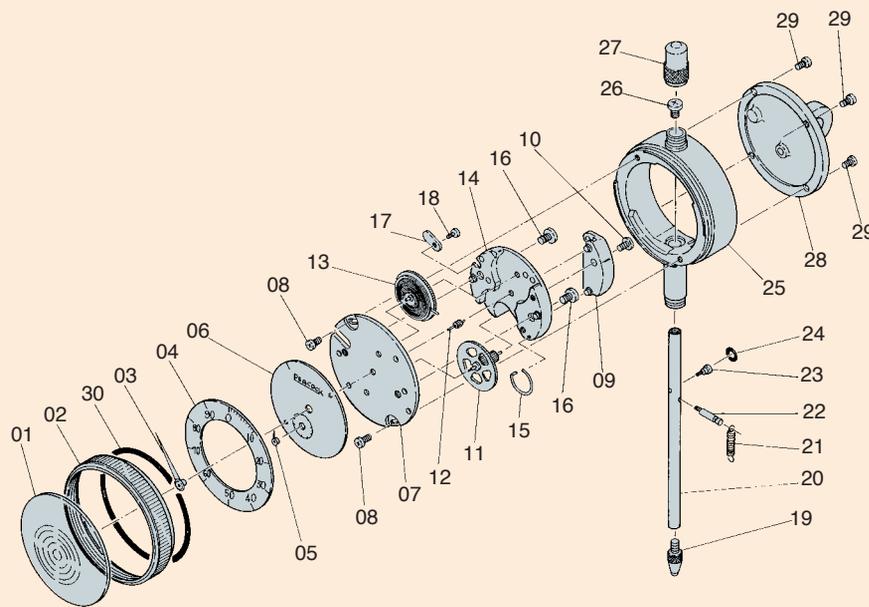
Parts Drawings



# 12 Parts Drawings

## Dial Gauges

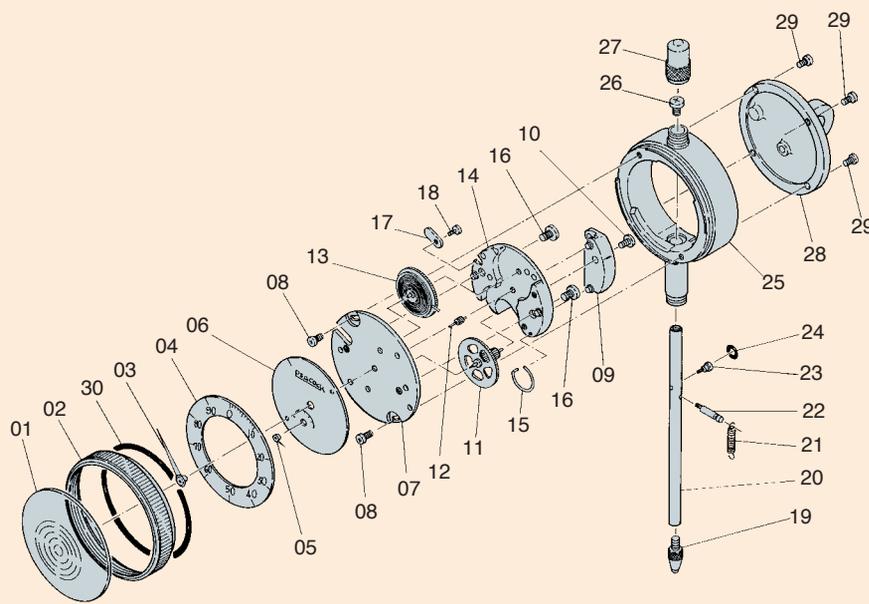
Dial Gauge  
**107**



- |                                     |  |   |                                   |
|-------------------------------------|--|---|-----------------------------------|
| 01 Crystal                          | 09※Guide Metal                           | 16※Set Screw for Upper Metal (S-010)        | 24 Shock-Proof Rubber             |
| 02 Bezel                            | 10※Set Screw for Guide Metal             | 17 Claw                                     | 25※Inner Frame                    |
| 03 Pointer                          | 11 120Z Main Gear Assy (with 16Z Pinion) | 18 Set Screw for Claw (S-009)               | 26 Screw (S-010)                  |
| 04 Outer Dial                       | 12 12Z Pinion                            | 19 Contact Point (X-1)                      | 27 Cap                            |
| 05 Hand                             | 13 120Z Idle Gear Assy                   | 20 Spindle                                  | 28 Lug Back (GB-1A)               |
| 06 Inner Dial                       | 14※Upper Metal (with Jewel)              | 21 Coil Spring                              | 29 Set Screw for Lug Back (S-156) |
| 07※Base Metal (with Jewel)          | 15 Wire Spring for Bezel                 | 22 Guide Knock                              | 30 O-Ring                         |
| 08※Set Screw for Base Metal (S-217) |  | 23 Set Screw for Shock-Proof Rubber (S-219) |                                   |

※mark are not for sell.

Dial Gauge  
**57**



- |                                     |                                      |   |                                   |
|-------------------------------------|--------------------------------------|---|-----------------------------------|
| 01 Crystal                          | 09※Guide Metal                       | 17 Claw                                     | 24 Shock-Proof Rubber             |
| 02 Bezel                            | 10※Set Screw for Guide Metal (S-012) | 18 Set Screw for Claw (S-009)               | 25※Inner Frame                    |
| 03 Pointer                          | 11 120Z Main Gear (with 16Z Pinion)  | 19 Contact Point (X-1)                      | 26 Screw (S-010)                  |
| 04 Outer Dial                       | 12 12Z Pinion                        | 20 Spindle                                  | 27 Cap                            |
| 05 Hand                             | 13 120Z Idle Gear Assy               | 21 Coil Spring                              | 28 Lug Back (GB-1A)               |
| 06 Inner Dial                       | 14※Upper Metal (with Spindle Jewel)  | 22 Guide Knock                              | 29 Set Screw for Lug Back (S-156) |
| 07※Base Metal (with Jewel)          | 15 Wire Spring for Bezel             | 23 Set Screw for Shock-Proof Rubber (S-219) | 30 O-Ring                         |
| 08※Set Screw for Base Metal (S-217) | 16 Set Screw for Upper Metal (S-010) |   |                                   |

※mark are not for sell.



