



# TOOLS CATALOG vol.116

CALIPERS | MICROMETER | MICROMETER HEAD | DIAL GAUGES | STANDARDS | GAUGES | ANGLE  
MICROSCOPE | SCRIBE | SCALE | OTHERS



CALIPERS

MICROMETER

MICROMETER  
HEAD

DIAL GAUGES

STANDARDS

# TOOLS



GAUGES

ANGLE

MICROSCOPE

SCRIBE

SCALE

OTHERS



SK Nigata Seiki

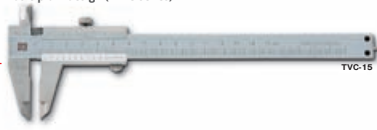
English

# How To Read This Catalog

**Product Name** — **VERNIER CALIPERS (MONO-BLOCK)**

**Product Features** — Basic plain design (TVC series)

**Category** — CALIPERS

**Product Photo** —  TVC-15  
TVC-15CD (φ1.9mm round depth bar)

**Functional Description** — Parallax-free vernier scales for easy and accurate measurement (HVC series)

**Classification within Category** — CALIPERS  
DEPTH GAUGES  
HEIGHT GAUGES

**Use · Material · Features** — **USE** • For Outside diameter, inside diameter, step and depth measurement  
**FEATURES** • Made of stainless steel  
• Satin finish

**Dimensions** — **DIMENSIONS**  
Units : mm

| Model No. | A    | B   | C    | D    | E   | F  | G    |
|-----------|------|-----|------|------|-----|----|------|
| TVC-10    | 178  | 77  | 16   | 40   | 54  | 30 | 16   |
| TVC-15    | 234  | 77  | 16   | 40   | 54  | 30 | 16   |
| TVC-20    | 290  | 85  | 17   | 46   | 54  | 30 | 16   |
| TVC-30    | 415  | 107 | 23   | 59.5 | 60  | 35 | 18.5 |
| TVC-60    | 750  | 158 | 37   | 89   | 90  | 50 | 23   |
| TVC-100   | 1250 | 213 | 45   | 124  | 124 | 62 | 30   |
| TVC-150   | 234  | 77  | 16   | 40   | 54  | 30 | 16   |
| HVC-15    | 230  | 77  | 16.5 | 40   | 54  | 31 | 16   |
| HVC-20    | 287  | 90  | 19.5 | 50   | 54  | 31 | 16   |

**Specifications**

| Order No. | Model No. | Measuring Range (mm) | Graduation (mm) | Accuracy (mm) | Depth Bar | Weight | Note                 |
|-----------|-----------|----------------------|-----------------|---------------|-----------|--------|----------------------|
| 151091    | TVC-10    | 100                  | 0.05            | ± 0.05        | Yes       | 130g   | —                    |
| 151092    | TVC-15    | 150                  | 0.05            | ± 0.05        | Yes       | 150g   | —                    |
| 151093    | TVC-20    | 200                  | 0.05            | ± 0.05        | Yes       | 190g   | —                    |
| 151094    | TVC-30    | 300                  | 0.05            | ± 0.08        | Yes       | 350g   | —                    |
| 151095    | TVC-60    | 600                  | 0.05            | ± 0.10        | None      | 1.2kg  | —                    |
| 151096    | TVC-100   | 1000                 | 0.05            | ± 0.15        | None      | 3.5kg  | —                    |
| 151084    | TVC-15CD  | 150                  | 0.05            | ± 0.05        | Yes       | 150g   | with φ 1.9 round bar |

**Order No.** **Model No.**

**NEWITEM**  
New Item

**TRACEABILITY**  
Traceability

**PDI**  
Pre-Delivery Inspection Report.

  
Produced abroad  
Inspected in Japan

## Notices

### Products

The products on this catalog is based on information from October, 2013.  
Niigata Seiki may change design or specification, or discontinue without advance notice.

### Size indication

Listed sizes in this catalog are outline dimensions

### Precautions

Please read 'Precaution' before use. Follow all instructions and Safety Warnings. Always wear required safety equipment.

### Color

We pay careful attention to the products color in catalog. However, product color may not match photos.



## CALIPERS



●DIGITAL S-LINE CALIPERS



●ULTRA LIGHT S-LINE CALIPERS



●DIGITAL CALIPERS with thin inside jaw



●DIGITAL CENTERLINE CALIPERS WITH CONICAL POINTS



●DIGITAL INSIDE CALIPERS KNIFE-EDGE, NARROW JAW TYPE



●DIGITAL SCRIBING CALIPERS



●SCRIBER for VHS series Height Gauge



●INDICATOR HOLDER for VHS series Height Gauge



P16~P37

## MICROMETER

●ELECTRONIC DIGITAL S-LINE MICROMETERS

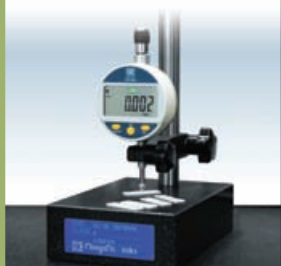


●ELECTRONIC DIGITAL OUTSIDE MICROMETER (IP65)



P40~P42

## DIAL GAUGES



●DIGITAL S-LINE INDICATOR



●DIGITAL S-LINE TEST INDICATOR



●DUROMETER



●DUROMETER STAND



●DIAL GAUGE LIMIT MARK STICKER



●DIGITAL CALIPER GAUGE



●LEEB HARDNESS TESTER



●DIAL TENSION GAUGE



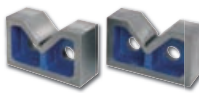
P70~P89

## STANDARDS

●CAST IRON V BLOCK - A type



●CAST IRON V BLOCK - B type



●CAST IRON V BLOCK -Ground Finish-



●CAST IRON BLOCK WITH V GROOVE



P102~P103

## GAUGES



●THREAD PIN GAUGE RA



●LIMIT PLUG GAUGE with thin handle H7 (for manufacturing)



●PLUG GAUGE with MAINTENANCE LINE



●STEEL RING GAUGE with MAINTENANCE LINE



●STEEL RING GAUGE OD model



●THICKNESS GAUGES Leaf



●RIGHT ANGLE TAPER GAUGE



●WELDING GAUGE



P130~P154

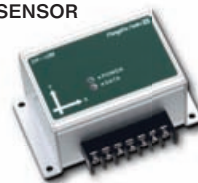
## ANGLE



### ●DIGITAL ANGLE GAUGE



### ●DIGITAL LEVEL SENSOR



P190~P191

## MICROSCOPE



### ●VARIABLE POWER TURRET STYLE MICROSCOPE



### ●RING ILLUMINATOR



### ●BORE SCOPE WITH MONITOR (MIS series)



### ●CAMERA FOR MIS



### ●USB CAMERA FOR MICROSCOPE



### ●SIDE VIEW ADAPTER FOR MIS



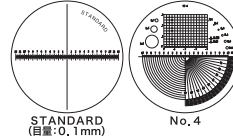
### ●INTERCHANGEABLE LENS



### ●ILLUMINATED MAGNIFIER WITH LED LIGHT



### ●SCALE PLATE FOR LOUPE



P206~P229

## SCRIBE



### ●PNEUMATIC ENGRAVING PERFORATOR



### ●TOOL MARKER SURFACE GAUGE



P239~P243

## SCALE



### ●SATIN SCALE -- K Aidan (Ziggurat) Scale



### ●Pro K Aidan (Ziggurat) --TAPE MEASURE



### ●SATIN SCALE -- K Aidan (Ziggurat) Scale, Narrow Type



### ●SATIN STEEL SQUARE -- K Aidan (Ziggurat) , Single Marking



### ●K Aidan (Ziggurat) CATCH-UP SCALE



### ●ALUMINUM CUTTING RULER -- K Aidan (Ziggurat)



### ●SATIN STEEL SQUARE -- K Aidan (Ziggurat) , Wide type



### ●ALUMINUM CUTTING RULER WITH HANDLE -- K Aidan (Ziggurat)



### ●K Aidan (Ziggurat) TRIANGLE SCALE



### ●STEEL CARPENTER SQUARE -- K Aidan (Ziggurat) Type



### ●K Aidan (Ziggurat) CLIP SCALE



P246~P255

## OTHERS

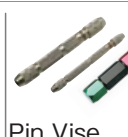
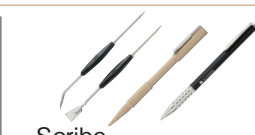
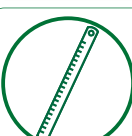
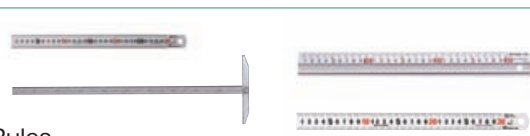
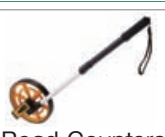
### ●COUNTER (DIGITAL)



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Scribing Gauges



Depth Gauge



Height Gauge

## CALIPERS

P015-038


Micrometer  
Stand

## MICROMETER

P039-062

MICROMETER  
HEAD

P063-068



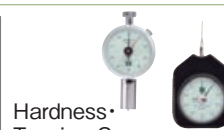
Thickness Gauges



Bore Gauges



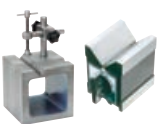
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Hardness  
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Magnetic Base

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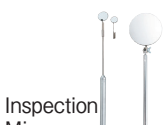
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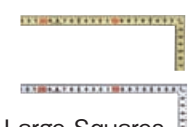
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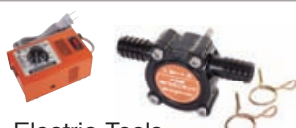


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# Product Listing



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| COMBINATION CALIPERS WITH METRIC GRADUATIONS               | 243      |



## Inside Measurement

| Item Name                                                | Page            |
|----------------------------------------------------------|-----------------|
| DIGITAL S-LINE CALIPERS (IP67)                           | 16              |
| ULTRA LIGHT S-LINE CALIPERS                              | 17              |
| DIGITAL CALIPERS                                         | 18~19           |
| DIGITAL CALIPERS WITH CARBIDE TIPPED MEASURING FACE      | 18              |
| DIGITAL CALIPERS                                         | 20              |
| DIGITAL LONG JAW CALIPERS                                | 20              |
| LEFT HAND DIGITAL CALIPERS                               | 21              |
| DIGITAL CALIPERS with thin inside jaw                    | 21              |
| DIGITAL POINT CALIPERS                                   | 22              |
| DIGITAL CALIPERS BLADE TYPE                              | 22              |
| DIGITAL OFFSET CALIPERS                                  | 23              |
| DIGITAL INSIDE CALIPERS KNIFE-EDGE TYPE                  | 26              |
| DIGITAL CALIPERS HOOK TYPE                               | 27              |
| DIGITAL INSIDE CALIPERS POINT JAW TYPE                   | 27              |
| VERNIER CALIPERS (MONO-BLOCK)                            | 28              |
| VERNIER CALIPERS WITH FINE ADJUSTMENT                    | 29              |
| VERNIER CALIPERS WITH THUMB CLAMP                        | 30              |
| LONG JAW VERNIER CALIPERS                                | 30              |
| VERNIER CALIPERS                                         | 31              |
| LR TYPE VERNIER CALIPERS                                 | 31              |
| LEFT-HAND VERNIER CALIPERS                               | 32              |
| DIAL CALIPERS                                            | 32              |
| DIAL CALIPERS WITH CARBIDE TIPPED MEASURING FACE         | 32              |
| DIGITAL SCRIBING CALIPERS                                | 33              |
| ELECTRONIC DIGITAL INSIDE MICROMETER                     | 54              |
| CALIPER TYPE INSIDE MICROMETERS                          | 55              |
| ELECTRONIC DIGITAL THREE-POINT INTERNAL MICROMETERS      | 56              |
| THREE-POINT INTERNAL MICROMETERS                         | 57              |
| DIGITAL BORE GAUGES                                      | 80~81           |
| DIAL BORE GAUGES                                         | 82~83           |
| DIAL CALIPER GAUGES (INSIDE)                             | 85              |
| STEEL PIN GAUGE                                          | 117~121·123~124 |
| CARBIDE PIN GAUGE                                        | 125             |
| CERAMIC PIN GAUGE                                        | 126             |
| STEEL LIMIT PLUG GAUGE H7 (for manufacturing)            | 133             |
| CARBIDE LIMIT PLUG GAUGE H7 (for manufacturing)          | 133             |
| CERAMIC LIMIT PLUG GAUGE H7 (for manufacturing)          | 133             |
| LIMIT PLUG GAUGE H7 (for manufacturing)                  | 134             |
| LIMIT PLUG GAUGE with thin handle H7 (for manufacturing) | 135             |
| LIMIT PLUG GAUGE with MAINTENANCE LINE                   | 135             |
| STEEL RING GAUGE                                         | 136~138         |
| STEEL RING GAUGE with MAINTENANCE LINE                   | 138             |
| CARBIDE RING GAUGE                                       | 140             |
| CERAMIC RING GAUGE                                       | 140             |
| RING GAUGE (with protective cover)                       | 141             |
| SPECIAL SHAPE- Step gauge/ Inner model                   | 142             |
| SPECIAL SHAPE-Cut out                                    | 142             |
| TAPER GAUGES                                             | 146~149         |
| CIRCULAR TAPER GAUGES                                    | 150~151         |
| SLIDE TAPER GAUGES                                       | 152             |
| PLASTIC TAPER GAUGES                                     | 152             |
| COMBINATION CALIPERS WITH METRIC GRADUATIONS             | 243             |



## Squareness • Flatness Measurement

| Item Name                                     | Page                        |
|-----------------------------------------------|-----------------------------|
| DIGITAL S-LINE INDICATOR                      | 70                          |
| DIGITAL S-LINE TEST INDICATOR                 | 71                          |
| DIGITAL INDICATORS                            | 71                          |
| DIAL GAUGES                                   | 72~75                       |
| DIAL INDICATORS                               | 76~77                       |
| GRANITE SURFACE PLATE                         | 96~98                       |
| CAST IRON SURFACE PLATE/ FINISHING STANDARD   | 101                         |
| STEEL PARALLEL BLOCKS                         | 101                         |
| STEEL SQUARE                                  | 104~105                     |
| PRECISION SQUARE WITH METRIC GRADUATED BLADE  | 106                         |
| HEAVY DUTY STEEL SQUARE (DD TYPE)             | 107                         |
| STEEL SQUARE WITH FLUSH MOUNTED BEAM          | 107                         |
| T- SQUARE                                     | 108                         |
| FLANGE SQUARE                                 | 108                         |
| I-BEAM TYPE PRECISION STRAIGHT EDGE           | 109                         |
| RAIL TYPE PRECISION STRAIGHT EDGE             | 109                         |
| STEEL STANDARD STRAIGHT EDGE                  | 110                         |
| STEEL STANDARD STRAIGHT EDGE WITH GRADUATIONS | 110                         |
| STRAIGHT EDGE STANDARD TYPE                   | 111                         |
| STRAIGHT EDGE BEVELED TYPE                    | 111                         |
| LEVELNIC                                      | 174~175•177•179~180•182~183 |
| PRECISION LEVEL                               | 187                         |
| SQUARE PRECISION LEVEL                        | 188                         |



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| Item Name               | Page    |
|-------------------------|---------|
| FEELER GAUGE            | 143     |
| THICKNESS GAUGE         | 144~145 |
| TAPER GAUGES            | 146~149 |
| RIGHT ANGLE TAPER GAUGE | 147     |
| CIRCULAR TAPER GAUGES   | 150~151 |
| SLIDE TAPER GAUGES      | 152     |
| PLASTIC TAPER GAUGES    | 152     |
| WELDING GAUGE           | 153~158 |
| ROOT LIMIT GAUGE        | 160     |



## Comparison Measurement

| Item Name                     | Page    |
|-------------------------------|---------|
| DIGITAL HEIGHT GAUGES         | 36~37   |
| VERNIER HEIGHT GAUGE          | 38      |
| DIGITAL S-LINE INDICATOR      | 70      |
| DIGITAL S-LINE TEST INDICATOR | 71      |
| DIGITAL INDICATORS            | 71      |
| DIAL GAUGES                   | 72~75   |
| DIAL INDICATORS               | 76~77   |
| DIAL DEPTH GAUGES             | 78      |
| BLOCK GAUGE                   | 114~115 |
| CERAMIC BLOCK GAUGE           | 116     |
| CRACK GAUGE/ CLEAR CARD TYPE  | 168     |
| INSIDE CALIPER                | 241     |
| OUTSIDE CALIPERS              | 241     |
| INSIDE CALIPERS (SPRING TYPE) | 242     |
| OUTSIDE CALIPER (SPRING TYPE) | 242     |



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| Item Name                                           | Page    |
|-----------------------------------------------------|---------|
| DIGITAL S-LINE CALIPERS (IP67)                      | 16      |
| DIGITAL CALIPERS                                    | 18~19   |
| DIGITAL CALIPERS WITH CARBIDE TIPPED MEASURING FACE | 18      |
| LEFT HAND DIGITAL CALIPERS                          | 21      |
| DIGITAL CALIPERS with thin inside jaw               | 21      |
| DIGITAL POINT CALIPERS                              | 22      |
| DIGITAL CALIPERS BLADE TYPE                         | 22      |
| VERNIER CALIPERS (MONO-BLOCK)                       | 28      |
| VERNIER CALIPERS WITH FINE ADJUSTMENT               | 29      |
| VERNIER CALIPERS WITH THUMB CLAMP                   | 30      |
| VERNIER CALIPERS                                    | 31      |
| LR TYPE VERNIER CALIPERS                            | 31      |
| LEFT-HAND VERNIER CALIPERS                          | 32      |
| DIAL CALIPERS                                       | 32      |
| DIAL CALIPERS WITH CARBIDE TIPPED MEASURING FACE    | 32      |
| DIGITAL SCRIBING CALIPERS                           | 33      |
| DIGITAL DEPTH GAUGES                                | 34      |
| VERNIER DEPTH GAUGES                                | 35      |
| DIGITAL MINI DEPTH GAUGES                           | 35      |
| ELECTRONIC DIGITAL DEPTH MICROMETERS                | 59      |
| DEPTH MICROMETERS                                   | 59      |
| INTERCHANGEABLE ROD TYPE DEPTH MICROMETERS          | 60      |
| DIAL DEPTH GAUGES                                   | 78      |
| WELDING GAUGE                                       | 153~158 |
| DIGITAL WELDING GAUGE                               | 158     |
| KAIDAN(Ziggurat) CLIP SCALE                         | 251     |
| METAL SCALE WITH CLIP                               | 251     |
| SCALE DEPTH GAUGE Attachment                        | 252     |
| DEPTH SCALE                                         | 252     |



## Pitch Measurement

| Item Name                                       | Page            |
|-------------------------------------------------|-----------------|
| DIGITAL CENTERLINE CALIPERS WITH CONICAL POINTS | 24~25           |
| STEEL PIN GAUGE                                 | 117~121•123~124 |
| CARBIDE PIN GAUGE                               | 125             |
| CERAMIC PIN GAUGE                               | 126             |
| THREAD PIN GAUGE                                | 130~131         |
| PITCH GAUGE                                     | 165             |



## Height Measurement

| Item Name                                  | Page    |
|--------------------------------------------|---------|
| DIGITAL DEPTH GAUGES                       | 34      |
| VERNIER DEPTH GAUGES                       | 35      |
| DIGITAL MINI DEPTH GAUGES                  | 35      |
| DIGITAL HEIGHT GAUGES                      | 36~37   |
| VERNIER HEIGHT GAUGE                       | 38      |
| ELECTRONIC DIGITAL DEPTH MICROMETERS       | 59      |
| DEPTH MICROMETERS                          | 59      |
| INTERCHANGEABLE ROD TYPE DEPTH MICROMETERS | 60      |
| WELDING GAUGE                              | 153~158 |
| DIGITAL WELDING GAUGE                      | 158     |
| ROOT LIMIT GAUGE                           | 160     |
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| DEPTH SCALE                                | 252     |
| TOOL POINT GAUGE                           | 263     |
| TOOL POINT GAUGE WITH DIAL GAUGE           | 263     |



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| ELECTRONIC DIGITAL GEAR TOOTH MICROMETERS      | 49          |
| GEAR TOOTH MICROMETERS                         | 49          |
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| STEEL PIN GAUGE with CENTER HOLE AC            | 122         |
| STEEL PIN GAUGE for GEAR MEASUREMENT OP series | 124         |
| CARBIDE PIN GAUGE                              | 125         |
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## Screw Measurement

| Item Name         | Page |
|-------------------|------|
| THREAD PLUG GAUGE | 132  |
| THREAD RING GAUGE | 132  |
| PITCH GAUGE       | 165  |