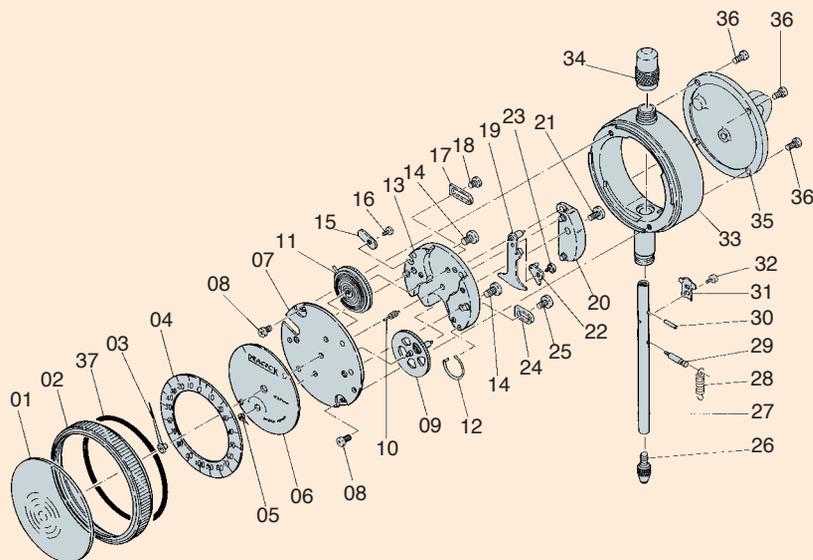
Parts Drawings

# Parts Drawings

## Dial Gauges

Dial Gauge

### 5B

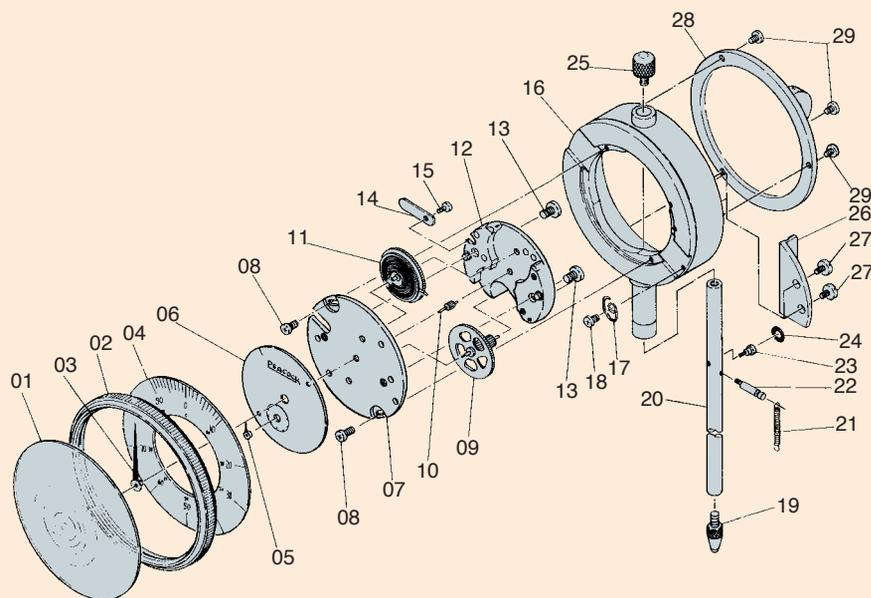


- |  |   |   |  |
|--|---|---|--|
| 01 Crystal                               | 11 120Z Idle Gear Assy (with Hair Spring) | Gear Shaft' Eccentric Shaft)            | 29 Guide Knock                           |
| 02 Bezel                                 | 12 Wire Spring for Bezel                  | 20**Guide Metal                         | 30**Bracket Knock (A)                    |
| 03 Pointer                               | 13**Upper Metal (with Spindle Jewel)      | 21**Set Screw for Guide Metal (S-012)   | 31 Spindle Stopper                       |
| 04 Outer Dial                            | 14 Set Screw for Upper Metal (S-010)      | 22**Bracket (with Bracket Knock A)      | 32 Set Screw for Spindle Stopper (S-001) |
| 05 Hand                                  | 15 Claw                                   | 23**Set Screw for Bracket (S-006)       | 33**Inner Frame                          |
| 06 Inner Dial                            | 16 Set Screw for Claw (S-009)             | 24 Adjust Stopper                       | 34 Cap                                   |
| 07**Base Metal (with Jewel)              | 17**Adjust Stopper (B)                    | 25 Set Screw for Adjust Stopper (S-012) | 35 Lug Back (GB-1A)                      |
| 08**Set Screw for Base Metal (S-217)     | 18**Set Screw for Adjust Stopper (S-004)  | 26 Contact Point (X-1)                  | 36 Set Screw for Lug Back (S-156)        |
| 09 120Z Main Gear Assy (with 16Z Pinion) | 19 Sector Gear Assy (with Sector          | 27 Spindle                              | 37 O-Ring                                |
| 10 12Z Pinion                            |   | 28 Coil Spring                          |  |

\*\*mark are not for sell.

Dial Gauge

### 207



- |                                      |                                       |  |                                       |
|--------------------------------------|---------------------------------------|--|---------------------------------------|
| 01 Crystal                           | 09 120Z Main Gear (with 16Z Pinion)   | 17 Wire Spring for Bezel (S-219)               | 24 Shock-Proof Rubber                 |
| 02 Bezel                             | 10 12Z Pinion                         | 18 Set Screw for Wire Spring for Bezel (S-130) | 25 Top Screw                          |
| 03 Pointer                           | 11 120Z Idle Gear (with Hair Spring)  | 19 Contact Point (X-1)                         | 26**Guide Metal                       |
| 04 Outer Dial                        | 12**Upper Metal (with Spindle Jewel)  | 20 Spindle                                     | 27**Set Screw for Guide Metal (S-012) |
| 05 Hand                              | 13**Set Screw for Upper Metal (S-010) | 21 Coil Spring                                 | 28 Lug Back (GB-125)                  |
| 06 Inner Dial                        | 14 Claw                               | 22 Guide Knock                                 | 29 Set Screw for Lug Back (S-156)     |
| 07**Base Metal (with Jewel)          | 15 Set Screw for Claw (S-009)         | 23 Set Screw for Shock-Proof Rubber            |                                       |
| 08**Set Screw for Base Metal (S-217) | 16**Inner Frame                       |  |                                       |

\*\*mark are not for sell.