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| Item Name          | Page |
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| SATIN SCALE -- K Aidan (Ziggurat) scale                   | 246     |
| SATIN SCALE -- K Aidan (Ziggurat) Scale, Narrow Type      | 246     |
| METAL RULES                                               | 247     |
| METAL RULES- NARROW TYPE                                  | 247     |
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| CATCH-UP SCALE                                            | 248     |
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| ALUMINUM CUTTING RULER WITH HANDLE--K Aidan(Ziggurat)     | 250     |
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| T-SQUARE                                                  | 253     |
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## Step Measurement

| Item Name                                           | Page    |
|-----------------------------------------------------|---------|
| DIGITAL S-LINE CALIPERS (IP67)                      | 16      |
| DIGITAL CALIPERS                                    | 18~19   |
| DIGITAL CALIPERS WITH CARBIDE TIPPED MEASURING FACE | 18      |
| DIGITAL CALIPERS                                    | 20      |
| DIGITAL LONG JAW CALIPERS                           | 20      |
| LEFT HAND DIGITAL CALIPERS                          | 21      |
| DIGITAL CALIPERS with thin inside jaw               | 21      |
| DIGITAL POINT CALIPERS                              | 22      |
| DIGITAL CALIPERS BLADE TYPE                         | 22      |
| VERNIER CALIPERS (MONO-BLOCK)                       | 28      |
| VERNIER CALIPERS WITH FINE ADJUSTMENT               | 29      |
| VERNIER CALIPERS WITH THUMB CLAMP                   | 30      |
| LONG JAW VERNIER CALIPERS                           | 30      |
| VERNIER CALIPERS                                    | 31      |
| LR TYPE VERNIER CALIPERS                            | 31      |
| LEFT-HAND VERNIER CALIPERS                          | 32      |
| DIAL CALIPERS                                       | 32      |
| DIAL CALIPERS WITH CARBIDE TIPPED MEASURING FACE    | 32      |
| DIGITAL SCRIBING CALIPERS                           | 33      |
| DIGITAL HEIGHT GAUGES                               | 36~37   |
| VERNIER HEIGHT GAUGE                                | 38      |
| DIAL GAUGES                                         | 72~75   |
| DIAL INDICATORS                                     | 76~77   |
| WELDING GAUGE                                       | 153~158 |
| DIGITAL WELDING GAUGE                               | 158     |



## Angle Measurement

| Item Name                                   | Page    |
|---------------------------------------------|---------|
| ANGLE LIMIT GAUGE                           | 159     |
| ANGLE GAUGE                                 | 161     |
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| DRILL TIP GAUGE                             | 167     |
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| DIGITAL PROTRACTOR                          | 189     |
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| DIGITAL LEVEL SENSOR                        | 191     |
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| LEVEL POINT GAUGE                           | 194     |
| ALUMINUM LEVEL WITH MAGNET / ALUMINUM LEVEL | 195     |
| GRADE LEVEL                                 | 196     |
| MINI LEVEL                                  | 196     |
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| INSIDE PROTRACTOR                           | 201     |
| UNIVERSAL BEVEL PROTRACTOR                  | 202     |
| DIGITAL UNIVERSAL PROTRACTOR                | 202     |



16p



17p



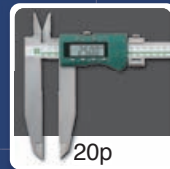
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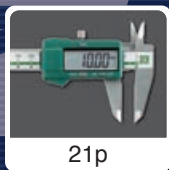
19p



20p



20p



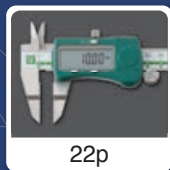
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21p



22p



22p



23p



23p



24p

# CALIPERS



24p



25p



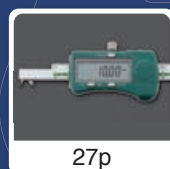
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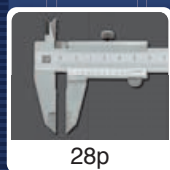
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27p



28p



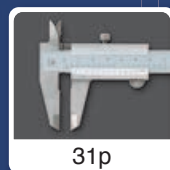
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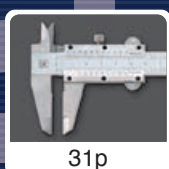
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30p



31p



31p



32p



32p



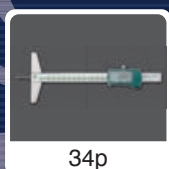
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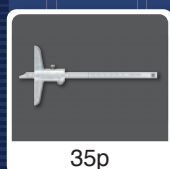
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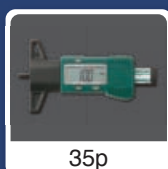
34p



34p



35p



35p



36p



36p



36p



36p



36p



37p



37p



37p



37p



38p



38p



38p



38p

CALIPERS

SCRIBING  
CALIPERSDEPTH  
GAUGESHEIGHT  
GAUGES

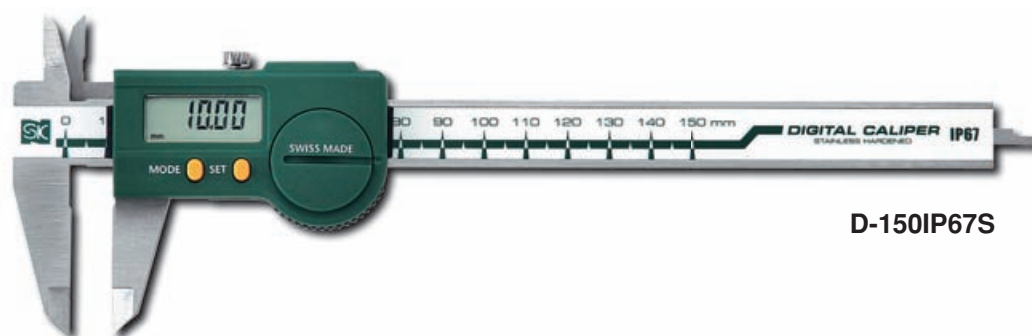




# DIGITAL S-LINE CALIPERS (IP67)



**S-line series caliper, high-end model for high-performance!**  
**IP67 (comparable to NEMA 6) electronics are protected against temporary total immersion.**



D-150IP67S



- IP rating for electrical equipment is defined based on IEC standard for water and solid body protection.
- IP indication

## IP 67

- 2nd digit : water proof rating
- 1st digit : direct contact-protection rating for ingress of solid foreign object

| Degrees of protection against solid foreign objects |             |                                                               |                                                                                     |
|-----------------------------------------------------|-------------|---------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 1st digit                                           | Description | Definition                                                    | Testing for                                                                         |
| 6                                                   | Solid       | No ingress of dust allowed                                    | Complete protection against contact                                                 |
| Degrees of protection against water                 |             |                                                               |                                                                                     |
| 2nd digit                                           | Description | Definition                                                    | Testing for                                                                         |
| 7                                                   | Liquid      | Protected against the effects of temporary immersion in water | Depth of 1m (height of the equipment is less than 850mm), submerged for 30 minutes. |

**USE** • For outside diameter, inside diameter step and depth measurement

## MATERIAL

- Stainless steel

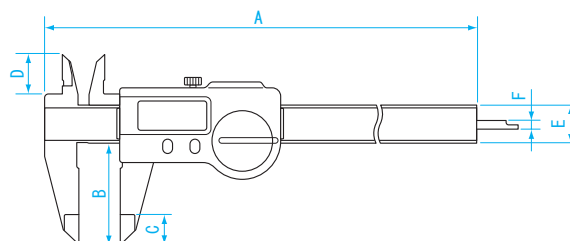
## FEATURES

- Digital calipers with **IP67** (comparable to NEMA6) can be used in cutting fluid environment
- Stand-by mode after 20 min.

## POWER

- One CR2032 (Lithium) battery included for testing

## DIMENSIONS



Units : mm

| Model No.  | A     | B  | C  | D  | E  | F |
|------------|-------|----|----|----|----|---|
| D-150IP67S | 234.5 | 40 | 11 | 16 | 16 | 4 |
| D-200IP67S | 290   | 50 | 14 | 19 | 16 | 4 |
| D-300IP67S | 387   | 64 | 14 | 19 | 16 | — |

| Order No. | Model No.  | Measuring Range (mm) | Resolution (mm) | Accuracy <sup>※</sup> (mm) | Depth Bar | Weight |
|-----------|------------|----------------------|-----------------|----------------------------|-----------|--------|
| 152006    | D-150IP67S | 0-150                | 0.01            | ± 0.02                     | Yes       | 170g   |
| 152007    | D-200IP67S | 0-200                | 0.01            | ± 0.03                     | Yes       | 200g   |
| 152008    | D-300IP67S | 0-300                | 0.01            | ± 0.03                     | None      | 270g   |

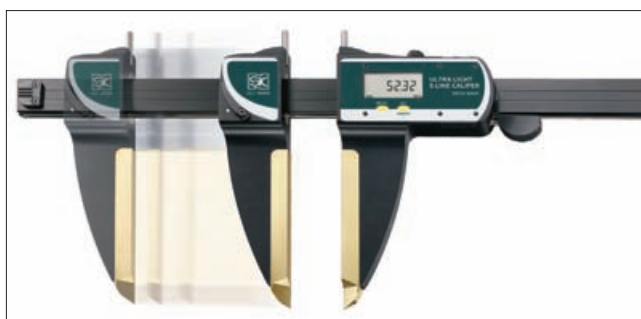
※ Accuracy listed for outside measurements only. For other measurements, accuracy specification will be 0.02 larger.

※ Quantization Error ( ± 1 digit) not included

**S-line series caliper, high-functionality model for high-performance!**  
**Aluminum body, light weight for easy handling and measuring with large work piece.**



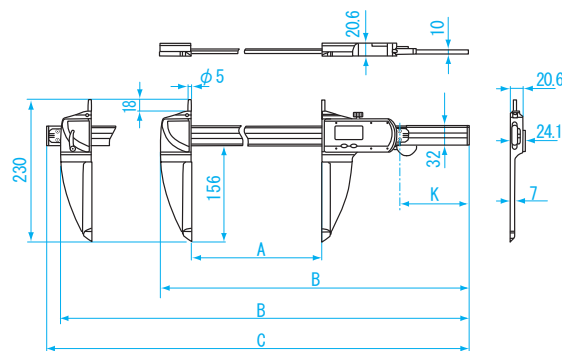
ULC-1000S



Left side jaw is movable and can be set to desired position (except for ULC-600S)



## DIMENSIONS



Units : mm

| Model No. | A    | B    | C    | K   |
|-----------|------|------|------|-----|
| ULC-600S  | 630  | 918  | —    | 110 |
| ULC-1000S | 1025 | 1284 | 1306 | 80  |
| ULC-1500S | 1525 | 1784 | 1806 | 80  |
| ULC-2000S | 2040 | 2284 | 2306 | 65  |

**USE** • Outside and inside measurement

### MATERIAL

- Body : Aluminum
- Inner gauge head : Carbide
- Outside gauge head : Stainless (Titanium coated)

### FEATURES

- Aluminum body, light weight long digital calipers
- Left side jaw is movable and can be set to desired position (except for ULC-600S)
- Tolerance setting function for inspection
- PRESET function

### POWER

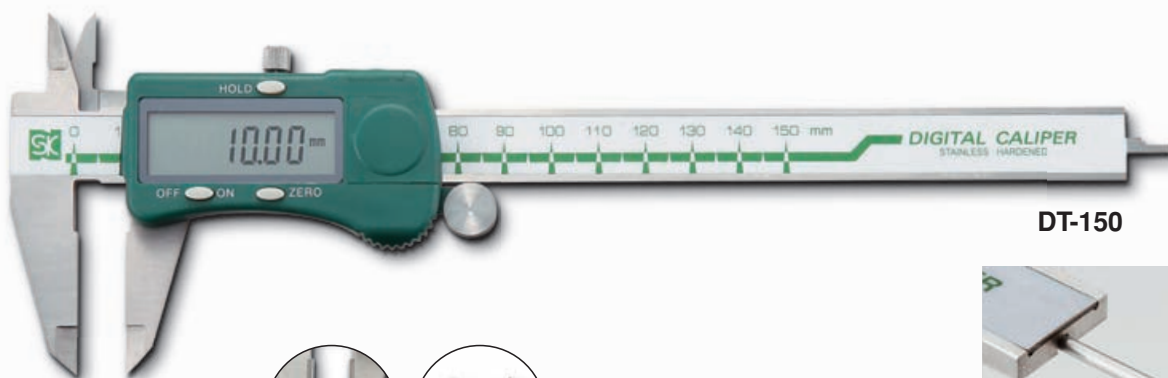
- One CR2032 (Lithium) battery included for testing

| Order No.  | Model No. | Measuring Range <sup>※1</sup><br>(mm) | Resolution<br>(mm) | Accuracy <sup>※2</sup><br>(mm) | Depth Bar | Weight |
|------------|-----------|---------------------------------------|--------------------|--------------------------------|-----------|--------|
| NEW 151821 | ULC-600S  | 0-600                                 | 0.01               | ± 0.04                         | None      | 1.3kg  |
| NEW 151822 | ULC-1000S | 0-1000                                | 0.01               | ± 0.06                         | None      | 1.6kg  |
| NEW 151823 | ULC-1500S | 0-1500                                | 0.01               | ± 0.12                         | None      | 2.0kg  |
| NEW 151824 | ULC-2000S | 0-2000                                | 0.01               | ± 0.15                         | None      | 2.3kg  |

※ 1 Measuring Range of inner diameter is from 10mm for each model

※ 2 Quantization Error ( ± 1 digit) not included

# DIGITAL CALIPERS/ DIGITAL CALIPERS WITH CARBIDE TIPPED MEASURING FACE



DT-150



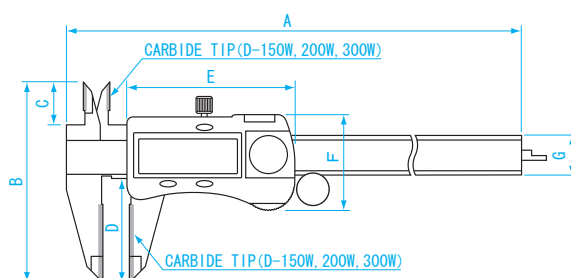
D-150W, D-200W, D-300W are carbide-tipped for outside & inside measurement



DT-150CD (φ 1.9mm round depth bar)



## DIMENSIONS



Units : mm

| Model No. | A   | B   | C    | D  | E  | F  | G  |
|-----------|-----|-----|------|----|----|----|----|
| DT-100    | 186 | 77  | 16.5 | 40 | 67 | 38 | 16 |
| DT-150    | 236 | 77  | 16.5 | 40 | 67 | 38 | 16 |
| DT-200    | 286 | 90  | 19.5 | 50 | 67 | 38 | 16 |
| DT-300    | 400 | 102 | 20.5 | 60 | 67 | 38 | 16 |
| DT-150CD  | 236 | 77  | 16.5 | 40 | 67 | 38 | 16 |
| D-150W    | 236 | 77  | 16.5 | 40 | 67 | 38 | 16 |
| D-200W    | 286 | 90  | 19.5 | 50 | 67 | 38 | 16 |
| D-300W    | 400 | 102 | 20.5 | 60 | 67 | 38 | 16 |

**USE** • For outside diameter, inside diameter, step and depth measurement

## FEATURES

- Quick display of the measured value
- Available with **carbide tipped** measuring faces (D-150W-300W)
- Hold display function
- Auto power off function (after 20 min. )
- Made of stainless steel
- One SR44 (Silver oxide) battery included for testing

| Order No. | Model No. | Measuring Range (mm) | Resolution (mm) | Accuracy* (mm) | Depth Bar | Weight | Note                           |
|-----------|-----------|----------------------|-----------------|----------------|-----------|--------|--------------------------------|
| 151291    | DT-100    | 0-100                | 0.01            | ± 0.03         | Yes       | 145g   | —                              |
| 151292    | DT-150    | 0-150                | 0.01            | ± 0.03         | Yes       | 160g   | —                              |
| 151293    | DT-200    | 0-200                | 0.01            | ± 0.03         | Yes       | 200g   | —                              |
| 151294    | DT-300    | 0-300                | 0.01            | ± 0.04         | Yes       | 270g   | —                              |
| 151305    | DT-150CD  | 0-150                | 0.01            | ± 0.03         | Yes       | 175g   | with φ 1.9mm round depth bar   |
| 151085    | D-150W    | 0-150                | 0.01            | ± 0.03         | Yes       | 160g   | Carbide-tipped measuring faces |
| 151086    | D-200W    | 0-200                | 0.01            | ± 0.03         | Yes       | 200g   | Carbide-tipped measuring faces |
| 151087    | D-300W    | 0-300                | 0.01            | ± 0.04         | Yes       | 270g   | Carbide-tipped measuring faces |

※ Quantization Error (± 1 digit) not included

## DIGITAL CALIPERS

## High performance at a reasonable price



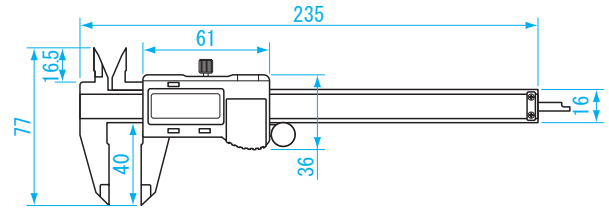
**USE** • For outside diameter, inside diameter, step and depth measurement

## FEATURES

- Quick display of the measured value
- Hold function
- Made of stainless steel
- One CR2032 (Lithium) battery included for testing

## DIMENSIONS

Units : mm



| Order No. | Model No. | Measuring Range<br>(mm) | Resolution<br>(mm) | Accuracy <sup>*</sup><br>(mm) | Depth Bar | Weight |
|-----------|-----------|-------------------------|--------------------|-------------------------------|-----------|--------|
| 151306    | DS-150    | 0-150                   | 0.01               | ± 0.03                        | Yes       | 155g   |

※ Quantization Error (± 1 digit ) not included

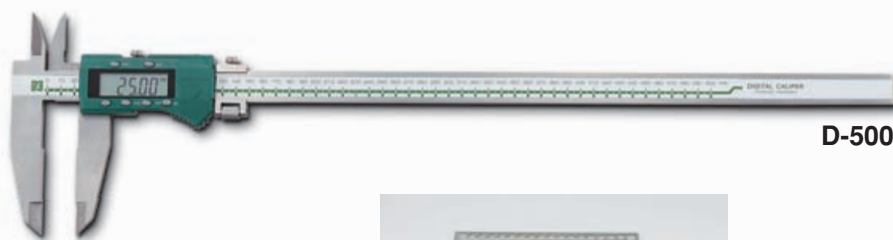
## MEMO

This image shows a full page of graph paper. The background is white, and it is covered by a uniform grid of thin, light gray dashed lines. These lines intersect at regular intervals to form a series of small squares across the entire surface. There are no margins, text, or other markings present.