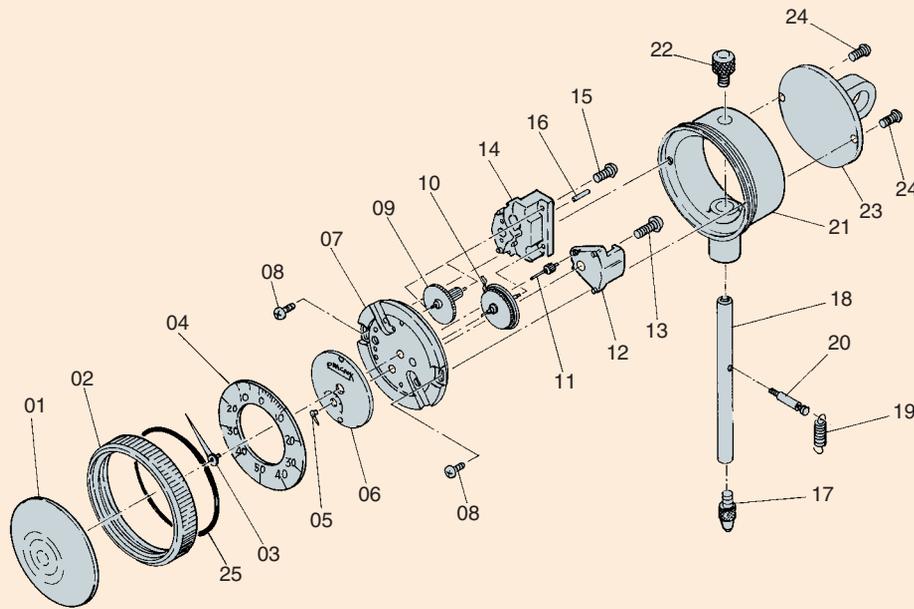




# 12 Parts Drawings

## Dial Gauge Dial Thickness Gauge

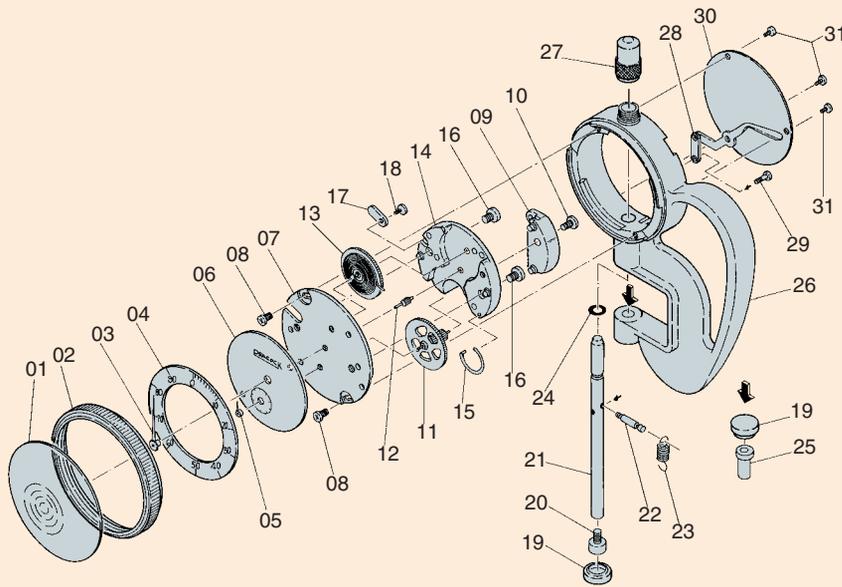
### Dial Gauge 47



- |                            |                                       |                                       |                                   |
|----------------------------|---------------------------------------|---------------------------------------|-----------------------------------|
| 01 Crystal                 | 08※Set Screw for Base Metal (S-009)   | 15※Set Screw for Square Metal (S-156) | 21※Inner Frame                    |
| 02 Bezel                   | 09 70Z Main Gear (with 14Z Pinion)    | 16 Knock for Hair Spring              | 22 Top Screw                      |
| 03 Pointer                 | 10 70Z Idle Gear Assy                 | 17 Contact Point (X-107)              | 23 Lug Back (GB-147)              |
| 04 Outer Dial              | 11 10Z Pinion                         | 18 Spindle                            | 24 Set Screw for Lug Back (S-005) |
| 05 Hand                    | 12※Center Metal (with Jewel)          | 19 Coil Spring                        | 25 O-Ring                         |
| 06 Inner Dial              | 13※Set Screw for Center Metal (S-165) | 20 Guide Knock                        |                                   |
| 07※Base Metal (with Jewel) | 14※Square Metal (with Jewel)          |                                       |                                   |

\*mark are not for sell.

### Dial Thickness Gauge G



- |                                     |                                      |                               |                                   |
|-------------------------------------|--------------------------------------|-------------------------------|-----------------------------------|
| 01 Crystal                          | 09※Guide Metal                       | 17※Claw                       | 25 Anvil base                     |
| 02 Bezel                            | 10※Set Screw for Guide Metal (S-012) | 18※Set Screw for Claw (S-009) | 26※Frame                          |
| 03 Pointer                          | 11※120Z Main Gear (with 16Z Pinion)  | 19 Anvil                      | 27※Cap                            |
| 04 Outer Dial                       | 12※12Z Pinion                        | 20 Contact Point set          | 28 Lever (with Lift Knock device) |
| 05 Hand                             | 13※120Z Idle Gear (with Hair Spring) | 21 Spindle                    | 29 Set Screw for Lift (S-064)     |
| 06 Inner Dial                       | 14※Upper Metal (with Spindle Jewel)  | 22※Guide Knock                | 30 Back                           |
| 07※Base Metal (with Jewel)          | 15※Wire Spring for Bezel             | 23 Coil Spring                | 31 Set Screw for Back (S-128)     |
| 08※Set Screw for Base Metal (S-217) | 16※Set Screw for Upper Metal (S-010) | 24※Shock-Proof Rubber         |                                   |

\*mark are not for sell.



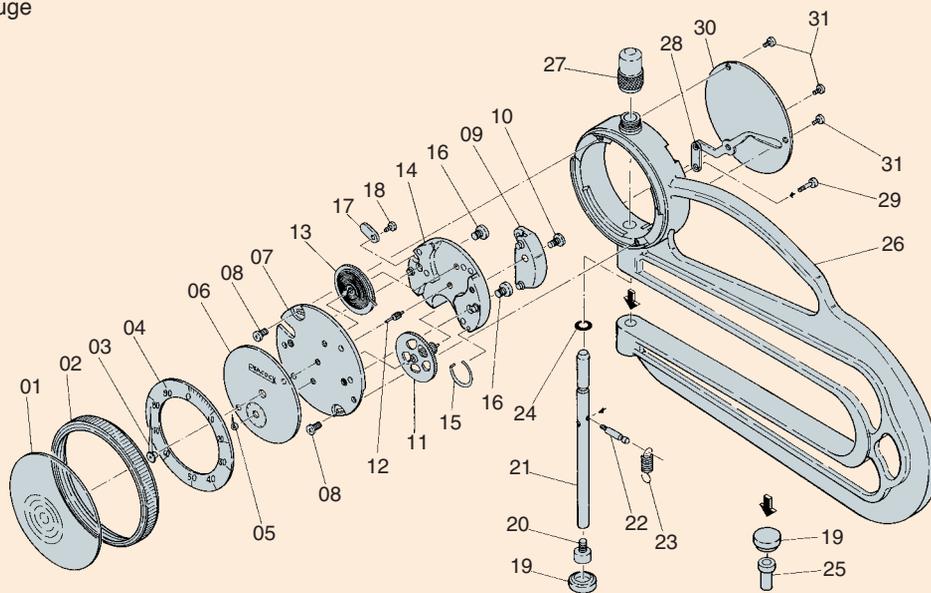
Parts Drawings

# Parts Drawings

## Dial Thickness Gauge Dial Lens Gauge

Dial Thickness Gauge

**H**

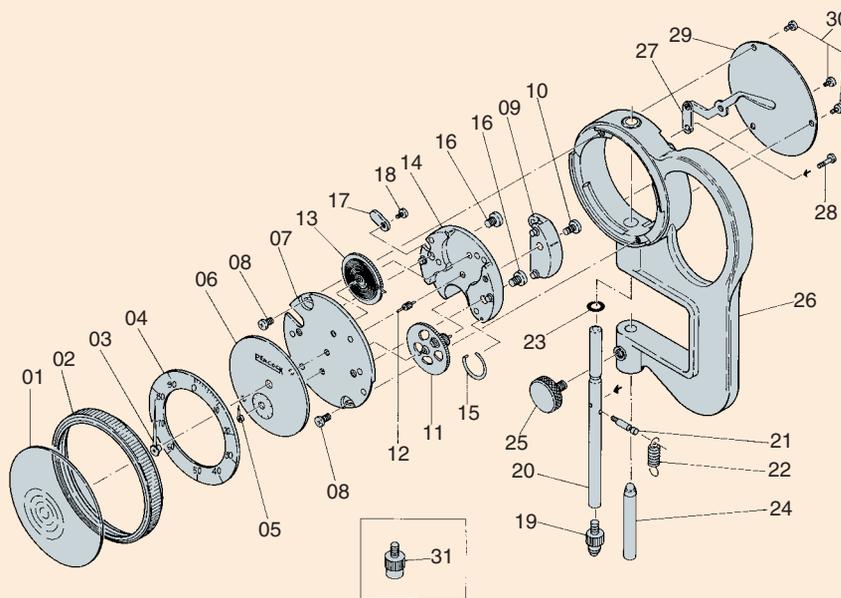


- |                                |                                      |                               |                                   |
|--------------------------------|--------------------------------------|-------------------------------|-----------------------------------|
| 01 Crystal                     | 09※Guide Metal                       | 17※Claw                       | 25 Anvil base                     |
| 02 Bezel                       | 10※Set Screw for Guide Metal (S-012) | 18※Set Screw for Claw (S-009) | 26※Frame                          |
| 03 Pointer                     | 11※120Z Main Gear (with 16Z Pinion)  | 19 Anvil                      | 27※Cap                            |
| 04 Outer Dial                  | 12※12Z Pinion                        | 20 Contact Point set          | 28 Lever (with Lift Knock device) |
| 05 Hand                        | 13※120Z Idle Gear (with Hair Spring) | 21 Spindle                    | 29 Set Screw for Lift (S-064)     |
| 06 Inner Dial                  | 14※Upper Metal (with Spindle Jewel)  | 22※Guide Knock                | 30 Back                           |
| 07※Base Metal (with Jewel)     | 15※Wire Spring for Bezel             | 23 Coil Spring                | 31 Set Screw for Back (S-128)     |
| 08※Set Screw for Metal (S-217) | 16※Set Screw for Upper Metal (S-010) | 24※Shock-Proof Rubber         |                                   |

※mark are not for sell.

Dial Lens Gauge

**GL**



- |                                     |                                      |                               |                                   |
|-------------------------------------|--------------------------------------|-------------------------------|-----------------------------------|
| 01 Crystal                          | 09※Guide Metal                       | 17※Claw                       | 25 Knob for Anvil                 |
| 02 Bezel                            | 10※Set Screw for Guide Metal (S-012) | 18※Set Screw for Claw (S-009) | 26※Frame                          |
| 03 Pointer                          | 11※120Z Main Gear (with 16Z Pinion)  | 19 Contact Point (R-Type)     | 27 Lever (with Lift Knock device) |
| 04 Outer Dial                       | 12※12Z Pinion                        | 20 Spindle                    | 28 Set Screw for Lift (S-064)     |
| 05 Hand                             | 13※120Z Idle Gear (with Hair Spring) | 21※Guide Knock                | 29 Back                           |
| 06 Inner Dial                       | 14※Upper Metal (with Spindle Jewel)  | 22 Coil Spring                | 30 Set Screw for Back (S-128)     |
| 07※Base Metal (with Jewel)          | 15※Wire Spring for Bezel             | 23※Shock-Proof Rubber         | 31 Contact Point (Flat Type)      |
| 08※Set Screw for Base Metal (S-217) | 16※Set Screw for Upper Metal (S-010) | 24 Anvil                      |                                   |

※mark are not for sell.

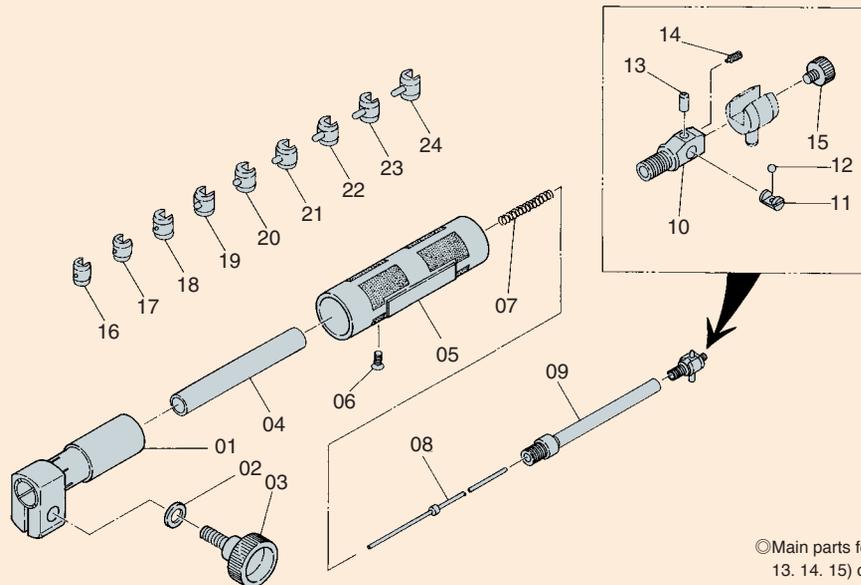


Parts Drawings

# 12 Parts Drawings

## Cylinder Gauges

### Cylinder Gauge **CC-02**



◎Main parts for Body (part no. 10. 11. 12. 13. 14. 15) can be sold as a set. (Head only for CC-02)

◎Parts no. 02 and 03 can be sold as a set.