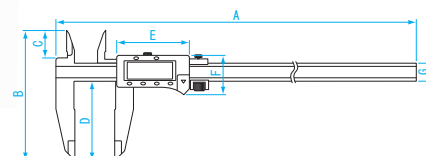
# DIGITAL CALIPERS

DIGITAL CALIPERS



D-500

## DIMENSIONS



Units : mm

| Model No. | A    | B   | C    | D   | E   | F  | G  |
|-----------|------|-----|------|-----|-----|----|----|
| D-500     | 675  | 168 | 37.5 | 100 | 100 | 55 | 24 |
| D-600     | 775  | 168 | 37.5 | 100 | 100 | 55 | 24 |
| D-1000    | 1222 | 216 | 50   | 125 | 129 | 75 | 31 |
| D-1500    | 1780 | 262 | 61   | 150 | 165 | 93 | 42 |
| D-2000    | 2290 | 262 | 61   | 150 | 165 | 93 | 42 |

- USE**
- Outside diameter, inside diameter and step measurement

## FEATURE

- Digital caliper with nib style and standard jaws
- Zero-setting at any position
- Provided with fine-adjustment carriage
- Made of stainless steel
- One CR2032 (Lithium) battery included for testing

| Order No. | Model No. | Measuring Range (mm) | Resolution (mm) | Accuracy* (mm) | Depth Bar | Weight |
|-----------|-----------|----------------------|-----------------|----------------|-----------|--------|
| 151053    | D-500     | 0-500                | 0.01            | ± 0.05         | None      | 1.0kg  |
| 151054    | D-600     | 0-600                | 0.01            | ± 0.08         | None      | 1.1kg  |
| 151055    | D-1000    | 0-1000               | 0.01            | ± 0.10         | None      | 2.4kg  |
| 151156    | D-1500    | 0-1500               | 0.01            | ± 0.14         | None      | 5.0kg  |
| 151157    | D-2000    | 0-2000               | 0.01            | ± 0.20         | None      | 6.5kg  |

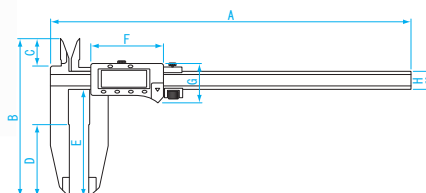
※ Quantization Error (± 1 digit) not included

# DIGITAL LONG JAW CALIPERS



D-300LV

## DIMENSIONS



Units : mm

- USE**
- Outside diameter, inside diameter and step measurement

## FEATURES

- Long jaws for measuring hard-to-reach features
- Made of stainless steel
- One CR2032 (Lithium) battery included for testing

| Model No. | A   | B   | C  | D   | E   | F   | G  | H  |
|-----------|-----|-----|----|-----|-----|-----|----|----|
| D-300LV   | 475 | 220 | 38 | 100 | 150 | 100 | 55 | 25 |
| D-600LV   | 860 | 410 | 60 | 200 | 300 | 165 | 93 | 40 |

| Order No. | Model No. | Measuring Range (mm) | Graduation (mm) | Accuracy* (mm) | Depth Bar | Weight |
|-----------|-----------|----------------------|-----------------|----------------|-----------|--------|
| 151296    | D-300LV   | 0-300                | 0.01            | ± 0.05         | None      | 920g   |
| 151297    | D-600LV   | 0-600                | 0.01            | ± 0.08         | None      | 4.3kg  |

※ Quantization Error (± 1 digit) not included

\* Accuracy specified for inner most portion of measuring jaw.

Instrument error may be slightly higher when using the tip of jaw for performing measurement.

## LEFT HAND DIGITAL CALIPERS



CALIPERS

01

CALIPERS

CALIPERS

SCRIBING  
CALIPERS

DEPTH  
GAUGES

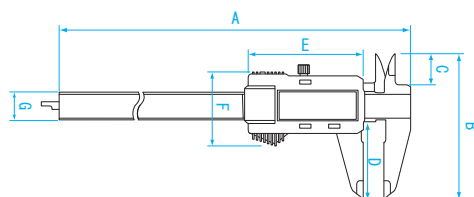
HEIGHT  
GAUGES

### Digital calipers for left-hand use



D-150HL

#### DIMENSIONS



Units : mm

| Model No. | A   | B  | C    | D  | E    | F  | G  |
|-----------|-----|----|------|----|------|----|----|
| D-150HL   | 236 | 76 | 16   | 40 | 61.5 | 37 | 16 |
| D-200HL   | 286 | 90 | 19.5 | 50 | 61.5 | 37 | 16 |

- USE** • For outside diameter, inside diameter, step and depth measurement
- MATERIAL**
  - Stainless steel
- FEATURES**
  - Designed specially for left-handed use.
- POWER**
  - One SR44 (Silver oxide) battery included for testing

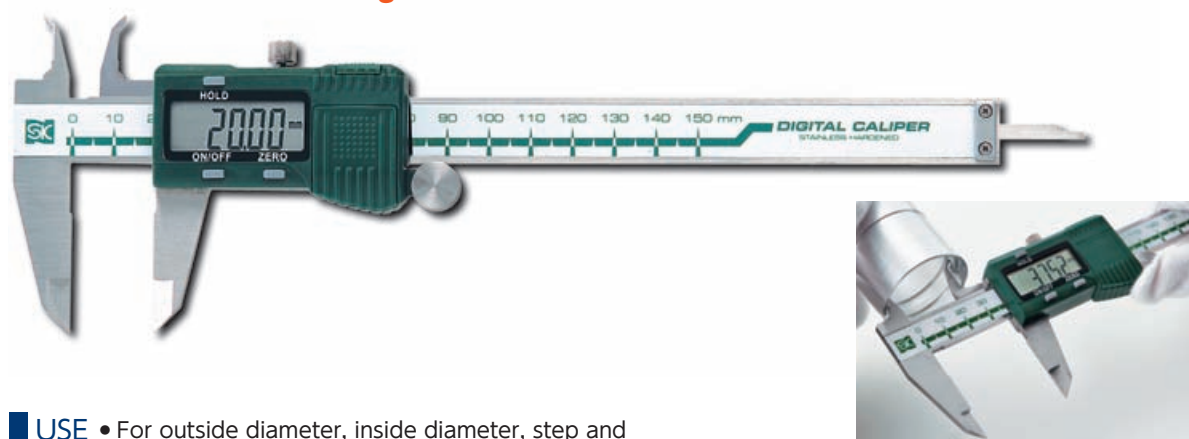
| Order No. | Model No. | Measuring Range (mm) | Resolution (mm) | Accuracy * (mm) | Depth Bar | Weight |
|-----------|-----------|----------------------|-----------------|-----------------|-----------|--------|
| 152021    | D-150HL   | 0-150                | 0.01            | ± 0.03          | Yes       | 150g   |
| 152022    | D-200HL   | 0-200                | 0.01            | ± 0.03          | Yes       | 190g   |

※ Quantization Error ( ± 1 digit) not included

## DIGITAL CALIPERS with thin inside jaw



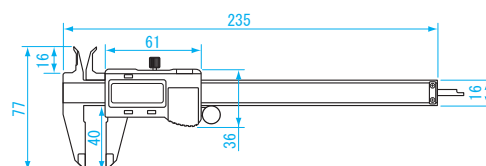
### Can measure inner narrow groove



- USE** • For outside diameter, inside diameter, step and depth measurement
- MATERIAL**
  - Stainless steel
- FEATURES**
  - Ideal for narrow inner groove measurement
  - Hold function
- POWER**
  - One CR2032 (Lithium) battery included for testing

#### DIMENSIONS

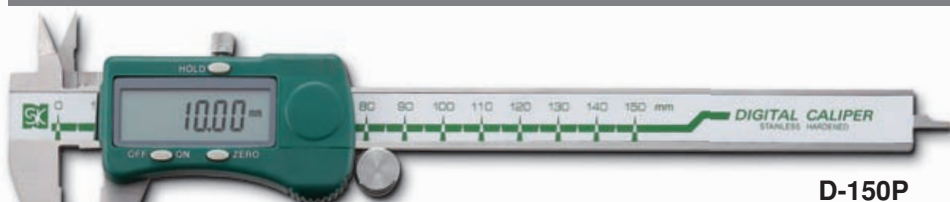
Units : mm



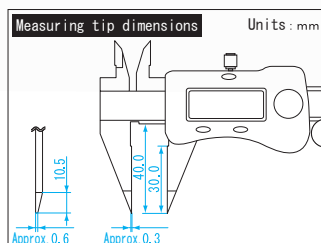
| Order No. | Model No. | Measuring Range (mm) | Resolution (mm) | Accuracy * (mm) | Depth Bar | Weight |
|-----------|-----------|----------------------|-----------------|-----------------|-----------|--------|
| 151307    | DS-150IR  | 0-150                | 0.01            | ± 0.03          | Yes       | 150g   |

※ Quantization Error ( ± 1 digit) not included

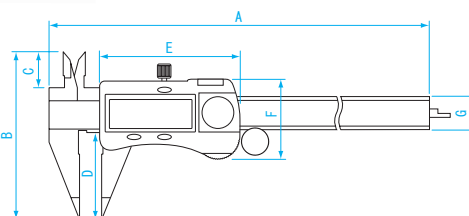
## DIGITAL POINT CALIPERS



D-150P



### DIMENSIONS



Units : mm

| Model No. | A   | B  | C    | D  | E  | F  | G  |
|-----------|-----|----|------|----|----|----|----|
| D-150P    | 236 | 78 | 17.5 | 40 | 67 | 38 | 16 |
| D-200P    | 286 | 89 | 20   | 50 | 67 | 38 | 16 |

- USE**
- Outside diameter, inside diameter, step and depth measurement

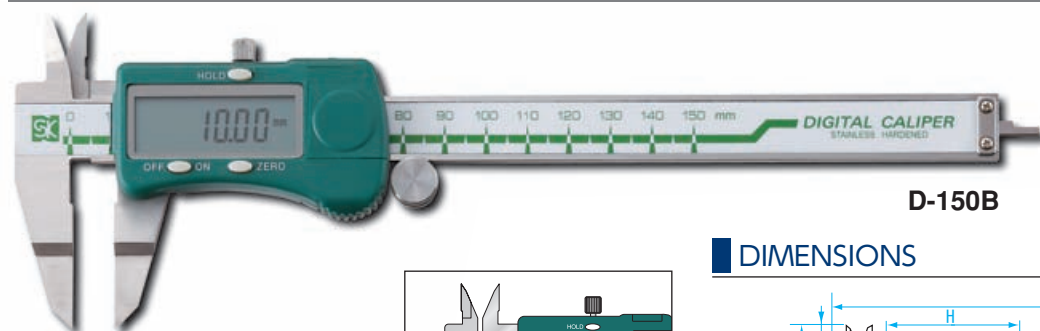
### FEATURES

- Narrow tip jaws fit into very small grooves and tracks, making it easier to obtain many difficult outside measurements
- Hold display function
- Auto power off function (after 20 min.)
- Made of stainless steel
- One SR44 (Silver oxide) included for testing

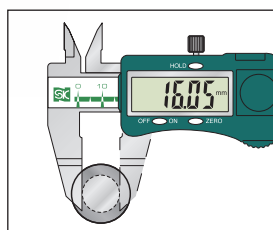
| Order No. | Model No. | Measuring Range (mm) | Resolution (mm) | Accuracy* (mm) | Depth Bar | Weight |
|-----------|-----------|----------------------|-----------------|----------------|-----------|--------|
| 151090    | D-150P    | 0-150                | 0.01            | ± 0.03         | Yes       | 170g   |
| 151089    | D-200P    | 0-200                | 0.01            | ± 0.03         | Yes       | 195g   |

※ Quantization Error (± 1 digit) not included

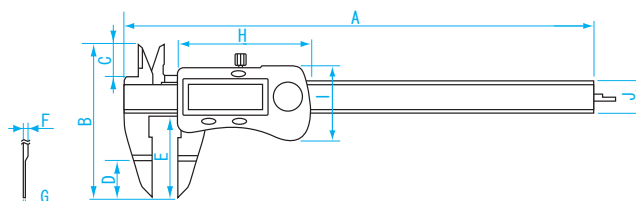
## DIGITAL CALIPERS BLADE TYPE



D-150B



### DIMENSIONS



[SIDE VIEW OF OUTSIDE MEASURING FACES]

Units : mm

| Model No. | A   | B  | C    | D  | E  | F   | G    | H  | I  | J  |
|-----------|-----|----|------|----|----|-----|------|----|----|----|
| D-150B    | 236 | 77 | 16.5 | 18 | 40 | 3.2 | 0.75 | 67 | 38 | 16 |
| D-200B    | 286 | 90 | 19.5 | 18 | 50 | 3.6 | 0.75 | 67 | 38 | 16 |

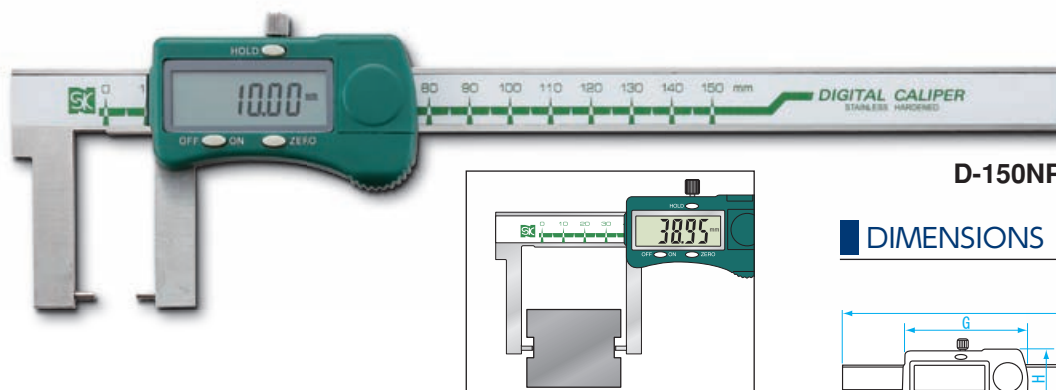
- USE**
- For measuring narrow groove

### FEATURES

- Can obtain diameter of a narrow groove
- Hold display function
- Auto power off function (after 20 min.)
- Made of stainless steel
- One SR44 (Silver oxide) battery included for testing

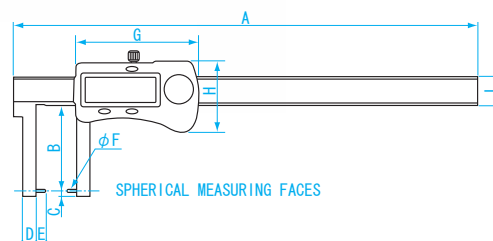
| Order No. | Model No. | Measuring Range (mm) | Resolution (mm) | Accuracy* (mm) | Depth Bar | Weight |
|-----------|-----------|----------------------|-----------------|----------------|-----------|--------|
| 151315    | D-150B    | 0-150                | 0.01            | ± 0.03         | Yes       | 150g   |
| 151316    | D-200B    | 0-200                | 0.01            | ± 0.03         | Yes       | 170g   |

※ Quantization Error (± 1 digit) not included



D-150NP

## DIMENSIONS



Units : mm

| Model No. | A   | B  | C | D  | E | F   | G  | H  | I  |
|-----------|-----|----|---|----|---|-----|----|----|----|
| D-150NP   | 250 | 40 | 3 | 10 | 5 | 2   | 67 | 38 | 16 |
| D-200NP   | 300 | 50 | 3 | 12 | 8 | 2.5 | 67 | 38 | 16 |

**USE** • Outside groove measurement

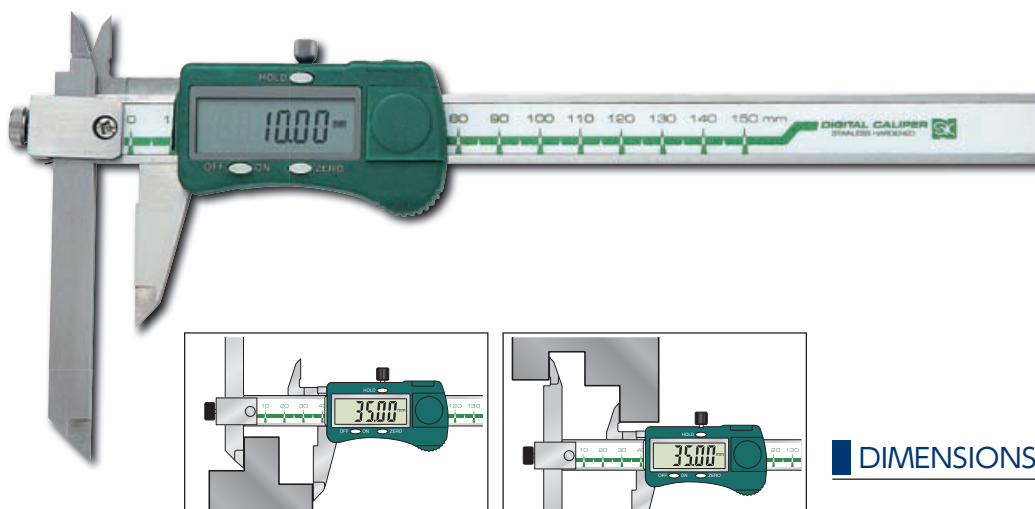
## FEATURES

- Can measure the width of an outside groove
- Spherical measuring faces
- Hold display function
- Auto power off function (after 20 min.)
- Made of stainless steel
- One SR44 (Silver oxide) battery included for testing

| Order No. | Model No. | Measuring Range (mm) | Resolution (mm) | Accuracy* (mm) | Depth Bar | Weight | Note                      |
|-----------|-----------|----------------------|-----------------|----------------|-----------|--------|---------------------------|
| 151310    | D-150NP   | 0-150                | 0.01            | ± 0.03         | None      | 190g   | Spherical measuring faces |
| 151311    | D-200NP   | 0-200                | 0.01            | ± 0.04         | None      | 230g   | Spherical measuring faces |

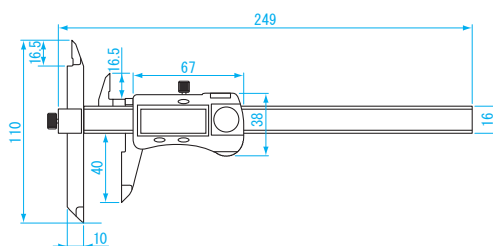
※ Quantization Error (± 1 digit) not included

# DIGITAL OFFSET CALIPERS



## DIMENSIONS

Units : mm



**USE** • Measurement of stepped sections

## FEATURES

- Main scale jaw can be slide up and down
- Auto power off Function ( After 20 min.)
- Made of stainless steel
- One SR44 (Silver oxide) battery included for testing

| Order No. | Model No. | Measuring Range (mm) | Resolution (mm) | Accuracy* (mm) | Depth Bar | Weight |
|-----------|-----------|----------------------|-----------------|----------------|-----------|--------|
| 151325    | D-150F    | 0-150                | 0.01            | ± 0.04         | None      | 215g   |

※ Quantization Error (± 1 digit) not included



# DIGITAL CENTERLINE CALIPERS WITH CONICAL POINTS



## For measuring center distance between two holes



**USE** • For measuring center distance between two holes

### MATERIAL

- BODY : Stainless steel
- PROBE : High carbon chrome steel

### FEATURES

- Measurement between holes of  $\phi 1.5 \sim 19.5\text{mm}$  are possible
- Cylindrical gauge heads provide stable measurement
- With master plate for origin setting
- Hold function
- Auto-display-off function ( after 5 min.)

### POWER

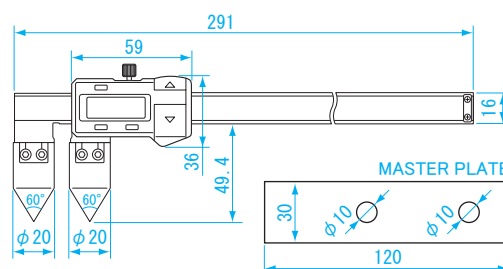
- One SR44 (Silver oxide) battery included for testing

### ACCESSORIES

- Master plate for origin setting

### DIMENSIONS

Units : mm



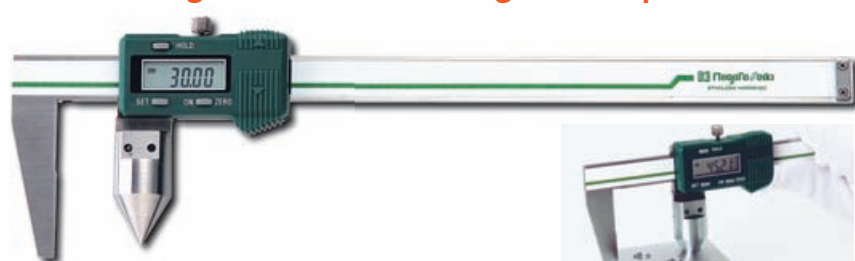
| Order No. | Model No. | Measuring Range (mm) | Applicable hole diameter (mm) | Resolution (mm) | Accuracy <sup>※</sup> (mm) | Depth Bar | Weight |
|-----------|-----------|----------------------|-------------------------------|-----------------|----------------------------|-----------|--------|
| 151108    | D-200AA   | 20-200               | $\phi 1.5 \sim 19.5$          | 0.01            | $\pm 0.05$                 | None      | 270g   |

※ Quantization Error (  $\pm 1$  digit) not included

# DIGITAL CENTERLINE CALIPERS WITH CONICAL POINTS



## For measuring distance from the edge of workpiece to center hole



**USE** • For measuring distance from the edge of workpiece to center hole

### MATERIAL

- Stainless steel

### FEATURES

- Measurement between holes of  $\phi 1.5 \sim 19.5\text{mm}$  are possible
- Cylindrical gauge head (tapered) provides a stable measurement
- With master plate for origin setting
- Hold function
- Auto-display-off function(after 5 min.)

### POWER

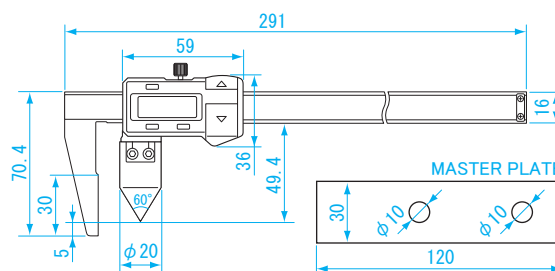
- One SR44 (Silver oxide) battery included for testing

### ACCESSORIES

- Master plate for origin setting

### DIMENSIONS

Units : mm

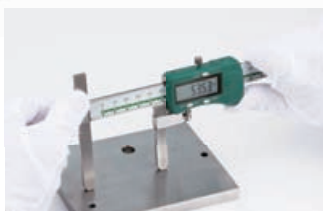


| Order No. | Model No. | Measuring Range (mm) | Applicable hole diameter (mm) | Resolution (mm) | Accuracy <sup>※</sup> (mm) | Depth Bar | Weight |
|-----------|-----------|----------------------|-------------------------------|-----------------|----------------------------|-----------|--------|
| 151109    | D-200TA   | 10-200               | $\phi 1.5 \sim 19.5$          | 0.01            | $\pm 0.05$                 | None      | 230g   |

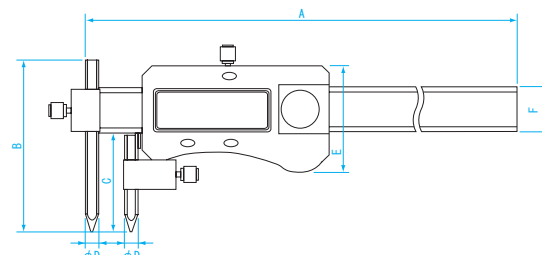
※ Quantization Error (  $\pm 1$  digit) not included



D-150A2



## DIMENSIONS



Units : mm

| Model No. | A   | B   | C  | D  | E  | F  |
|-----------|-----|-----|----|----|----|----|
| D-150A    | 241 | 60  | 35 | 5  | 38 | 16 |
| D-150A2   | 241 | 100 | 62 | 10 | 38 | 16 |

## USE

- For measuring center distance between two holes

## FEATURES

- Adjustable main scale jaw facilitates measurement of holes on stepped surface
- Distance between a plane and a hole can be obtained
- Hold display function
- Auto power off function (after 20 min.)
- Made of stainless steel
- One SR44 (Silver oxide) battery included for testing

| Order No. | Model No. | Measuring Range (mm) | Applied hole diameter | Resolution (mm) | Accuracy* (mm) | Depth Bar | Weight |
|-----------|-----------|----------------------|-----------------------|-----------------|----------------|-----------|--------|
| 151080    | D-150A    | 5-150                | 1 ~ 5                 | 0.01            | ± 0.05         | None      | 190g   |
| 151081    | D-150A2   | 10-150               | 1 ~ 10                | 0.01            | ± 0.05         | None      | 200g   |

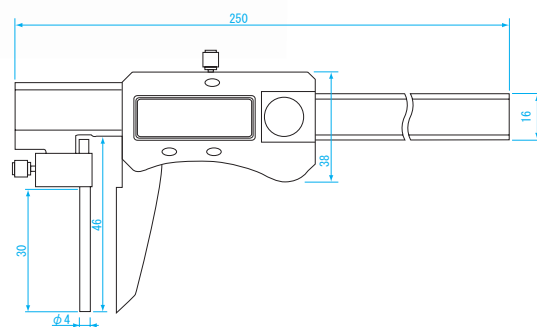
※ Quantization Error (± 1 digit) not included

# DIGITAL TUBE THICKNESS TYPE CALIPERS



## DIMENSIONS

Units : mm



## USE

- For measurement of tube wall thickness

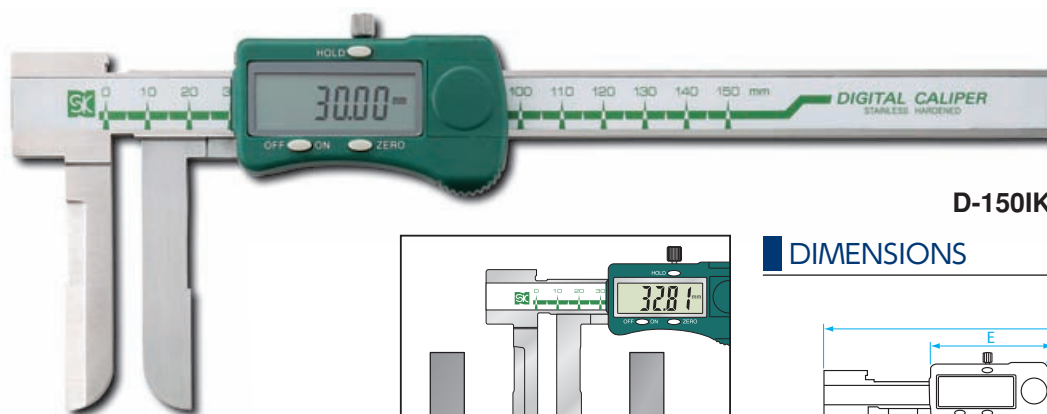
## FEATURES

- Facilitate measurements of tube wall thickness
- The main scale jaw is a round bar
- Hold display function
- Auto power off function(after 20 min.)
- Made of stainless steel
- One SR44 (Silver oxide) battery included for testing

| Order No. | Model No. | Measuring Range (mm) | Resolution (mm) | Accuracy* (mm) | Depth Bar | Weight |
|-----------|-----------|----------------------|-----------------|----------------|-----------|--------|
| 151082    | D-150T    | 0-150                | 0.01            | ± 0.05         | None      | 210g   |

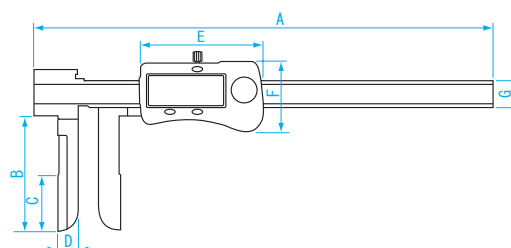
※ Quantization Error (± 1 digit) not included

# DIGITAL INSIDE CALIPERS KNIFE-EDGE TYPE



D-150IK

## DIMENSIONS



Units : mm

| Model No. | A   | B  | C  | D  | E  | F  | G  |
|-----------|-----|----|----|----|----|----|----|
| D-150IK   | 250 | 60 | 30 | 12 | 67 | 38 | 16 |
| D-200IK   | 305 | 75 | 35 | 14 | 67 | 38 | 16 |

**USE** • For inside measurement

## FEATURES

- Long jaws facilitate measurement of the diameter of deep holes
- Hold display function
- Auto power off function (after 20 min.)
- Made of stainless steel
- One SR44 (Silver oxide) battery included for testing

| Order No. | Model No. | Measuring Range (mm) | Resolution (mm) | Accuracy* (mm) | Length of jaws | Depth Bar | Weight |
|-----------|-----------|----------------------|-----------------|----------------|----------------|-----------|--------|
| 151345    | D-150IK   | 15-150               | 0.01            | ± 0.04         | 60mm           | None      | 230g   |
| 151346    | D-200IK   | 18-200               | 0.01            | ± 0.04         | 75mm           | None      | 270g   |

※ Quantization Error (± 1 digit) not included

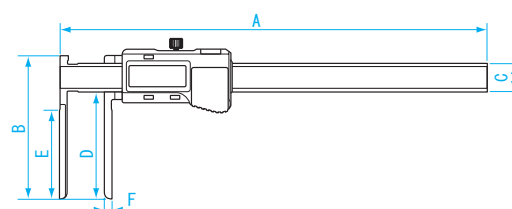
# DIGITAL INSIDE CALIPERS KNIFE-EDGE, NARROW JAW TYPE

**Narrow jaw for wide measuring range.**



D-150IK2

## DIMENSIONS



Units : mm

| Model No. | A   | B    | C  | D  | E  | F   |
|-----------|-----|------|----|----|----|-----|
| D-150IK2  | 235 | 80.5 | 16 | 60 | 50 | 4.5 |
| D-200IK2  | 289 | 100  | 16 | 80 | 70 | 9.5 |

**USE** • For inside measurement

## MATERIAL

- Stainless steel

## FEATURES

- Thin jaws enable measurements in narrow spaces
- Hold function

## POWER

- One CR2032 (Lithium) battery included for testing

| Order No. | Model No. | Measuring Range (mm) | Resolution (mm) | Accuracy* (mm) | Jaw Length | Depth Bar | Weight |
|-----------|-----------|----------------------|-----------------|----------------|------------|-----------|--------|
| 151347    | D-150IK2  | 5-150                | 0.01            | ± 0.05         | 60mm       | None      | 175g   |
| 151348    | D-200IK2  | 10-200               | 0.01            | ± 0.05         | 80mm       | None      | 220g   |

※ Quantization Error (± 1 digit) not included

## DIGITAL CALIPERS HOOK TYPE



CALIPERS

01

CALIPERS

CALIPERS

SCRIBING  
CALIPERS

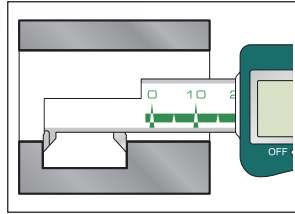
DEPTH  
GAUGES

HEIGHT  
GAUGES

Can measure the inside width and position of groove

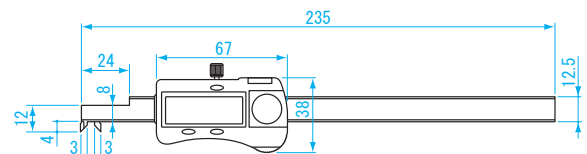


Enlarged picture of probes



### DIMENSIONS

Units : mm



**USE** • Inside width and position of groove measurement

### FEATURES

- Auto power off function (after 20 min.)
- Made of stainless steel
- One SR44 (Silver oxide) battery included for testing

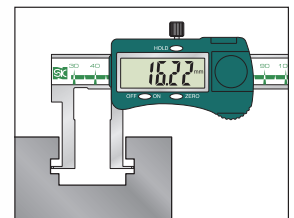
| Order No. | Model No. | Measuring Range (mm) | Resolution (mm) | Accuracy* (mm) | Depth Bar | Weight |
|-----------|-----------|----------------------|-----------------|----------------|-----------|--------|
| 151312    | D-125H    | 4-125                | 0.01            | ± 0.03         | None      | 130g   |

※ Quantization Error (± 1 digit) not included

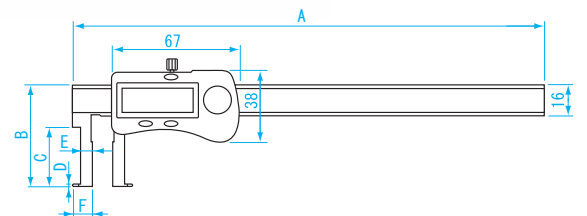
## DIGITAL INSIDE CALIPERS POINT JAW TYPE



Ideal for inside measurement of a special shapes



### DIMENSIONS



Units : mm

| Model No. | A   | B  | C  | D   | E    | F    |
|-----------|-----|----|----|-----|------|------|
| D-150I    | 250 | 52 | 30 | 1   | 6    | 11   |
| D-150I2   | 250 | 82 | 60 | 1.5 | 11.5 | 17.5 |

**USE** • For inside measurement  
(Actual dimension is displayed value plus 22mm for D-150I, plus 35mm for D150I2)

### MATERIAL

- Stainless steel

### FEATURES

- Designed specially for inside measurement
- Hold function
- Auto-power-off function ( after 20 min.)

### POWER

- One SR44 (Silver oxide) battery included for testing

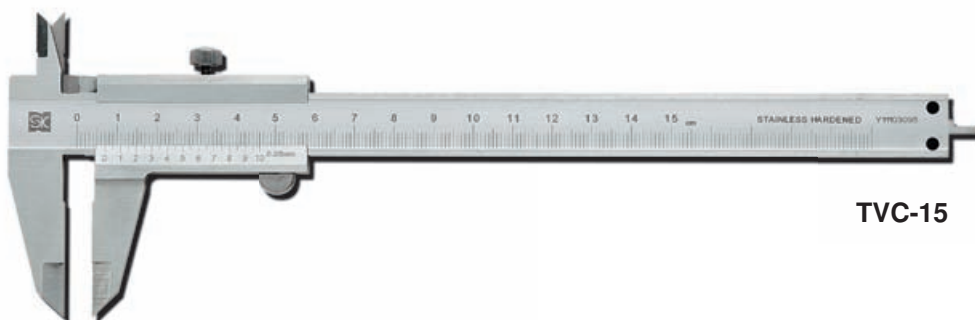
| Order No. | Model No. | Measuring Range (mm) | Resolution (mm) | Accuracy* (mm) | Length of Jaws | Depth Bar | Weight |
|-----------|-----------|----------------------|-----------------|----------------|----------------|-----------|--------|
| 151340    | D-150I    | 22-150               | 0.01            | ± 0.04         | 30mm           | None      | 180g   |
| 151341    | D-150I2   | 35-150               | 0.01            | ± 0.05         | 60mm           | None      | 220g   |

※ Quantization Error (± 1 digit) not included



## VERNIER CALIPERS (MONO-BLOCK)

### Basic plain design



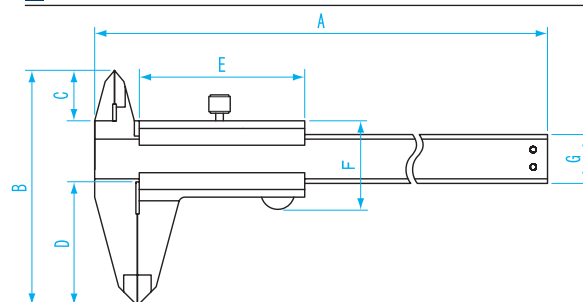
TVC-15



TVC-15CD (φ 1.9mm round depth bar)

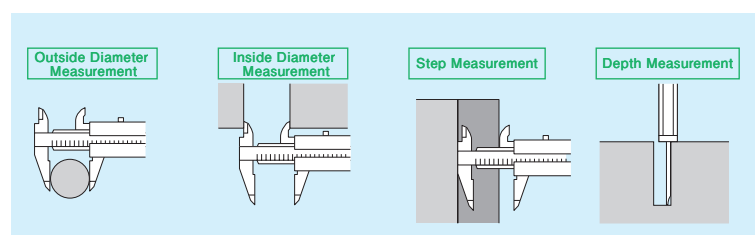


### DIMENSIONS

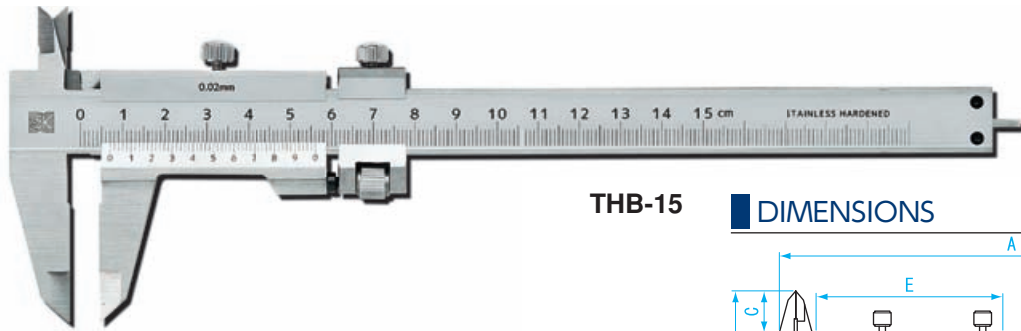


Units : mm

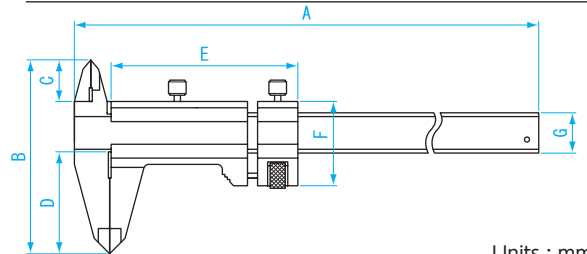
| Model No. | A    | B    | C  | D    | E   | F  | G    |
|-----------|------|------|----|------|-----|----|------|
| TVC-10    | 178  | 76.5 | 16 | 40   | 54  | 30 | 16   |
| TVC-15    | 235  | 76.5 | 16 | 40   | 54  | 30 | 16   |
| TVC-20    | 290  | 85   | 17 | 46   | 54  | 30 | 16   |
| TVC-30    | 415  | 107  | 23 | 59.5 | 60  | 35 | 18.5 |
| TVC-60    | 770  | 168  | 37 | 100  | 92  | 45 | 24   |
| TVC-100   | 1230 | 238  | 50 | 150  | 125 | 53 | 31   |
| TVC-15CD  | 234  | 77   | 16 | 40   | 54  | 30 | 16   |



| Order No. | Model No. | Measuring Range (mm) | Graduation (mm) | Accuracy (mm) | Depth Bar | Weight | Note                       |
|-----------|-----------|----------------------|-----------------|---------------|-----------|--------|----------------------------|
| 151091    | TVC-10    | 100                  | 0.05            | ± 0.05        | Yes       | 130g   | —                          |
| 151092    | TVC-15    | 150                  | 0.05            | ± 0.05        | Yes       | 150g   | —                          |
| 151093    | TVC-20    | 200                  | 0.05            | ± 0.05        | Yes       | 190g   | —                          |
| 151094    | TVC-30    | 300                  | 0.05            | ± 0.08        | Yes       | 350g   | —                          |
| 151095    | TVC-60    | 600                  | 0.05            | ± 0.10        | None      | 1.2kg  | —                          |
| 151096    | TVC-100   | 1000                 | 0.05            | ± 0.15        | None      | 3.5kg  | —                          |
| 151084    | TVC-15CD  | 150                  | 0.05            | ± 0.05        | Yes       | 150g   | with φ 1.9 round depth bar |

**THB-15**

## DIMENSIONS



Units : mm

**USE** • For outside diameter, inside diameter, step and depth measurement

## FEATURES

- Provided with a fine-adjustment carriage to feed the slider finely
- With depth bar
- Made of stainless steel
- Satin finish

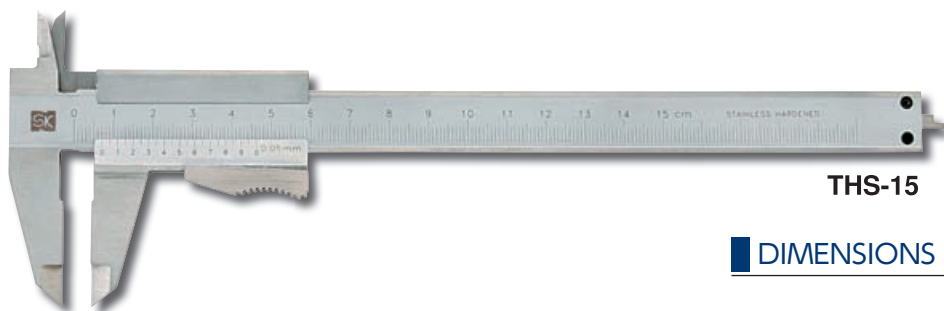
| Model No. | A   | B   | C    | D    | E  | F  | G  |
|-----------|-----|-----|------|------|----|----|----|
| THB-15    | 234 | 76  | 15.5 | 40   | 72 | 32 | 16 |
| THB-20    | 300 | 90  | 20   | 50   | 72 | 32 | 16 |
| THB-30    | 412 | 100 | 20   | 55.5 | 81 | 37 | 18 |

| Order No. | Model No. | Measuring Range (mm) | Graduation (mm) | Accuracy (mm) | Depth Bar | Weight |
|-----------|-----------|----------------------|-----------------|---------------|-----------|--------|
| 151301    | THB-15    | 130                  | 0.02            | ± 0.05        | Yes       | 170g   |
| 151302    | THB-20    | 180                  | 0.02            | ± 0.05        | Yes       | 210g   |
| 151303    | THB-30    | 280                  | 0.02            | ± 0.08        | Yes       | 420g   |

## MEMO

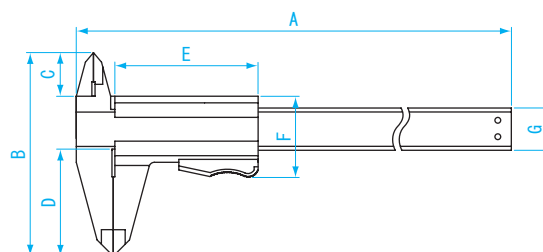
This image shows a full page of blank graph paper. The grid consists of small, uniform squares formed by thin, light gray dashed lines. There are no margins, text, or other markings on the page.