- 01 Indicator Holder
- 02 Washer
- 03 Knob Screw
- 04※Sleeve B
- 05※Grip
- 06※Set Screw for Grip (S-027)

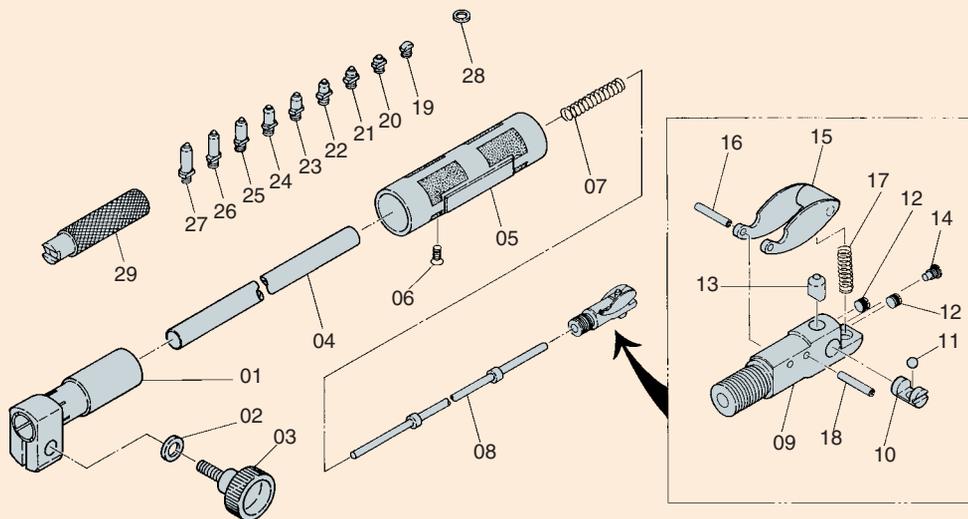
- 07 Coil Spring
- 08 Spindle (with Spindle Collar)
- 09※Sleeve A
- 10※Head
- 11 Race
- 12 Transmission Ball

- 13 Contact Point
- 14 Guide Screw
- 15 Lock Screw for Feeler
- 16 Feeler 6.0mm
- 17 Feeler 6.5mm
- 18 Feeler 7.0mm

- 19 Feeler 7.5mm
- 20 Feeler 8.0mm
- 21 Feeler 8.5mm
- 22 Feeler 9.0mm
- 23 Feeler 9.5mm
- 24 Feeler 10.0mm

※mark are not for sell.

### Cylinder Gauge **CC-01**



◎Main parts for Body (part no. 09. 10. 11. 12. 13. 14. 15. 16. 17. 18) can be sold as a set. (Head only for CC-01)

◎Parts no. 02 and 03 can be sold as a set.

- 01 Indicator Holder
- 02 Washer
- 03 Knob Screw
- 04※Sleeve
- 05※Grip
- 06※Set Screw for Grip (S-023)
- 07 Coil Spring
- 08 Spindle (with Spindle Collar)
- 09※Head
- 10 Race

- 11 Transmission Ball
- 12 Set Screw for Transmission Ball (S-049)
- 13 Contact Point
- 14 Guide Screw
- 15 Guide (with Guide Bush)
- 16 Rivet
- 17 Return Spring
- 18 Check Pin
- 19 Feeler 10mm

- 20 Feeler 11mm
- 21 Feeler 12mm
- 22 Feeler 13mm
- 23 Feeler 14mm
- 24 Feeler 15mm
- 25 Feeler 16mm
- 26 Feeler 17mm
- 27 Feeler 18mm
- 28 Washer 0.5mm
- 29 Spanner

※mark are not for sell.