# VERNIER CALIPERS WITH THUMB CLAMP



THS-15

## DIMENSIONS



Units : mm

| Model No. | A   | B  | C    | D  | E  | F  | G  |
|-----------|-----|----|------|----|----|----|----|
| THS-15    | 234 | 76 | 15.5 | 39 | 54 | 31 | 16 |
| THS-20    | 300 | 90 | 20   | 50 | 54 | 31 | 16 |

**USE** • For outside diameter, inside diameter, step and depth measurement

## FEATURES

- The slider moves only when the thumb clamp is depressed
- Made of stainless steel
- Satin finish

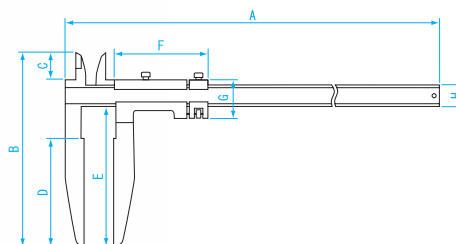
| Order No. | Model No. | Measuring Range (mm) | Graduation (mm) | Accuracy (mm) | Depth Bar | Weight |
|-----------|-----------|----------------------|-----------------|---------------|-----------|--------|
| 151371    | THS-15    | 150                  | 0.05            | ± 0.05        | Yes       | 150g   |
| 151372    | THS-20    | 200                  | 0.05            | ± 0.05        | Yes       | 180g   |

# LONG JAW VERNIER CALIPERS



LVC-30

## DIMENSIONS



Units : mm

| Model No. | A   | B   | C  | D   | E   | F   | G  | H  |
|-----------|-----|-----|----|-----|-----|-----|----|----|
| LVC-30    | 464 | 238 | 35 | 130 | 170 | 115 | 50 | 25 |
| LVC-60    | 808 | 406 | 45 | 180 | 320 | 140 | 60 | 32 |

**USE** • Outside diameter and inside diameter measurement

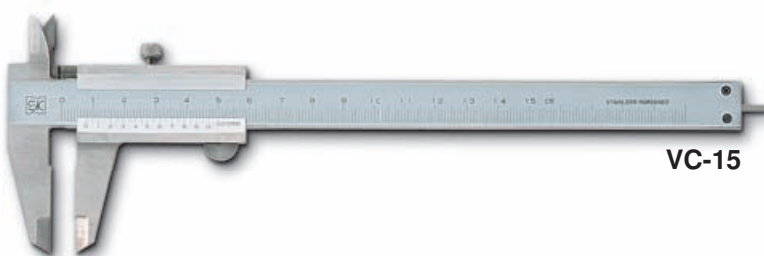
## FEATURES

- Long jaws for measuring hard-to-reach features
- Made of stainless steel

| Order No. | Model No. | Measuring Range (mm) | Graduation (mm) | Accuracy* | Depth Bar | Weight |
|-----------|-----------|----------------------|-----------------|-----------|-----------|--------|
| 151813    | LVC-30    | 300                  | 0.05            | ± 0.08    | None      | 1.1kg  |
| 151814    | LVC-60    | 600                  | 0.05            | ± 0.10    | None      | 3.1kg  |

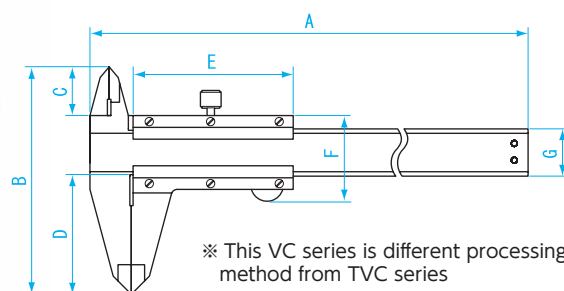
\* Accuracy specified for inner most portion of measuring jaw. Instrument error may be slightly higher when using the tip of jaw for performing measurement.

High performance at reasonable price



VC-15

## DIMENSIONS



**USE** • For outside diameter, inside diameter, step and depth measurement

## FEATURES

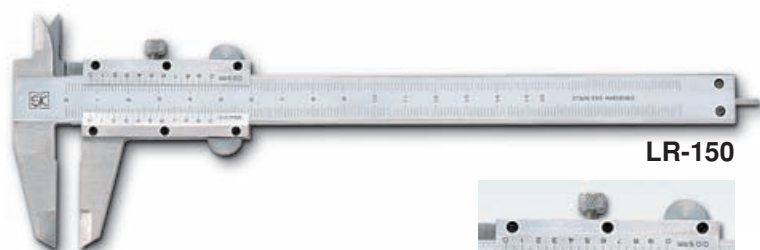
- Standard, reasonable type
- Integrated vernier type (VC-15, VC-20)
- Vernier screw stop type (VC-10, VC-30)
- Made of stainless steel
- Satin finish

Units : mm

| Model No. | A   | B   | C    | D  | E  | F    | G    |
|-----------|-----|-----|------|----|----|------|------|
| VC-10     | 160 | 60  | 14.5 | 30 | 42 | 23.5 | 12   |
| VC-15     | 235 | 77  | 16.5 | 40 | 54 | 30   | 16   |
| VC-20     | 300 | 90  | 19.5 | 50 | 54 | 30   | 16   |
| VC-30     | 410 | 100 | 21.2 | 55 | 59 | 35   | 18.5 |

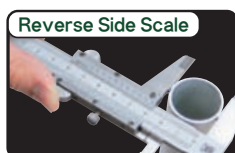
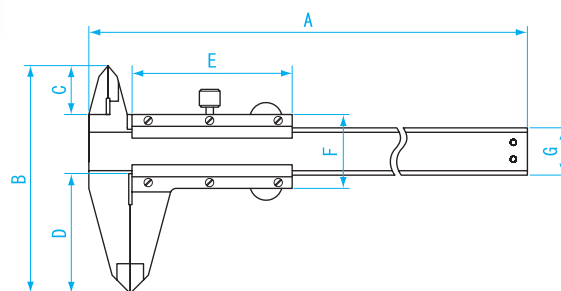
| Order No. | Model No. | Measuring Range (mm) | Graduation (mm) | Accuracy (mm) | Depth Bar | Weight |
|-----------|-----------|----------------------|-----------------|---------------|-----------|--------|
| 151031    | VC-10     | 100                  | 0.05            | ± 0.05        | Yes       | 100g   |
| 151032    | VC-15     | 150                  | 0.05            | ± 0.05        | Yes       | 150g   |
| 151033    | VC-20     | 200                  | 0.05            | ± 0.05        | Yes       | 180g   |
| 151034    | VC-30     | 300                  | 0.05            | ± 0.08        | Yes       | 350g   |

# LR TYPE VERNIER CALIPERS



LR-150

## DIMENSIONS



**USE** • For outside diameter, inside diameter, step and depth measurement

## FEATURES

- Dual thumb grip for use with either hand
- Made of stainless steel
- Satin finish

Units : mm

| Model No. | A   | B  | C  | D  | E  | F  | G  |
|-----------|-----|----|----|----|----|----|----|
| LR-100    | 160 | 60 | 14 | 30 | 42 | 20 | 12 |
| LR-150    | 235 | 77 | 16 | 40 | 54 | 25 | 16 |
| LR-200    | 300 | 90 | 20 | 50 | 54 | 25 | 16 |

| Order No. | Model No. | Measuring Range (mm) | Graduation (mm) | Accuracy (mm) | Depth Bar | Weight |
|-----------|-----------|----------------------|-----------------|---------------|-----------|--------|
| 151331    | LR-100    | 100                  | 0.05            | ± 0.05        | Yes       | 70g    |
| 151332    | LR-150    | 150                  | 0.05            | ± 0.05        | Yes       | 150g   |
| 151333    | LR-200    | 200                  | 0.05            | ± 0.05        | Yes       | 180g   |



# LEFT-HAND VERNIER CALIPERS



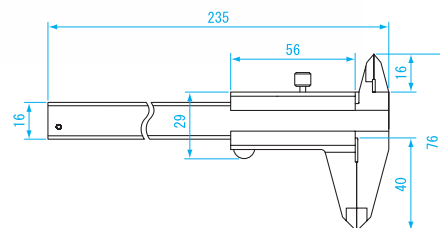
## DIMENSIONS

Units : mm

**USE** • For outside diameter, inside diameter, step and depth measurement

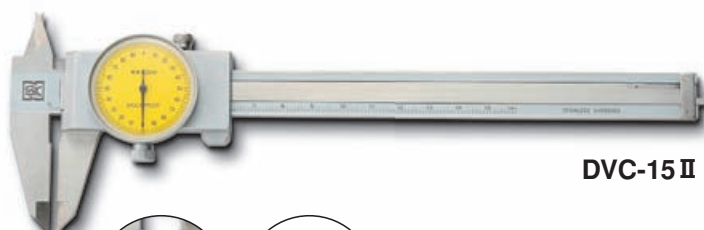
## FEATURES

- Designed specially for left-handed use
- Made of stainless steel
- Satin finish



| Order No. | Model No. | Measuring Range (mm) | Graduation (mm) | Accuracy (mm) | Depth Bar | Weight |
|-----------|-----------|----------------------|-----------------|---------------|-----------|--------|
| 151321    | THL-150   | 150                  | 0.05            | ± 0.05        | Yes       | 150g   |

# DIAL CALIPERS/ DIAL CALIPERS WITH CARBIDE TIPPED MEASURING FACE

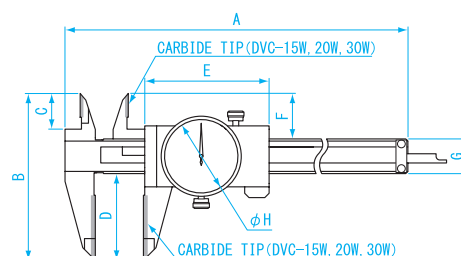


DVC-15 II



DVC-15W, DVC-20W, DVC-30W are carbide-tipped for outside & inside measurement

## DIMENSIONS



Units : mm

**USE** • For outside diameter, inside diameter, step and depth measurement

## FEATURES

- Slider displacement is amplified by rack-and-pinion mechanism and indicated on the dial
- Available with carbide-tipped measuring faces( DVC-15W ~ 30W)
- Made of stainless steel
- Satin finish

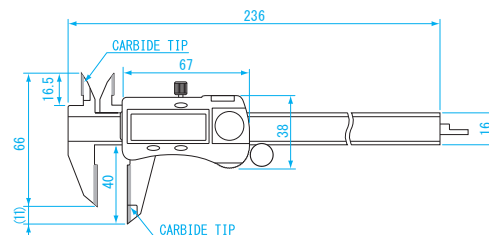
| Model No. | A   | B   | C  | D  | E  | F  | G  | H  |
|-----------|-----|-----|----|----|----|----|----|----|
| DVC-15 II | 236 | 77  | 16 | 40 | 58 | 21 | 16 | 38 |
| DVC-20 II | 285 | 90  | 19 | 50 | 59 | 24 | 16 | 38 |
| DVC-30 II | 400 | 103 | 18 | 60 | 59 | 25 | 17 | 45 |
| DVC-15W   | 236 | 77  | 16 | 40 | 58 | 21 | 16 | 38 |
| DVC-20W   | 285 | 90  | 19 | 50 | 59 | 24 | 16 | 38 |
| DVC-30W   | 400 | 103 | 18 | 60 | 59 | 25 | 17 | 45 |

| Order No. | Model No. | Measuring Range (mm) | Graduation (mm) | Accuracy (mm) | Depth Bar | Indicator 1 revolution (mm) | Weight | Note                           |
|-----------|-----------|----------------------|-----------------|---------------|-----------|-----------------------------|--------|--------------------------------|
| 151351    | DVC-15 II | 150                  | 0.02            | ± 0.03        | Yes       | 2                           | 200g   | —                              |
| 151352    | DVC-20 II | 200                  | 0.02            | ± 0.03        | Yes       | 2                           | 240g   | —                              |
| 151353    | DVC-30 II | 300                  | 0.02            | ± 0.04        | Yes       | 2                           | 360g   | —                              |
| 151361    | DVC-15W   | 150                  | 0.02            | ± 0.03        | Yes       | 2                           | 200g   | Carbide-tipped measuring faces |
| 151362    | DVC-20W   | 200                  | 0.02            | ± 0.03        | Yes       | 2                           | 240g   | Carbide-tipped measuring faces |
| 151363    | DVC-30W   | 300                  | 0.02            | ± 0.04        | Yes       | 2                           | 370g   | Carbide-tipped measuring faces |



## DIMENSIONS

Units : mm



- USE**
- Outside diameter, inside diameter, step and depth measurement, and also scribing

## FEATURES

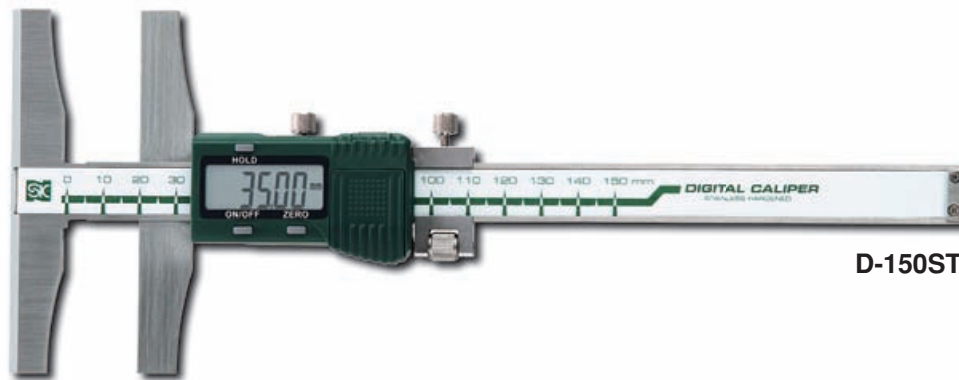
- Measuring and accurate marking work can be performed with this caliper
- Made of stainless steel
- Auto power off function(after 20 min.)
- Carbide-tipped measuring faces
- One SR44 (Silver oxide) battery included for testing

| Order No. | Model No. | Measuring Range (mm) | Resolution (mm) | Accuracy* (mm) | Depth Bar | Weight | Note                           |
|-----------|-----------|----------------------|-----------------|----------------|-----------|--------|--------------------------------|
| 152005    | D-150S    | 0-150                | 0.01            | ± 0.03         | Yes       | 160g   | Carbide tipped measuring faces |

※ Quantization Error (± 1 digit) not included

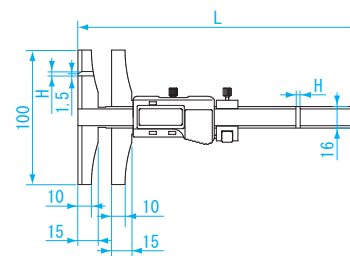
# DIGITAL SCRIBING CALIPERS

Enables stable and high-accuracy scribing work



D-150ST

## DIMENSIONS



Units : mm

| Model No. | H   | L   |
|-----------|-----|-----|
| D-150ST   | 3.2 | 260 |
| D-300ST   | 4   | 415 |

- USE**
- Measures distance from caliper base to scribe edge

## MATERIAL

- Stainless steel

## FEATURES

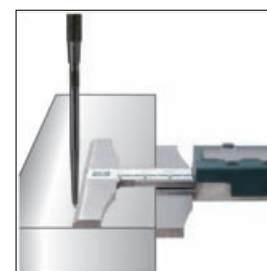
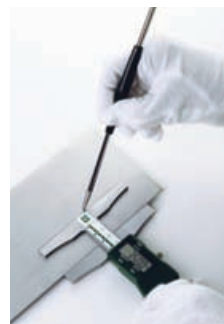
- Digital Display for easy reading and precise scribing work
- Hold Function

## POWER

- One CR2032 (Lithium) battery included for testing

## ACCESSORIES

- Carbide tip scriber SC-P



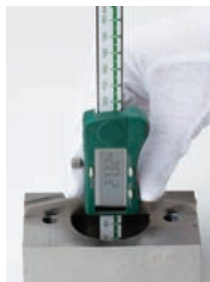
| Order No.          | Model No. | Measuring Range (mm) | Resolution (mm) | Accuracy* (mm) | Weight |
|--------------------|-----------|----------------------|-----------------|----------------|--------|
| <b>N</b> EW 151277 | D-150ST   | 0-150                | 0.01            | ± 0.07         | 240g   |
| <b>N</b> EW 151278 | D-300ST   | 0-300                | 0.01            | ± 0.08         | 330g   |

※ Quantization Error (± 1 digit) not included

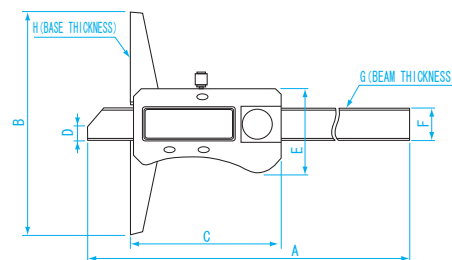
## DIGITAL DEPTH GAUGES



D-150D



### DIMENSIONS



Units : mm

| Model No. | A   | B   | C  | D | E  | F    | G | H |
|-----------|-----|-----|----|---|----|------|---|---|
| D-150D    | 230 | 100 | 69 | 6 | 38 | 14.5 | 4 | 7 |
| D-200D    | 280 | 100 | 69 | 6 | 38 | 14.5 | 4 | 7 |
| D-300D    | 380 | 100 | 69 | 6 | 38 | 14.5 | 4 | 7 |

**USE** • For measuring depth

### FEATURES

- Hold function
- Auto power off function (after 20 min.)
- Made of stainless steel
- One SR44 (Silver oxide) battery included for testing

| Order No. | Model No. | Measuring Range (mm) | Resolution (mm) | Accuracy* (mm) | Weight |
|-----------|-----------|----------------------|-----------------|----------------|--------|
| 151067    | D-150D    | 0-150                | 0.01            | ± 0.03         | 200g   |
| 151068    | D-200D    | 0-200                | 0.01            | ± 0.03         | 220g   |
| 151079    | D-300D    | 0-300                | 0.01            | ± 0.04         | 260g   |

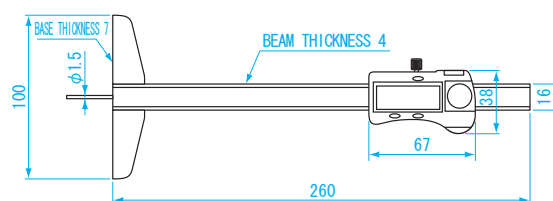
※ Quantization Error (± 1 digit) not included

## DIGITAL DEPTH GAUGES



### DIMENSIONS

Units : mm



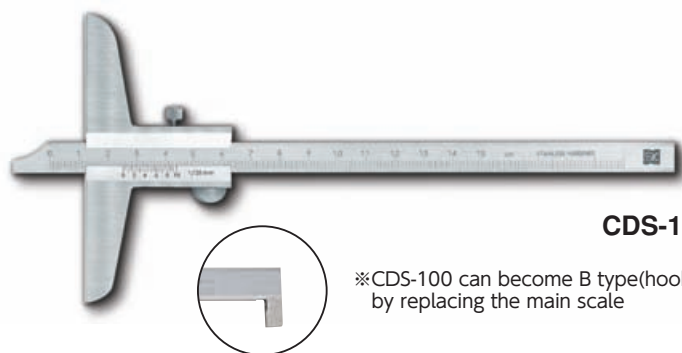
**USE** • For measuring the depth of narrow grooves and small holes etc.

### FEATURES

- Auto power off function (after 20 min.)
- Probe diameter : φ1.5mm
- Made of stainless steel
- One SR44 (Silver oxide) battery included for testing

| Order No. | Model No. | Measuring Range (mm) | Resolution (mm) | Accuracy* (mm) | Weight |
|-----------|-----------|----------------------|-----------------|----------------|--------|
| 151083    | D-150DCD  | 0-150                | 0.01            | ± 0.04         | 240g   |

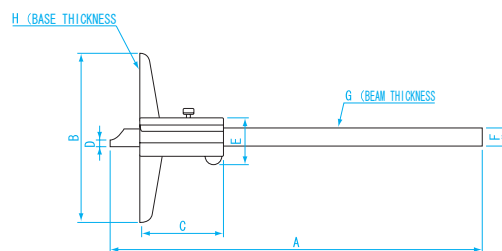
※ Quantization Error (± 1 digit) not included



**CDS-15**

※CDS-100 can become B type(hook type)  
by replacing the main scale

## DIMENSIONS



Units : mm

| Model No. | A    | B   | C    | D  | E    | F    | G   | H    |
|-----------|------|-----|------|----|------|------|-----|------|
| CDS-15    | 231  | 100 | 51   | 4  | 27.5 | 10.5 | 2.8 | 6.1  |
| CDS-20    | 280  | 100 | 51   | 4  | 27.5 | 10.5 | 2.8 | 6.1  |
| CDS-30    | 380  | 150 | 47.5 | 5  | 30   | 13   | 2.8 | 6.1  |
| CDS-50    | 590  | 250 | 80   | 10 | 36   | 20   | 5   | 13.5 |
| CDS-60    | 690  | 250 | 80   | 10 | 36   | 20   | 5   | 13.5 |
| CDS-100   | 1100 | 250 | 80   | 10 | 36   | 20   | 5   | 13.5 |

**USE** • For measuring depth

## FEATURES

- Fully hardened measuring faces
- Made of stainless steel(Satin finish)

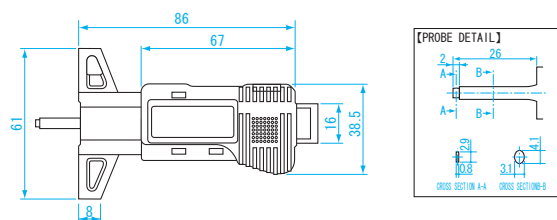
| Order No. | Model No. | Measuring Range (mm) | Graduation (mm) | Accuracy (mm) | Weight |
|-----------|-----------|----------------------|-----------------|---------------|--------|
| 007711    | CDS-15    | 150                  | 0.05            | ± 0.08        | 125g   |
| 007712    | CDS-20    | 200                  | 0.05            | ± 0.08        | 140g   |
| 007713    | CDS-30    | 300                  | 0.05            | ± 0.10        | 220g   |
| 007714    | CDS-50    | 500                  | 0.05            | ± 0.10        | 3kg    |
| 007715    | CDS-60    | 600                  | 0.05            | ± 0.12        | 3kg    |
| 007716    | CDS-100   | 1000                 | 0.05            | ± 0.15        | 4kg    |

# DIGITAL MINI DEPTH GAUGES



## DIMENSIONS

Units : mm



**USE** • For measuring depth

## FEATURES

- With hold display function
- Auto display off function (after 5 min.)
- One CR2032 (Lithium) battery included for testing

| Order No. | Model No. | Measuring Range (mm) | Resolution (mm) | Accuracy* (mm) | Weight |
|-----------|-----------|----------------------|-----------------|----------------|--------|
| 151195    | DMD-25G   | 0-25                 | 0.1             | ± 0.2          | 40g    |

※ Quantization Error ( ± 1 digit ) not included

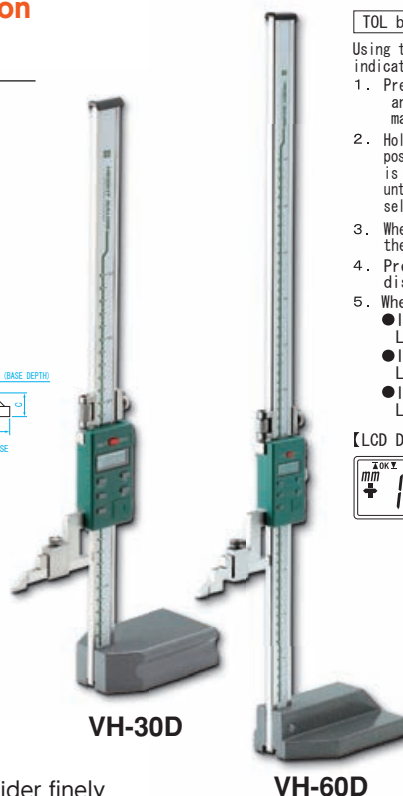
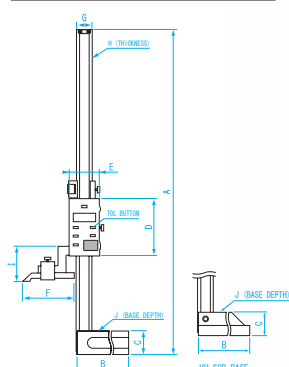
# DIGITAL HEIGHT GAUGES



## Tolerance setting function for inspection



### DIMENSIONS

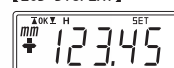


### TOL button (setting tolerance)

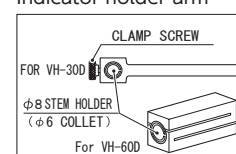
Using the [TOL] button we can easily set tolerances to indicate if a measurement is within a specified range.

1. Press the [TOL] button until "SET" blinks on display, and the "▲" symbol is displayed. In this state the maximum tolerance can be specified.
2. Holding down the [TOL] button will change the blinking position. Release [TOL] button when number to change is blinking, press again to change number +/- . Repeat until desired value is displayed. When the value is set, select [SET] and press the [TOL] button to save setting.
3. When "▼" is displayed, use the same procedure to set the minimum tolerance level.
4. Press "TOL" button to return to blinking "SET" on display. Tolerance is now set.
5. When taking a measurement:
  - If the value is within the measurement tolerance, LCD will display "OK".
  - If the value is above the measurement tolerance, LCD will display "▲".
  - If the value is below the measurement tolerance, LCD will display "▼".

### [LCD DISPLAY]



### Indicator holder arm



- **USE** • Measuring height of small workpiece

### FEATURES

- Carbide tipped scriber for fine scribing on workpiece
- Vernier: Stainless steel
- Base: Cast iron
- Zero-setting at any position
- Hold display function
- Fine adjustment carriage to feed the slider finely
- One SR44 (Silver oxide) battery included for testing

### ACCESSORIES

- Indicator holder arm
- Scriber clamp
- Scriber
- Ø 6 collet

| Model No. | A   | B   | C  | D  | E  | F   | G  | H    | I  | J   |
|-----------|-----|-----|----|----|----|-----|----|------|----|-----|
| VH-30D    | 455 | 110 | 32 | 80 | 45 | 75  | 23 | 6    | 54 | 65  |
| VH-60D    | 810 | 161 | 52 | 95 | 50 | 102 | 31 | 10.5 | 76 | 120 |

Units : mm

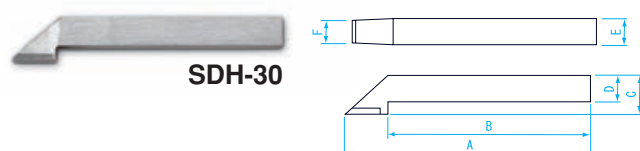
| Order No. | Model No. | Measuring Range (mm) | Resolution (mm) | Accuracy* (mm) | Scale Adjustment (mm) | Weight |
|-----------|-----------|----------------------|-----------------|----------------|-----------------------|--------|
| 151210    | VH-30D    | 300                  | 0.01            | ± 0.04         | 8                     | 2.6kg  |
| 151211    | VH-60D    | 600                  | 0.01            | ± 0.06         | 8                     | 5kg    |

\* Quantization Error (± 1 digit) not included

## CARBIDE TIPPED SCRIBERS



### DIMENSIONS



### USE

- For use as a dedicated scriber on digital height gauge

### MATERIAL

- Carbide tipped

Units : mm

| Model No. | A   | B  | C    | D  | E  | F   |
|-----------|-----|----|------|----|----|-----|
| SDH-30    | 75  | 63 | 11.7 | 8  | 6  | 5.3 |
| SDH-60    | 102 | 70 | 25   | 12 | 10 | 9   |

| Order No. | Model No. | Applicable Height Gauge | Weight |
|-----------|-----------|-------------------------|--------|
| 151215    | SDH-30    | VH-30D                  | 30g    |
| 151216    | SDH-60    | VH-60D                  | 100g   |

## INDICATOR HOLDER ARMS



### USE

- For mounting dial indicator on digital height gauge

### MATERIAL

- Stainless steel

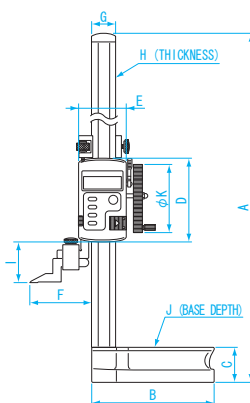
| Order No. | Model No. | Applicable Height Gauge | Weight |
|-----------|-----------|-------------------------|--------|
| 151217    | ADH-30    | VH-30D                  | 35g    |
| 151218    | ADH-60    | VH-60D                  | 20g    |



Handle for smooth sliding operation. Provided dial indicator



## DIMENSIONS



**USE** • Measuring height of small workpiece

## FEATURES

- Carbide tipped scriber for fine scribing on workpiece
- Vernier: Stainless steel
- Base: : Cast iron
- Zero-setting at any position
- Fine adjustment carriage to feed the slider finely
- One SR44 (Silver oxide) battery included for testing

## ACCESSORIES

- Dial indicator(TI-8038)
- Indicator holder arm
- Scriber

※ For use with dial indicator, dial indicator holder arm and dial indicator required. Maximum error may larger



TI-8038



VHS-30D



VHS-60D

Accessories(dial indicator)

Units : mm

| Model No. | A   | B   | C    | D   | E    | F  | G  | H  | I  | J    | K   |
|-----------|-----|-----|------|-----|------|----|----|----|----|------|-----|
| VHS-30D   | 535 | 172 | 51.5 | 114 | 66.5 | 82 | 35 | 15 | 59 | 33.5 | 116 |
| VHS-60D   | 837 | 178 | 53.5 | 114 | 66.5 | 82 | 35 | 15 | 59 | 33.5 | 140 |

| Order No. | Model No. | Measuring Range (mm) | Resolution (mm) | Accuracy* (mm) | Scale Adjustment (mm) | Weight |
|-----------|-----------|----------------------|-----------------|----------------|-----------------------|--------|
| 151212    | VHS-30D   | 300                  | 0.01            | ± 0.04         | 10                    | 6.4kg  |
| 151213    | VHS-60D   | 600                  | 0.01            | ± 0.05         | 10                    | 7.5kg  |

※ Quantization Error (± 1 digit) not included

## SCRIBER for VHS series Height Gauge

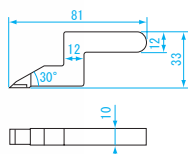


## INDICATOR HOLDER for VHS series Height Gauge



## DIMENSIONS

Units : mm



## USE

- For use as a dedicated scriber on digital height gauge

## MATERIAL

- Carbide tipped

| Order No.  | Model No. | Applicable Model No. | Weight |
|------------|-----------|----------------------|--------|
| NEW 151208 | VHS-S     | VHS-30D<br>VHS-60D   | 85g    |

## USE

- For mounting dial indicator on digital height gauge

## MATERIAL

- Stainless steel

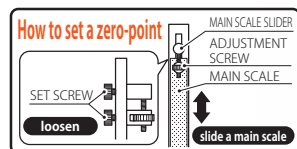
| Order No.  | Model No. | Applicable Model No. | Weight |
|------------|-----------|----------------------|--------|
| NEW 151209 | VHS-T     | VHS-30D<br>VHS-60D   | 80g    |

## VERNIER HEIGHT GAUGE

Easy zero point adjustment function makes for easy long-term use



Magnifier lens for main scale (VHK-15)



**USE** • Measuring or scribing the height of small workpiece

### MATERIAL

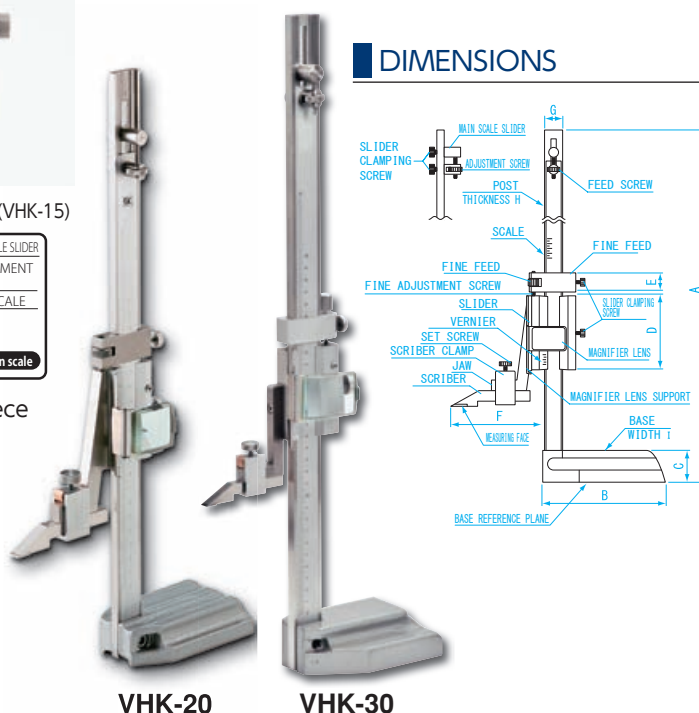
- Main Scale & Vernier : Stainless steel
- Base : Cast iron
- Scriber : Carbide tipped

### FEATURES

- Main scale slider enables easier adjustment
- Easy reading with magnifier lens( x3)
- Fine adjustment carriage to feed the slider finely
- With carbide tipped scriber
- Attached holder to hole dial indicator
- Made of stainless steel and easy to care anti-rust treatment

### ACCESSORIES

- Dial indicator holder
- Scriber
- Magnifier lens for main scale



VHK-20

VHK-30

Units : mm

| Model No. | A   | B   | C  | D  | E  | F  | G  | H | I  |
|-----------|-----|-----|----|----|----|----|----|---|----|
| VHK-15    | 341 | 103 | 28 | 67 | 20 | 77 | 22 | 6 | 60 |
| VHK-20    | 391 | 103 | 28 | 67 | 20 | 77 | 22 | 6 | 60 |
| VHK-30    | 540 | 125 | 40 | 75 | 20 | 77 | 28 | 9 | 86 |

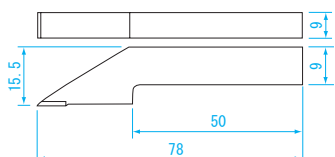
| Order No. | Model No. | Measuring Range (mm) | Graduation (mm) | Accuracy (mm) | Slider Fine Feed (mm) | Scale Adjustment (mm) | Weight |
|-----------|-----------|----------------------|-----------------|---------------|-----------------------|-----------------------|--------|
| 151271    | VHK-15    | 150                  | 0.05            | ± 0.05        | 8                     | 10                    | 1.6kg  |
| 151272    | VHK-20    | 200                  | 0.05            | ± 0.05        | 8                     | 10                    | 1.7kg  |
| 151273    | VHK-30    | 300                  | 0.02            | ± 0.04        | 8                     | 10                    | 3.08kg |

## CARBIDE TIPPED SCRIBERS



### DIMENSIONS

Units : mm



**USE** • For Use as a dedicated scriber on standard height gauge

**FEATURES** • Carbide tipped

| Order No. | Model No. | Applicable Height Gauge    | Weight |
|-----------|-----------|----------------------------|--------|
| 151043    | SVH-1520  | VHK-15<br>VHK-20<br>VHK-30 | 45g    |

## INDICATOR HOLDER ARM



**USE** • For mounting dial indicator on standard height gauge

**FEATURES** • Steel

| Order No. | Model No. | Applicable Height Gauge    | Weight |
|-----------|-----------|----------------------------|--------|
| 151275    | TVH-1520  | VHK-15<br>VHK-20<br>VHK-30 | 70g    |



40p



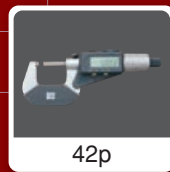
41p



41p



42p



42p



43p



43p



44p



44p



45p

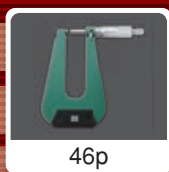


45p

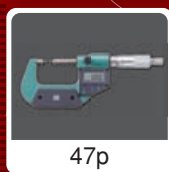


46p

# MICROMETER



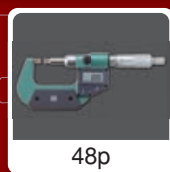
46p



47p



47p



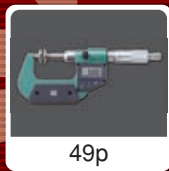
48p



48p



48p



49p



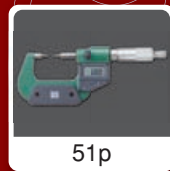
49p



50p



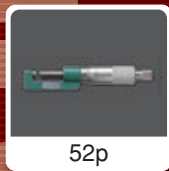
50p



51p



51p



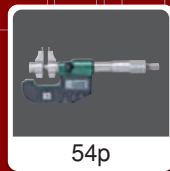
52p



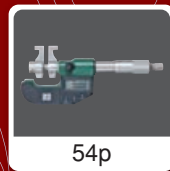
52p



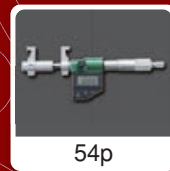
53p



54p



54p



54p



54p



55p



55p



55p



55p



56p



56p



57p



58p



58p



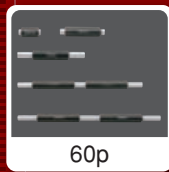
59p



59p



60p



60p



61p



61p



61p



62p



62p

MICRO  
METER  
MICRO  
METER  
STAND



# ELECTRONIC DIGITAL S-LINE MICROMETERS (IP67)



S-line series caliper, high-end model for high-performance!

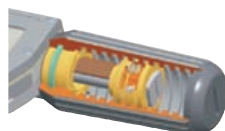
IP67 (comparable to NEMA 6,) electronics are protected against temporary total immersion.