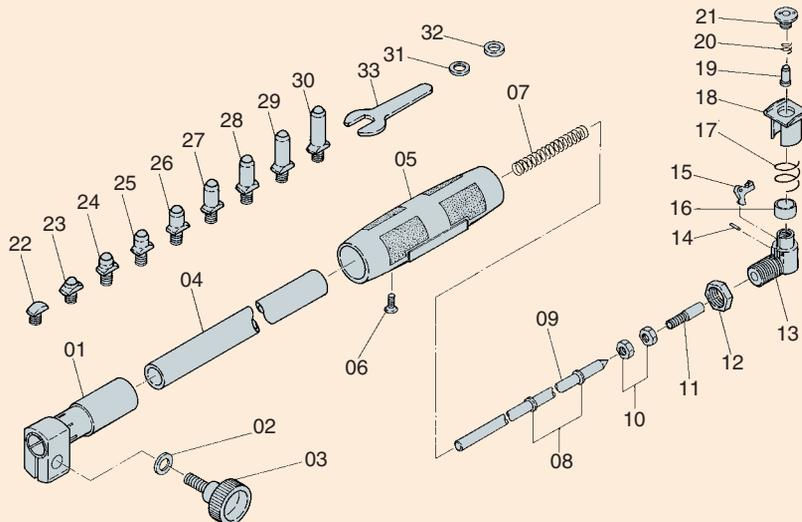


# Parts Drawings

## Cylinder Gauges

12

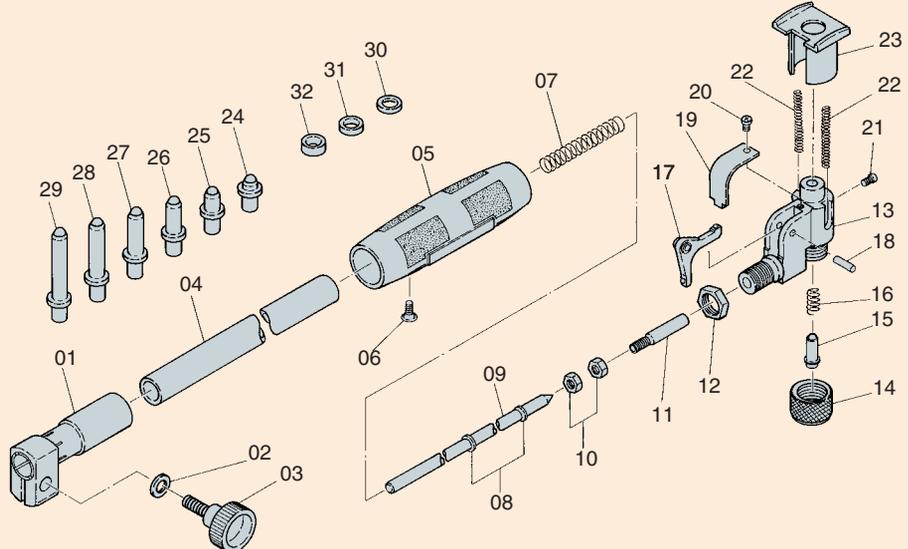
### Cylinder Gauge CC-1



- |   |                     |                  |                 |   |
|---|---------------------|------------------|-----------------|---|
| 01 Indicator Holder                       | 09 Spindle Rod      | 18 Guide         | 27 Feeler 28mm  | ◎Main parts for Body (part no. 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21) can be sold as a set. (Head only for CC-1) |
| 02 Washer                                 | 10 Stop Nut         | 19 Contact Point | 28 Feeler 30mm  | ◎Parts no. 02 and 03 can be sold as a set.  |
| 03 Knob Screw                             | 11 Spindle          | 20 Buffer Spring | 29 Feeler 32mm  | ◎Parts no. 14 and 15 can be sold as a set.  |
| 04※Sleeve                                 | 12 Hex Nut          | 21 Lock Nut      | 30 Feeler 34mm  |   |
| 05※Grip                                   | 13※Head             | 22 Feeler 18mm   | 31 Washer 0.5mm |   |
| 06※Set Screw for Grip (S-021)             | 14※Transmission Pin | 23 Feeler 20mm   | 32 Washer 1mm   |   |
| 07 Coil Spring                            | 15※Transmission     | 24 Feeler 22mm   | 33 Spanner      |   |
| 08 Spindle Collar (with E type Stop Ring) | 16※Collar           | 25 Feeler 24mm   |                 |   |
|   | 17 Return Spring    | 26 Feeler 26mm   |                 |   |

※mark are not for sell.

### Cylinder Gauge CC-2



- |   |                    |                                     |                |   |
|---|--------------------|-------------------------------------|----------------|---|
| 01 Indicator Holder                       | 09 Spindle Rod     | 18 Transmission Pin                 | 27 Feeler 50mm | ◎Main parts for Body (part no. 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23) can be sold as a set. (Head only for CC-2) |
| 02 Washer                                 | 10 Stop Nut        | 19※Head Cover                       | 28 Feeler 55mm | ◎Parts no. 02 and 03 can be sold as a set.  |
| 03 Knob Screw                             | 11 Spindle         | 20※Set Screw for Head Cover (S-008) | 29 Feeler 60mm | ◎Parts no. 17 and 18 can be sold as a set.  |
| 04※Sleeve                                 | 12 Hex Nut         | 21 Set Screw for Guide (S-042)      | 30 Washer 1mm  |   |
| 05※Grip                                   | 13※Head            | 22 Return Spring                    | 31 Washer 2mm  |   |
| 06※Set Screw for Grip (S-021)             | 14 Feeler Lock Nut | 23 Guide                            | 32 Washer 3mm  |   |
| 07 Coil Spring                            | 15 Contact Point   | 24 Feeler 35mm                      |                |   |
| 08 Spindle Collar (with E type Stop Ring) | 16 Buffer Spring   | 25 Feeler 40mm                      |                |   |
|   | 17 Transmission    | 26 Feeler 45mm                      |                |   |

※mark are not for sell.