MCD-30IP67S



MCD-30IP67S has switchable measuring force (5N/10N)



- IP rating for electrical equipment is defined based on IEC standard for water and solid body protection.
- IP indication

## IP 67

- 2nd digit : water proof rating
- 1st digit : direct contact-protection rating for ingress of solid foreign object

| Degrees of protection against solid foreign objects |             |                                                               |                                                                                     |
|-----------------------------------------------------|-------------|---------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 1st digit                                           | Description | Definition                                                    | Testing for                                                                         |
| 6                                                   | Solid       | No ingress of dust allowed                                    | Complete protection against contact                                                 |
| Degrees of protection against water                 |             |                                                               |                                                                                     |
| 2nd digit                                           | Description | Definition                                                    | Testing for                                                                         |
| 7                                                   | Liquid      | Protected against the effects of temporary immersion in water | Depth of 1m (height of the equipment is less than 850mm), submerged for 30 minutes. |

**USE** • For measuring outside diameter

## MATERIAL

- Frame : Steel
- Spindle: Stainless Steel

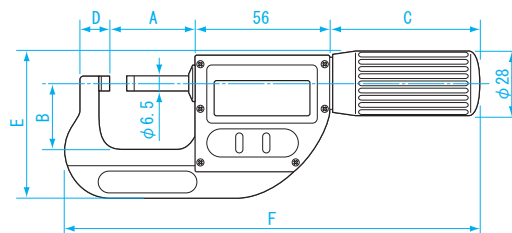
## FEATURES

- With **IP67** rating, this product performs reliably even under harsh conditions where it is exposed to a large amount of water, dust, or cutting fluid
- Work efficiency improves with 12mm/rev. fast displacement of the measuring spindle
- Wide measuring range, set of 3 micrometers will cover 0-102mm range
- MCD-30IP67S has switchable measuring force (5N / 10N)
- Carbide tipped measuring face
- Stand-by mode function after 20 min.
- Hold function

## POWER

- One CR2032(Lithium) battery included for testing

## DIMENSIONS



Units: mm

| Model No.    | A     | B    | C  | D    | E   | F   |
|--------------|-------|------|----|------|-----|-----|
| MCD-30IP67S  | 38.5  | 27.5 | 63 | 11.5 | 63  | 176 |
| MCD-66IP67S  | 74.5  | 43   | 75 | 12.5 | 85  | 231 |
| MCD-102IP67S | 110.5 | 60   | 75 | 13.5 | 106 | 270 |

| Order No. | Model No.    | Measuring Range (mm) | Resolution (mm) | Maximum Error <sup>※</sup> (μm) | Weight |
|-----------|--------------|----------------------|-----------------|---------------------------------|--------|
| 151201    | MCD-30IP67S  | 0- 30                | 0.001           | 3                               | 280g   |
| 151202    | MCD-66IP67S  | 30- 66               | 0.001           | 4                               | 440g   |
| 151203    | MCD-102IP67S | 66-102               | 0.001           | 5                               | 560g   |

※ Quantization Error (± 1 digit) not included





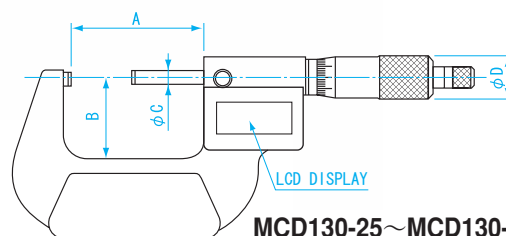
MCD130-25



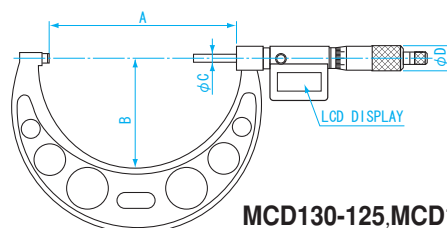
MCD130-125



## DIMENSIONS



MCD130-25~MCD130-100



MCD130-125, MCD130-150

**USE** • Measuring an outside diameter or distance

## FEATURES

- Frame: Carbon steel
- Spindle: High carbon chrome steel
- Quick display of the measured value
- Carbide measuring faces
- With ratchet stop
- Auto display power off (after 6 min.)
- With thermal protection (except for MCD130-125, MCD130-150)
- Painted frame
- One SR44 battery included for testing

Units : mm

| Model No.  | A   | B  | C   | D  |
|------------|-----|----|-----|----|
| MCD130-25  | 28  | 24 | 6.5 | 18 |
| MCD130-50  | 53  | 31 | 6.5 | 18 |
| MCD130-75  | 78  | 43 | 6.5 | 18 |
| MCD130-100 | 103 | 51 | 6.5 | 18 |
| MCD130-125 | 129 | 75 | 6.5 | 18 |
| MCD130-150 | 154 | 85 | 6.5 | 18 |

| Order No. | Model No.  | Measuring Range (mm) | Resolution (mm) | Maximum Error* (μm) | Weight |
|-----------|------------|----------------------|-----------------|---------------------|--------|
| 151261    | MCD130-25  | 0- 25                | 0.001           | 4                   | 260g   |
| 151262    | MCD130-50  | 25- 50               | 0.001           | 4                   | 380g   |
| 151263    | MCD130-75  | 50- 75               | 0.001           | 6                   | 470g   |
| 151264    | MCD130-100 | 75-100               | 0.001           | 6                   | 640g   |
| 151266    | MCD130-125 | 100-125              | 0.001           | 6                   | 490g   |
| 151267    | MCD130-150 | 125-150              | 0.001           | 6                   | 570g   |

※ Quantization Error ( ± 1 digit) not included



ELECTRONIC DIGITAL OUTSIDE MICROMETER (IP65)



IP67 (comparable to NEMA 4,) electronics are suitable for use in wet environments



MCD133-25IP

- IP rating for electrical equipment is defined based on IEC standard for water and solid body protection.
  - IP indication
- IP 65**
- 2nd digit : water proof rating
  - 1st digit : direct contact-protection rating for ingress of solid foreign object

| Degree of protection against solid foreign objects |             |                            |                                     |
|----------------------------------------------------|-------------|----------------------------|-------------------------------------|
| 1st digit                                          | Description | Definition                 | Testing for                         |
| 6                                                  | Solid       | No ingress of dust allowed | Complete protection against contact |

| Degree of protection against water |                                          |                                                                 |                                                                                                                        |
|------------------------------------|------------------------------------------|-----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| 2nd digit                          | Description                              | Definition                                                      | Testing for                                                                                                            |
| 5                                  | Protected against low pressure water jet | No harmful effects from direct jet of water from any direction. | spray rotating equipment from 6.3mm nozzle, 12.5L/min flow from at distance of 2.5 to 3 m for more than three minutes. |

USE

- For outside diameter measurement

MATERIAL

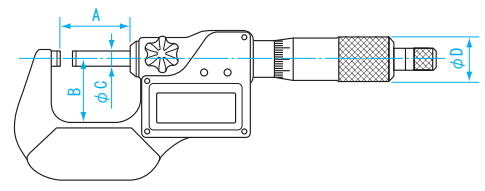
- Frame : Ductile cast iron
- High carbon chrome steel

FEATURES

- **IP65** rating electronic digital micrometer, electronic is protected against dust or water. Ideal to use for conditions where it is exposed to water, dust, or cutting fluid.
- Carbide tipped measuring face
- With a ratchet stop
- Auto-display-off function (after 6 min.)



DIMENSIONS



Units: mm

| Model No.    | A   | B  | C   | D  |
|--------------|-----|----|-----|----|
| MCD133-25IP  | 28  | 25 | 6.5 | 18 |
| MCD133-50IP  | 52  | 32 | 6.5 | 18 |
| MCD133-75IP  | 77  | 44 | 6.5 | 18 |
| MCD133-100IP | 103 | 56 | 6.5 | 18 |

POWER

- One SR44 (Silver oxide) battery included for testing

| Order No.  | Model No.    | Measuring Range (mm) | Resolution (mm) | Maximum Error* (μm) | Weight |
|------------|--------------|----------------------|-----------------|---------------------|--------|
| NEW 151196 | MCD133-25IP  | 0- 25                | 0.001           | 4                   | 275g   |
| NEW 151197 | MCD133-50IP  | 25- 50               | 0.001           | 4                   | 380g   |
| NEW 151198 | MCD133-75IP  | 50- 75               | 0.001           | 6                   | 460g   |
| NEW 151199 | MCD133-100IP | 75-100               | 0.001           | 6                   | 590g   |

※ Quantization Error ( ± 1 digit) not included

DOUBLE DISPLAY ELECTRONIC MICROMETER



USE

- Measuring an outside diameter or distance

FEATURES

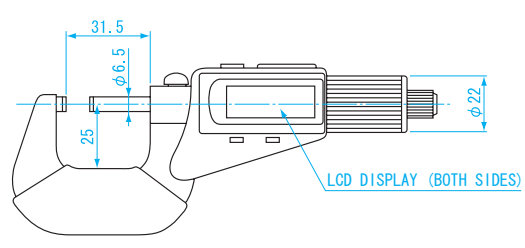
- LCD on both sides display orientation can be changed by key press for easy reading in different conditions for either right or left hand use
- Frame: Carbon steel
- Spindle: High carbon chrome steel
- Quick display of the measured value
- Carbide measuring faces
- With ratchet thimble
- Auto display power off function (after 5min.)
- Sphere (SR2.5) spindle attachment
- One CR2032 (Lithium) battery is included for testing



4 kinds of measuring conditions

DIMENSIONS

Units: mm



| Order No. | Model No.   | Measuring Range (mm) | Resolution (mm) | Maximum Error (μm)* | Weight |
|-----------|-------------|----------------------|-----------------|---------------------|--------|
| 152191    | MCD191-30WD | 0-30                 | 0.001           | 4                   | 270g   |

※ Quantization Error( ± 1 digit) not included

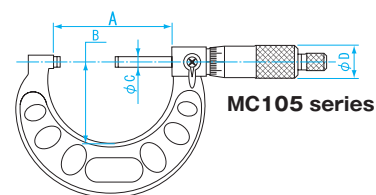


MC105-25

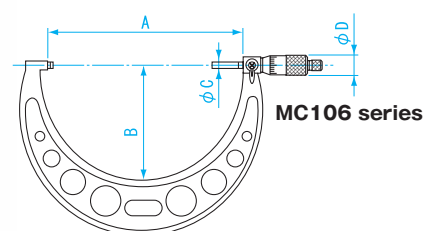


MC106-175

## DIMENSIONS



MC105 series



MC106 series

Units : mm

| Model No. | A   | B   | C   | D  |
|-----------|-----|-----|-----|----|
| MC105-25  | 31  | 29  | 6.5 | 18 |
| MC105-50  | 56  | 37  | 6.5 | 18 |
| MC105-75  | 81  | 50  | 6.5 | 18 |
| MC105-100 | 106 | 63  | 6.5 | 18 |
| MC105-125 | 131 | 75  | 6.5 | 18 |
| MC105-150 | 156 | 88  | 6.5 | 18 |
| MC106-175 | 183 | 104 | 6.5 | 18 |
| MC106-200 | 209 | 117 | 6.5 | 18 |
| MC106-225 | 234 | 130 | 6.5 | 18 |
| MC106-250 | 260 | 142 | 6.5 | 18 |
| MC106-275 | 285 | 155 | 6.5 | 18 |
| MC106-300 | 310 | 168 | 6.5 | 18 |

**USE** • Measuring an outside diameter or distance.

## FEATURES

- Frame: Carbon steel for machine use
- Spindle: High carbon chrome steel
- Carbide measuring face
- With ratchet stop for constant pressure
- Painted frame
- Includes a standard (except for MC105-25)

| Order No. | Model No. | Measuring Range (mm) | Graduation (mm) | Maximum Error ( $\mu$ m) | Weight |
|-----------|-----------|----------------------|-----------------|--------------------------|--------|
| 151070    | MC105-25  | 0 ~ 25               | 0.01            | 4                        | 150g   |
| 151071    | MC105-50  | 25 ~ 50              | 0.01            | 4                        | 200g   |
| 151072    | MC105-75  | 50 ~ 75              | 0.01            | 5                        | 230g   |
| 151073    | MC105-100 | 75 ~ 100             | 0.01            | 5                        | 260g   |
| 151074    | MC105-125 | 100 ~ 125            | 0.01            | 6                        | 330g   |
| 151075    | MC105-150 | 125 ~ 150            | 0.01            | 6                        | 400g   |
| 151401    | MC106-175 | 150 ~ 175            | 0.01            | 7                        | 670g   |
| 151402    | MC106-200 | 175 ~ 200            | 0.01            | 7                        | 740g   |
| 151403    | MC106-225 | 200 ~ 225            | 0.01            | 8                        | 870g   |
| 151404    | MC106-250 | 225 ~ 250            | 0.01            | 8                        | 900g   |
| 151405    | MC106-275 | 250 ~ 275            | 0.01            | 9                        | 970g   |
| 151406    | MC106-300 | 275 ~ 300            | 0.01            | 9                        | 1070g  |

## OUTSIDE MICROMETERS SET



### 6 outside micrometers/ set in a box

● Refer to MC105 series for specifications

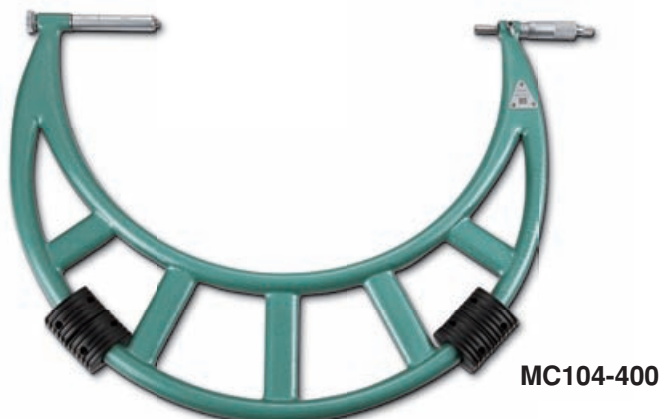


#### ● Included in set

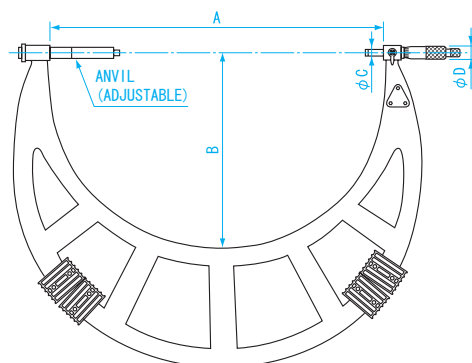
|                     |                             |
|---------------------|-----------------------------|
| Outside Micrometers | 0~25 (MC105-25)             |
|                     | 25~50 (MC105-50)            |
|                     | 50~75 (MC105-75)            |
|                     | 75~100 (MC105-100)          |
|                     | 100~125 (MC102-125)         |
|                     | 125~150 (MC105-150) (6pcs)  |
| standards           | 25, 50, 75, 100, 125 (5pcs) |

| Order No. | Model No.   | Measuring Range (mm) | Graduation (mm) | Weight |
|-----------|-------------|----------------------|-----------------|--------|
| 151240    | MC105-150ST | 0 ~ 150              | 0.01            | 3.8kg  |

## OUTSIDE MICROMETERS WITH ADJUSTABLE ANVILS



### DIMENSIONS



**USE** • Measuring an outside diameter or distance

### FEATURES

- Frame: Tubular frame
- Spindle: High carbon chrome steel
- Adjustable anvils enable that reading does not have to be reset when changing anvils
- With ratchet stop
- Painted frame
- Carbide measuring faces
- With interchangeable anvil : 25mm , 50mm
- Head stroke : 25mm

Units : mm

| Model No.  | A    | B   | C | D  |
|------------|------|-----|---|----|
| MC104-400  | 409  | 224 | 8 | 18 |
| MC104-500  | 509  | 275 | 8 | 18 |
| MC104-600  | 609  | 321 | 8 | 18 |
| MC104-700  | 709  | 371 | 8 | 18 |
| MC104-800  | 809  | 426 | 8 | 18 |
| MC104-900  | 909  | 476 | 8 | 18 |
| MC104-1000 | 1009 | 576 | 8 | 18 |

| Order No. | Model No.  | Measuring Range (mm) | Graduation (mm) | Maximum Error (μm) | Setting Standard | Weight |
|-----------|------------|----------------------|-----------------|--------------------|------------------|--------|
| 151280    | MC104-400  | 300 ~ 400            | 0.01            | 11                 | 325mm, 375mm     | 5.5kg  |
| 151281    | MC104-500  | 400 ~ 500            | 0.01            | 13                 | 425mm, 475mm     | 6.0kg  |
| 151282    | MC104-600  | 500 ~ 600            | 0.01            | 15                 | 525mm, 575mm     | 6.5kg  |
| 151283    | MC104-700  | 600 ~ 700            | 0.01            | 16                 | 625mm, 675mm     | 10.0kg |
| 151284    | MC104-800  | 700 ~ 800            | 0.01            | 18                 | 725mm, 775mm     | 15.0kg |
| 151285    | MC104-900  | 800 ~ 900            | 0.01            | 20                 | 825mm, 875mm     | 18.0kg |
| 151286    | MC104-1000 | 900 ~ 1000           | 0.01            | 20                 | 925mm, 975mm     | 20.5kg |



MCD136-100

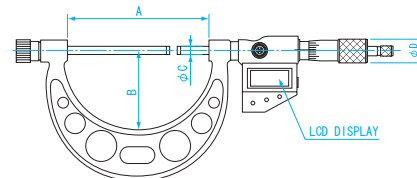
Interchangeable anvils

- USE** • Measuring an outside diameter or distance

**FEATURES**

- Frame: Carbon steel
- Spindle: High carbon chrome steel
- Quick display of the measured value
- High accuracy interchangeable anvils enable that reading does not have to reset when changing anvils
- Carbide measuring faces
- With ratchet stop
- Auto-display- off function (after 5 min.)
- Painted frame
- Interchangeable anvils: 4 pcs
- Setting standard
  - MCD136-100 : 25mm, 50mm, 75mm
  - MCD136-200 : 100mm, 125mm, 150mm, 175mm
- Head stroke: 25mm
- One SR44 (Silver oxide) battery included for testing

**DIMENSIONS**



Units : mm

| Model No.  | A   | B   | C | D  |
|------------|-----|-----|---|----|
| MCD136-100 | 108 | 57  | 8 | 18 |
| MCD136-200 | 208 | 114 | 8 | 18 |

| Order No. | Model No.  | Measuring Range (mm) | Resolution (mm) | Maximum Error ( $\mu\text{m}$ ) | Weight |
|-----------|------------|----------------------|-----------------|---------------------------------|--------|
| 152151    | MCD136-100 | 0-100                | 0.001           | 6                               | 500g   |
| 152152    | MCD136-200 | 100-200              | 0.001           | 8                               | 940g   |

※ Quantization Error (  $\pm 1$  digit ) not included

## MICROMETERS WITH INTERCHANGEABLE ANVILS

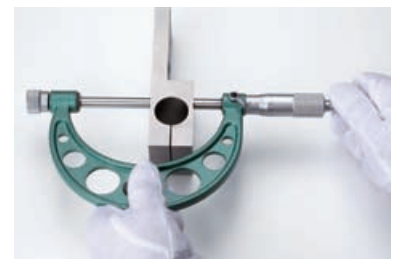


### Wide measuring range with interchangeable anvils

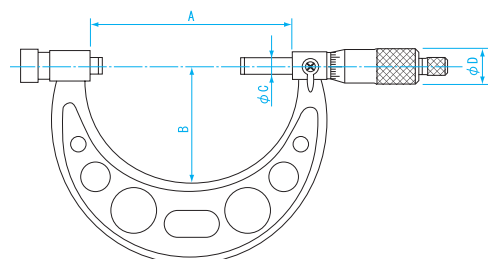


MC1064-100

Interchangeable anvils



**DIMENSIONS**



Units: mm

| Model No.  | A   | B   | C | D  |
|------------|-----|-----|---|----|
| MC1064-100 | 107 | 59  | 8 | 18 |
| MC1064-200 | 208 | 116 | 8 | 18 |

- USE** • Measuring outside diameter or distance

**FEATURES**

- Frame: Carbon steel
- Spindle: High carbon chrome steel
- High accuracy interchangeable anvils enable that reading does not have to be reset when changing anvils
- Carbide measuring faces
- With ratchet stop
- Painted frame
- Setting standard
  - MC1064-100: 25mm, 50mm, 75mm
  - MC1064-200: 100mm, 125mm, 150mm, 175mm
- Head stroke: 25mm
- Interchangeable anvil: 4 pcs

| Order No. | Model No.  | Measuring Range (mm) | Graduation (mm) | Maximum Error ( $\mu\text{m}$ ) | Weight | NOTE                               |
|-----------|------------|----------------------|-----------------|---------------------------------|--------|------------------------------------|
| 151441    | MC1064-100 | 0 ~ 100              | 0.01            | 5                               | 380g   | Setting Standard (25, 50, 75mm)    |
| 151442    | MC1064-200 | 100 ~ 200            | 0.01            | 7                               | 810g   | Setting Standard (125, 150, 175mm) |

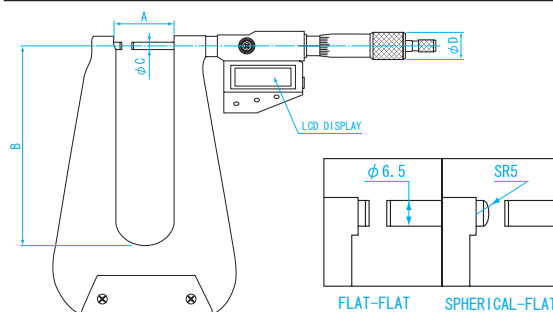


# ELECTRONIC DIGITAL DEEP THROAT MICROMETERS



MCD233-100U

## DIMENSIONS



Units: mm

| Model No.   | A  | B   | C   | D  |
|-------------|----|-----|-----|----|
| MCD233-100U | 32 | 105 | 6.5 | 18 |
| MCD233-150U | 32 | 155 | 6.5 | 18 |
| MCD233-300U | 32 | 310 | 6.5 | 18 |

| Order No. | Model No.   | Measuring Range (mm) | Resolution (mm) | Maximum Error (μm)* | Shape of Measuring Face | Weight |
|-----------|-------------|----------------------|-----------------|---------------------|-------------------------|--------|
| 152111    | MCD233-100U | 0-25                 | 0.001           | 6                   | Flat-Flat               | 720g   |
| 152112    | MCD233-150U | 0-25                 | 0.001           | 6                   | Flat-Flat               | 960g   |
| 152113    | MCD233-300U | 0-25                 | 0.001           | 8                   | Spherical-Flat          | 2000g  |

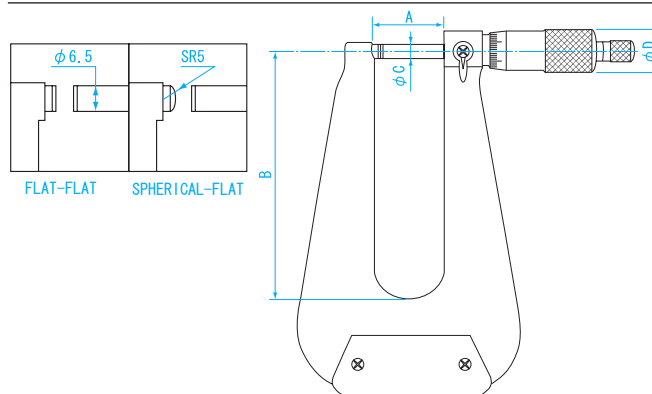
\* Quantization Error ( ± 1 digit ) not included