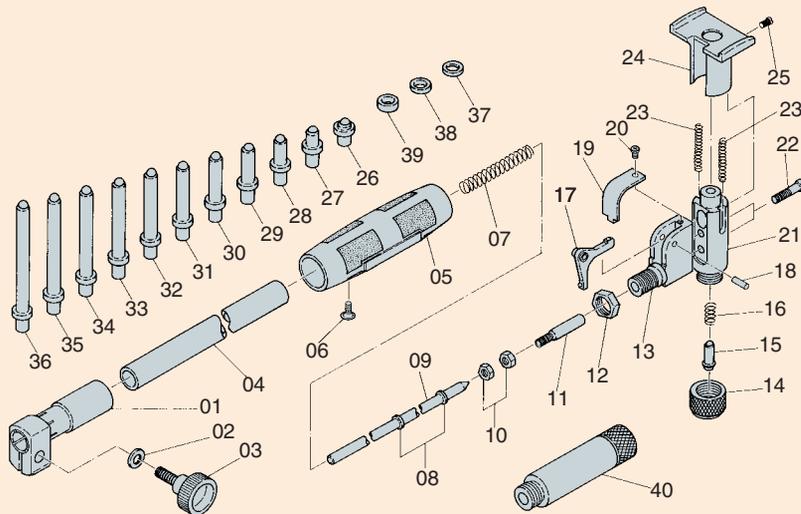
Parts Drawings



# 12 Parts Drawings

## Cylinder Gauges

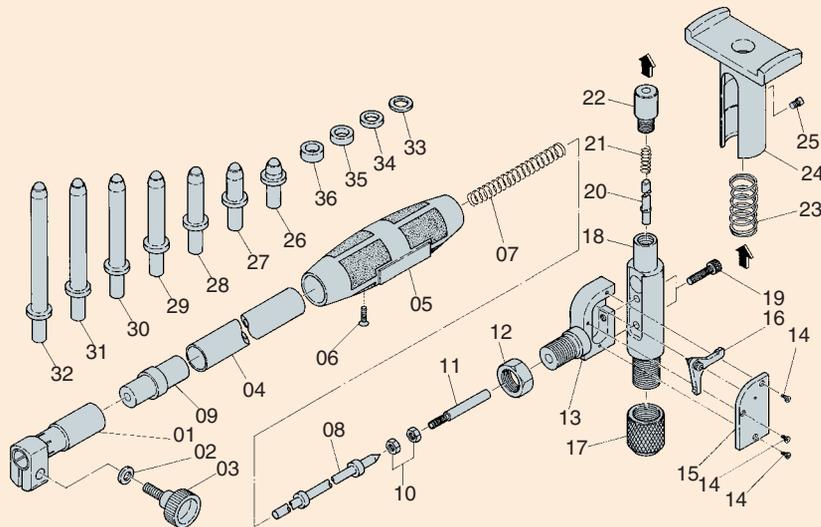
### Cylinder Gauge CC-3C



- |   |                                      |                                 |                 |  |
|---|--------------------------------------|---------------------------------|-----------------|--|
| 01 Indicator Holder                       | 11 Spindle                           | 22**Lock Screw for Head (S-025) | 31 Feeler 75mm  | ◎Main parts for Body (part no. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25) can be sold as a set. (Head only for CC-3C) |
| 02 Washer                                 | 12 Hex Nut                           | 23 Return Spring                | 32 Feeler 80mm  | ◎Parts no. 02 and 03 can be sold as a set.   |
| 03 Knob Screw                             | 13**Head A                           | 24 Guide                        | 33 Feeler 85mm  | ◎Parts no. 17 and 18 can be sold as a set.   |
| 04**Sleeve                                | 14 Nut (Feeler Lock Nut)             | 25 Set Screw for Guide (S-042)  | 34 Feeler 90mm  |  |
| 05**Grip                                  | 15 Contact Point                     | 26 Feeler 50mm                  | 35 Feeler 95mm  |  |
| 06**Set Screw for Grip (S-021)            | 16 Buffer Spring                     | 27 Feeler 55mm                  | 36 Feeler 100mm |  |
| 07 Coil Spring                            | 17 Transmission                      | 28 Feeler 60mm                  | 37 Washer 1mm   |  |
| 08 Spindle Collar (with E type Stop Ring) | 18 Transmission Pin                  | 29 Feeler 65mm                  | 38 Washer 2mm   |  |
| 09 Spindle Rod                            | 19**Head Cover                       | 30 Feeler 70mm                  | 39 Washer 3mm   |  |
| 10 Stop Nut                               | 20**Set Screw for Head Cover (S-008) |                                 | 40 Adapter      |  |

\*\*mark are not for sell.

### Cylinder Gauge CC-4



- |                                      |   |                                |                 |   |
|--------------------------------------|---|--------------------------------|-----------------|---|
| 01 Indicator Holder                  | 11 Spindle                              | 20 Contact Point               | 29 Feeler 130mm | ◎Main parts for Body (part no. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25) can be sold as a set. (Head only for CC-4) |
| 02 Washer                            | 12 Hex Nut                              | 21 Buffer Spring               | 30 Feeler 140mm | ◎Parts no. 02 and 03 can be sold as a set.  |
| 03 Knob Screw                        | 13**Head A                              | 22 Lock Nut                    | 31 Feeler 150mm |   |
| 04**Sleeve                           | 14**Set Screw for Side Cover (S-017)    | 23 Return Spring               | 32 Feeler 160mm |   |
| 05**Grip                             | 15**Side Cover                          | 24 Guide                       | 33 Washer 1mm   |   |
| 06**Set Screw for Grip (S-028)       | 16 Transmission (with Transmission Pin) | 25 Set Screw for Guide (S-043) | 34 Washer 2mm   |   |
| 07 Coil Spring                       | 17 Nut (Feeler Lock Nut)                | 26 Feeler 100mm                | 35 Washer 3mm   |   |
| 08 Spindle Rod (with Spindle Collar) | 18**Head B                              | 27 Feeler 110mm                | 36 Washer 4mm   |   |
| 09**Joint                            | 19**Lock Screw for Head (S-207)         | 28 Feeler 120mm                |                 |   |
| 10 Stop Nut                          |   |                                |                 |   |

\*\*mark are not for sell.



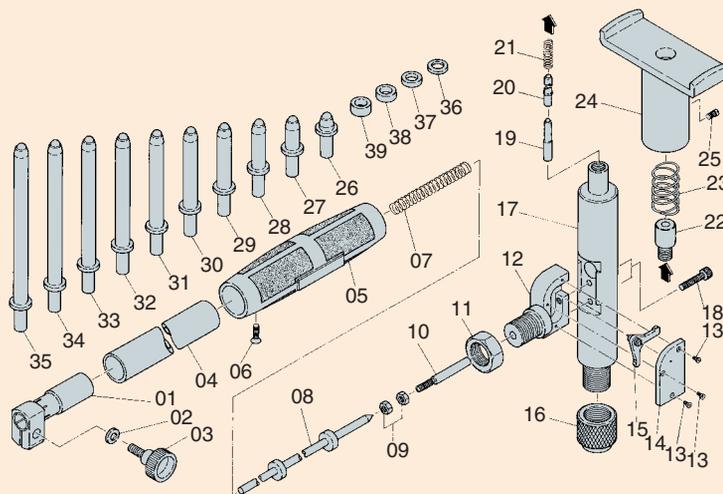
Parts Drawings

# Parts Drawings

## Cylinder Gauges

12

### Cylinder Gauge **CC-5**



- 01 Indicator Holder
- 02 Washer
- 03 Knob Screw
- 04\* Sleeve
- 05\* Grip
- 06\* Set Screw for Grip (S-031)
- 07 Coil Spring
- 08 Spindle Rod (with Spindle Collar)

- 09 Stop Nut
- 10 Spindle
- 11 Hex Nut
- 12\* Head A
- 13\* Set Screw for Side Cover (S-017)
- 14\* Side Cover
- 15 Transmission (with Transmission Pin)

- 16 Nut (Feeler Lock Nut)
- 17\* Head B
- 18\* Lock Screw for Head (S-208)
- 19 Transmission Rod
- 20 Contact Point
- 21 Buffer Spring
- 22 Lock Nut
- 23 Return Spring

- 24 Guide
- 25 Set Screw for Guide (S-043)
- 26 Feeler 160mm
- 27 Feeler 170mm
- 28 Feeler 180mm
- 29 Feeler 190mm
- 30 Feeler 200mm
- 31 Feeler 210mm

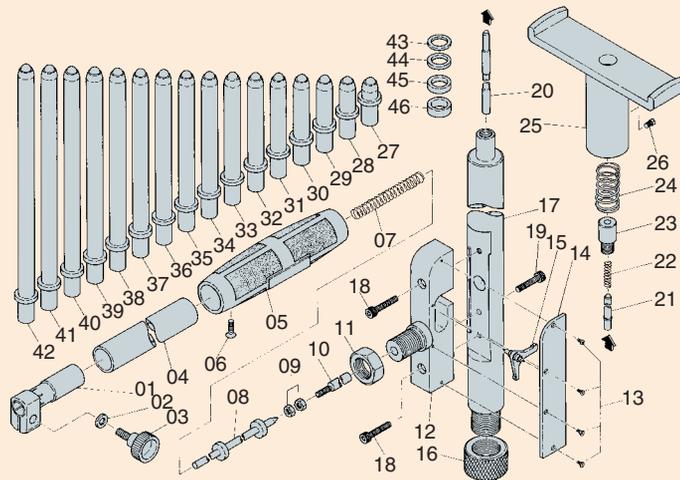
◎Main parts for Body (part no. 09. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25) can be sold as a set. (Head only for CC-5)

◎Parts no. 02 and 03 can be sold as a set.

- 32 Feeler 220mm
- 33 Feeler 230mm
- 34 Feeler 240mm
- 35 Feeler 250mm
- 36 Washer 1mm
- 37 Washer 2mm
- 38 Washer 3mm
- 39 Washer 4mm

\*mark are not for sell.

### Cylinder Gauge **CC-6**



- 01 Indicator Holder
- 02 Washer
- 03 Knob Screw
- 04\* Sleeve
- 05\* Grip
- 06\* Set Screw for Grip (S-031)
- 07 Coil Spring
- 08 Spindle Rod (with Spindle Collar)
- 09 Stop Nut
- 10 Spindle

- 11 Hex Nut
- 12\* Head A
- 13\* Set Screw for Side Cover (S-017)
- 14\* Side Cover
- 15 Transmission (with Transmission Pin)
- 16 Nut (Feeler Lock Nut)
- 17\* Head B
- 18\* Lock Screw for Head A (S-209)

- 19\* Lock Screw for Head B (S-208)
- 20 Transmission Rod
- 21 Contact Point
- 22 Buffer Spring
- 23 Lock Nut
- 24 Return Spring
- 25 Guide
- 26 Set Screw for Guide (S-043)
- 27 Feeler 250mm

- 28 Feeler 260mm
- 29 Feeler 270mm
- 30 Feeler 280mm
- 31 Feeler 290mm
- 32 Feeler 300mm
- 33 Feeler 310mm
- 34 Feeler 320mm
- 35 Feeler 330mm
- 36 Feeler 340mm
- 37 Feeler 350mm
- 38 Feeler 360mm

◎Main parts for Body (part no. 09. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26) can be sold as a set. (Head only for CC-6)

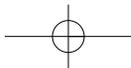
◎Parts no. 02 and 03 can be sold as a set.

- 39 Feeler 370mm
- 40 Feeler 380mm
- 41 Feeler 390mm
- 42 Feeler 400mm
- 43 Washer 1mm
- 44 Washer 2mm
- 45 Washer 3mm
- 46 Washer 4mm

\*mark are not for sell.



Parts Drawings



# OVER LOAD GAUGE for TIRE CURING MACHINE

For passenger vehicle tires and those for truck and bus tires  
(Made to order)

We, "PEACOCK" make OVER LOAD GAUGES for TIRE CURING MACHINES that applied our Dial Gauge.

### Example pictures of Over Load Gauge for TIRE CURING MACHINE

0-300TON  
with Back Plate & Dust Proof Rubber  
(Spec. Pointer 1 rotation: 0.5mm)

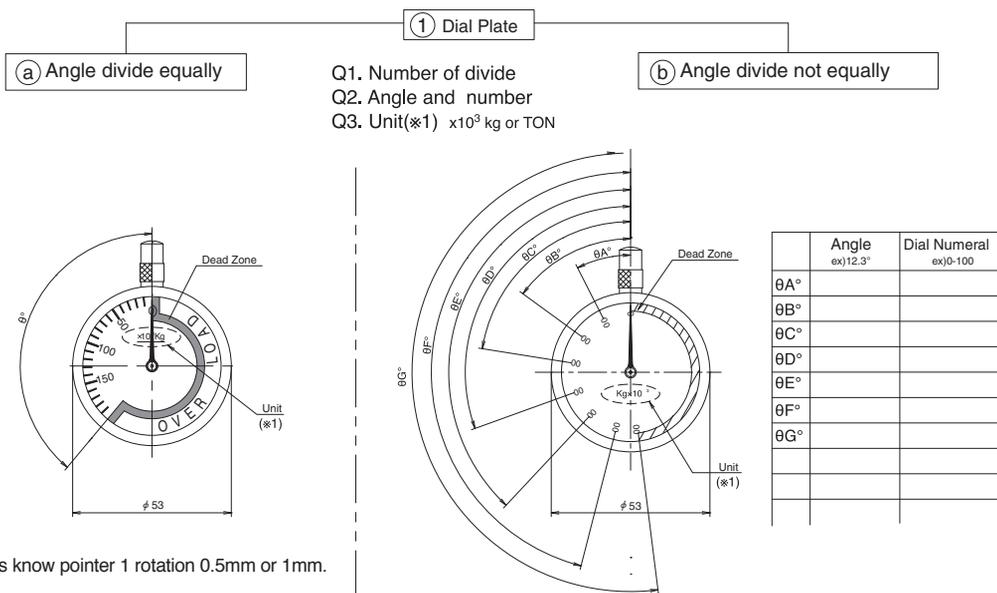


0-1000TON  
with Dust Proof Rubber  
(Spec. Pointer 1 rotation: 0.5mm)



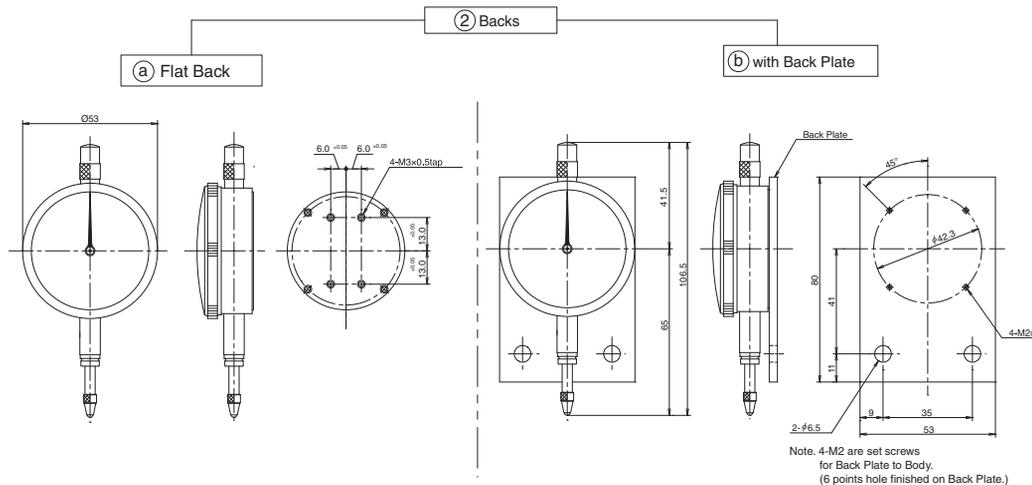
### 1. For making the Dial Plate, please let us know the angle for range of graduation to meet with the Tightening force (TON) .

\*see diagram as under. Example Spec. Pointer 1 rotation: 1mm



### 2. We provide the Over Load Gauge with Back Plate to meet with your Tire Curing Machine.

Dust Proof Rubber can be installed to the Spindle of Over Load Gauge.



Please contact your local "PEACOCK" distributor for your further inquiry or write to us at:

**peacock-tokyo@peacockozaki.jp**