# DEEP THROAT MICROMETERS



MC203-100U

## DIMENSIONS



Units: mm

| Model No.  | A  | B   | C   | D  |
|------------|----|-----|-----|----|
| MC203-100U | 31 | 100 | 6.5 | 18 |
| MC203-150U | 31 | 150 | 6.5 | 18 |
| MC203-300U | 31 | 300 | 6.5 | 18 |

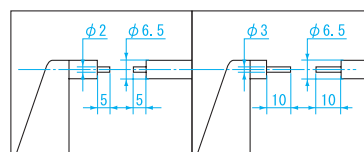
| Order No. | Model No.  | Measuring Range (mm) | Graduation (mm) | Maximum Error (μm) | Shape of Measuring Face | Weight |
|-----------|------------|----------------------|-----------------|--------------------|-------------------------|--------|
| 151451    | MC203-100U | 0 ~ 25               | 0.01            | 3                  | Flat-Flat               | 580g   |
| 151452    | MC203-150U | 0 ~ 25               | 0.01            | 4                  | Flat-Flat               | 820g   |
| 151453    | MC203-300U | 0 ~ 25               | 0.01            | 5                  | Spherical-Flat          | 1980g  |





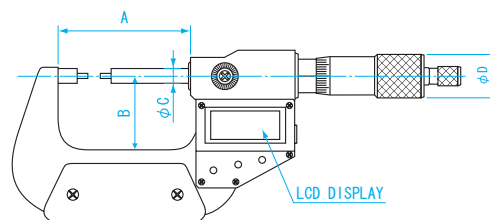
MCD230-25SA

## DIMENSIONS



MCD230-25SA

MCD230-25SB



Units: mm

| Model No.   | A  | B  | C   | D  |
|-------------|----|----|-----|----|
| MCD230-25SA | 57 | 32 | 6.5 | 18 |
| MCD230-25SB | 57 | 32 | 6.5 | 18 |

**USE** • Small measuring faces for measuring splined shafts, slots and keyways

## FEATURES

- Frame: Carbon steel
- Spindle: High carbon chrome steel
- Quick display of the measured value
- Carbide measuring faces
- With ratchet stop
- With thermal protection cover
- Auto-display-off function
- Painted frame
- One SR44 (Silver oxide) battery included for testing

| Order No. | Model No.   | Measuring Range (mm) | Graduation (mm) | Maximum Error ( $\mu\text{m}$ ) * | Measuring Face     | Weight |
|-----------|-------------|----------------------|-----------------|-----------------------------------|--------------------|--------|
| 152121    | MCD230-25SA | 0-25                 | 0.001           | 4                                 | $\phi 2 \times 5$  | 370g   |
| 152122    | MCD230-25SB | 0-25                 | 0.001           | 4                                 | $\phi 3 \times 10$ | 380g   |

※ Quantization Error ( $\pm 1$ ) not counted

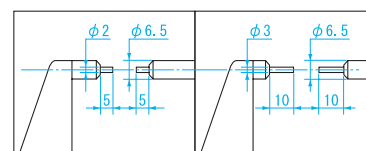
## SMALL MEASURING FACES MICROMETERS



MC200-25SA

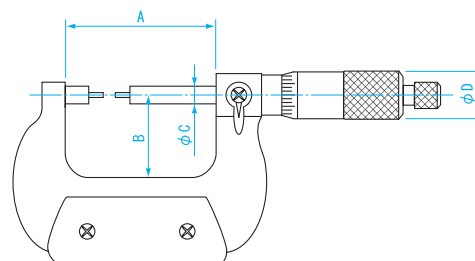


## DIMENSIONS



MC200-25SA

MC200-25SB



Units: mm

| Model No.  | A  | B  | C   | D  |
|------------|----|----|-----|----|
| MC200-25SA | 56 | 31 | 6.5 | 18 |
| MC200-25SB | 56 | 31 | 6.5 | 18 |

**USE** • Small measuring faces for measuring splined shafts, slots and keyways

## FEATURES

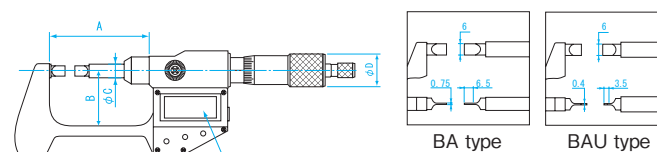
- Frame: Carbon steel
- Spindle: High carbon chrome steel
- Carbide measuring faces
- With ratchet stop
- Painted frame

| Order No. | Model No.  | Measuring Range (mm) | Graduation (mm) | Maximum Error ( $\mu\text{m}$ ) | Measuring Face (mm) | Weight |
|-----------|------------|----------------------|-----------------|---------------------------------|---------------------|--------|
| 151461    | MC200-25SA | 0 ~ 25               | 0.01            | 4                               | $\phi 2 \times 5$   | 320g   |
| 151462    | MC200-25SB | 0 ~ 25               | 0.01            | 4                               | $\phi 3 \times 10$  | 320g   |

# ELECTRONIC DIGITAL BLADE MICROMETERS



## DIMENSIONS



※Above dimension is for BA type

Units: mm

| Model No.    | A  | B    | C | D  |
|--------------|----|------|---|----|
| MCD235-25BA  | 57 | 32   | 8 | 18 |
| MCD235-50BA  | 82 | 44.5 | 8 | 18 |
| MCD235-25BAU | 57 | 32   | 8 | 18 |
| MCD235-50BAU | 82 | 44.5 | 8 | 18 |

- FEATURES**
- Non-rotating spindle, with blade type measuring faces
  - Frame: Carbon steel
  - Spindle: High carbon chrome steel
  - Quick display of the measured value
  - With ratchet stop
  - With thermal protection cover
  - Auto-display-off function (after 5 min.)
  - Painted frame
  - One SR44 (Silver oxide) battery included for testing

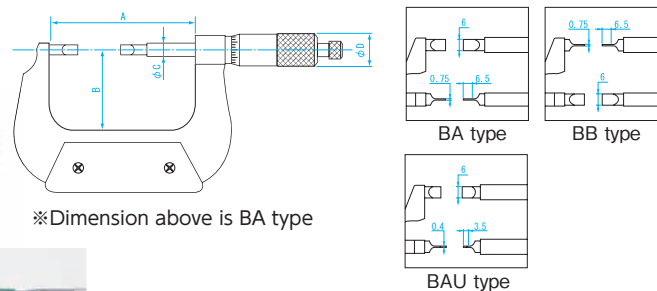
| Order No. | Model No.    | Measuring Range (mm) | Resolution (mm) | Maximum Error* (μm) | Weight |
|-----------|--------------|----------------------|-----------------|---------------------|--------|
| 152131    | MCD235-25BA  | 0-25                 | 0.001           | 4                   | 400g   |
| 152132    | MCD235-50BA  | 25-50                | 0.001           | 4                   | 530g   |
| 152133    | MCD235-25BAU | 0-25                 | 0.001           | 4                   | 400g   |
| 152134    | MCD235-50BAU | 25-50                | 0.001           | 4                   | 530g   |

※ Quantization Error (± 1 digit) not included

# BLADE MICROMETERS



## DIMENSIONS



※Dimension above is BA type

Units: mm

| Model No.   | A  | B  | C | D  |
|-------------|----|----|---|----|
| MC201-25BA  | 56 | 31 | 8 | 18 |
| MC201-50BA  | 81 | 44 | 8 | 18 |
| MC201-25BB  | 56 | 31 | 8 | 18 |
| MC201-50BB  | 81 | 44 | 8 | 18 |
| MC201-25BAU | 56 | 31 | 8 | 18 |
| MC201-50BAU | 81 | 44 | 8 | 18 |

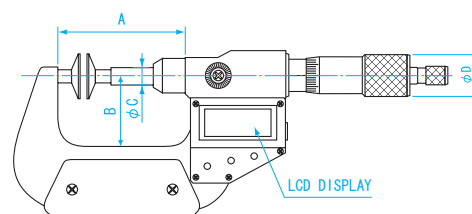
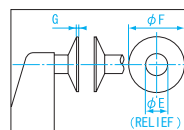
- FEATURES**
- Non-rotating spindle, with blade type measuring faces
  - Frame: Carbon steel
  - Spindle: High carbon chrome steel
  - With ratchet stop
  - With thermal protection cover
  - Painted frame

| Order No. | Model No.   | Measuring Range (mm) | Graduation (mm) | Maximum Error (μm) | Weight |
|-----------|-------------|----------------------|-----------------|--------------------|--------|
| 151471    | MC201-25BA  | 0 ~ 25               | 0.01            | 4                  | 320g   |
| 151472    | MC201-50BA  | 25 ~ 50              | 0.01            | 4                  | 410g   |
| 151251    | MC201-25BB  | 0 ~ 25               | 0.01            | 4                  | 320g   |
| 151252    | MC201-50BB  | 25 ~ 50              | 0.01            | 4                  | 410g   |
| 151473    | MC201-25BAU | 0 ~ 25               | 0.01            | 4                  | 280g   |
| 151474    | MC201-50BAU | 25 ~ 50              | 0.01            | 4                  | 380g   |



MCD230-25D

## DIMENSIONS



Units: mm

| Model No.  | A  | B    | C | D  | E | F  | G   |
|------------|----|------|---|----|---|----|-----|
| MCD230-25D | 43 | 32   | 8 | 18 | 8 | 20 | 0.7 |
| MCD230-50D | 68 | 44.5 | 8 | 18 | 8 | 20 | 0.7 |

**USE** • Disk measuring faces for measuring gears and paper thickness

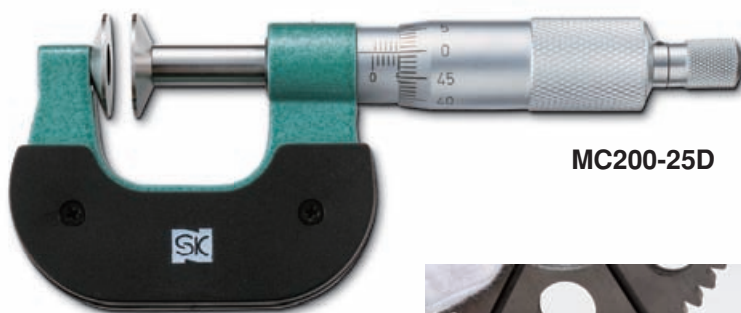
## FEATURES

- Non-rotating spindle
- Frame: Carbon steel
- Spindle: High carbon chrome steel
- Quick display of the measured value
- With ratchet stop
- Auto-display-off function (after 5 min.)
- Painted frame
- One SR44 (Silver oxide) battery included for testing

| Order No. | Model No.  | Measuring Range (mm) | Graduation (mm) | Maximum Error* (μm) | Gear Module | Weight |
|-----------|------------|----------------------|-----------------|---------------------|-------------|--------|
| 152141    | MCD230-25D | 0-25                 | 0.001           | 4                   | 0.5 ~ 6     | 400g   |
| 152142    | MCD230-50D | 25-50                | 0.001           | 4                   | 0.5 ~ 6     | 540g   |

\* Quantization Error ( ± 1 digit) not included

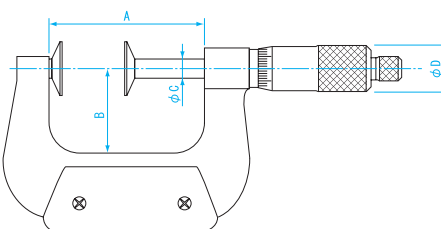
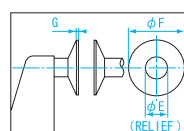
# GEAR TOOTH MICROMETERS



MC200-25D



## DIMENSIONS



Units: mm

| Model No. | A  | B  | C | D  | E | F  | G   |
|-----------|----|----|---|----|---|----|-----|
| MC200-25D | 34 | 22 | 8 | 18 | 8 | 20 | 0.7 |
| MC200-50D | 59 | 31 | 8 | 18 | 8 | 20 | 0.7 |

**USE** • Disk measuring faces for measuring gears and paper thickness

## FEATURES

- Non-rotating spindle
- Frame: Carbon steel
- Spindle: High carbon chrome steel
- With ratchet stop
- With thermal protection cover
- Painted frame

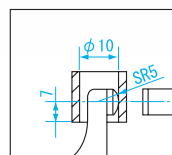
| Order No. | Model No. | Measuring Range (mm) | Graduation (mm) | Maximum Error (μm) | Gear Module | Weight |
|-----------|-----------|----------------------|-----------------|--------------------|-------------|--------|
| 151481    | MC200-25D | 0 ~ 25               | 0.01            | 4                  | 0.5 ~ 6     | 240g   |
| 151482    | MC200-50D | 25 ~ 50              | 0.01            | 4                  | 0.5 ~ 6     | 330g   |

# ELECTRONIC DIGITAL TUBE MICROMETERS

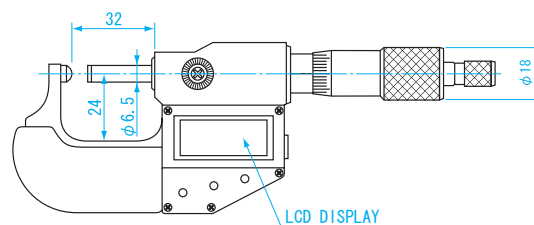


## DIMENSIONS

Units: mm



Can be used for tubes of ID φ10mm or large



- USE

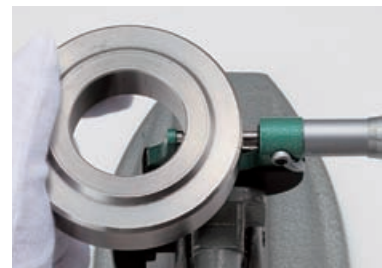
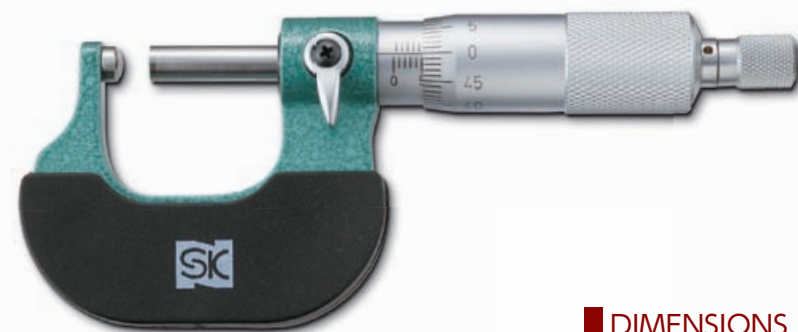
  - For measuring wall thickness of various tubes
- FEATURES

  - Frame: Carbon steel
  - Spindle: High carbon chrome steel
  - Quick display of the measured value
  - Carbide measuring faces
  - With ratchet stop
  - Auto-display-off function (after 5 min.)
  - With thermal protection cover
  - Painted frame
  - One SR44 (Silver oxide) battery included for testing

| Order No. | Model No.  | Measuring Range (mm) | Graduation (mm) | Maximum Error* (μm) | Weight |
|-----------|------------|----------------------|-----------------|---------------------|--------|
| 152161    | MCD236-25T | 0-25                 | 0.001           | 4                   | 270g   |

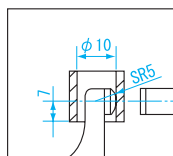
※ Quantization Error ( ± 1 digit ) not included

# TUBE MICROMETERS

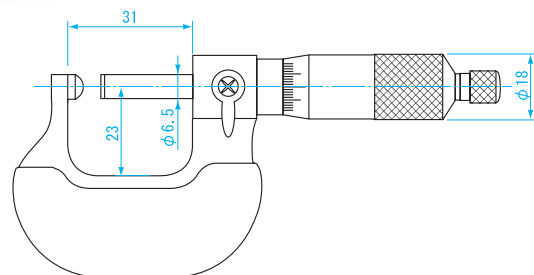


## DIMENSIONS

Units: mm



Can be used for tubes of ID φ10mm or large



- USE

  - For measuring wall thickness of various tubes
- FEATURES

  - Frame: Carbon steel
  - Spindle: High carbon chrome steel
  - Carbide measuring faces
  - With ratchet stop
  - With thermal protection cover
  - Painted frame

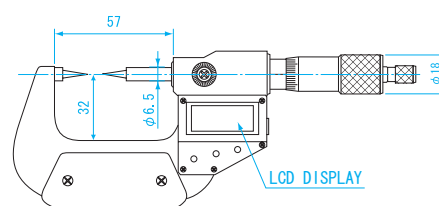
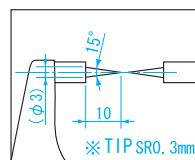
| Order No. | Model No. | Measuring Range (mm) | Graduation (mm) | Maximum Error (μm) | Weight |
|-----------|-----------|----------------------|-----------------|--------------------|--------|
| 151436    | MC200-25T | 0 ~ 25               | 0.01            | 4                  | 200g   |





## DIMENSIONS

Units: mm



## USE

- Pointed spindle and anvil for measuring drills, grooves and hard-to-reach dimensions

## FEATURES

- Frame: Carbon steel
- Spindle: High carbon chrome steel
- Quick display of the measured value
- With ratchet stop
- Carbide measuring faces
- With thermal protection cover
- Auto-display-off function (after 5 min.)
- Painted frame
- Point: 15°
- One SR44 (Silver oxide) battery included for testing

| Order No. | Model No.  | Measuring Range (mm) | Graduation (mm) | Maximum Error* (μm) | Weight |
|-----------|------------|----------------------|-----------------|---------------------|--------|
| 152171    | MCD232-25P | 0-25                 | 0.001           | 4                   | 350g   |

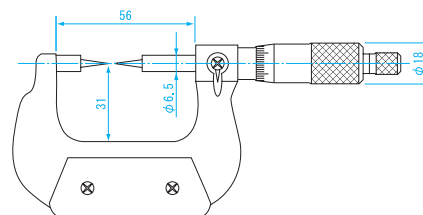
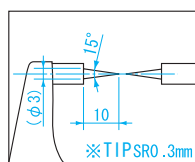
\* Quantization Error ( ± 1 digit ) not included

## POINT MICROMETERS



## DIMENSIONS

Units: mm



## USE

- Pointed spindle and anvil for measuring drills, grooves and hard-to-reach dimensions

## FEATURES

- Frame: Carbon steel
- Spindle: High carbon chrome steel
- With ratchet stop
- Carbide measuring faces
- Painted frame
- Point : 15°

| Order No. | Model No. | Measuring range (mm) | Graduation (mm) | Maximum Error (μm) | Weight |
|-----------|-----------|----------------------|-----------------|--------------------|--------|
| 151431    | MC200-25P | 0 ~ 25               | 0.01            | 4                  | 320g   |



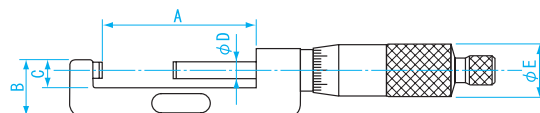
## HUB MICROMETERS



MC203-25H



### DIMENSIONS



Units: mm

| Model No. | A  | B  | C | D   | E  |
|-----------|----|----|---|-----|----|
| MC203-25H | 28 | 20 | 6 | 6.5 | 18 |
| MC203-50H | 53 | 22 | 6 | 6.5 | 18 |

- USE**
- Measuring hub thickness and shoulders inside bore

- FEATURES**
- Frame: Carbon steel
  - Spindle: High carbon chrome steel
  - With ratchet stop
  - Painted frame
  - Carbide tipped measuring faces

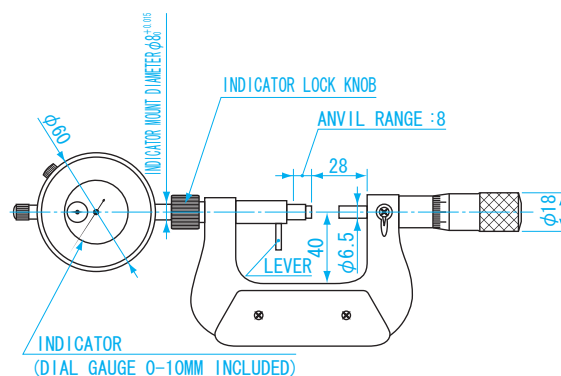
| Order No. | Model No. | Measuring Range (mm) | Graduation (mm) | Maximum Error ( $\mu\text{m}$ ) | Weight |
|-----------|-----------|----------------------|-----------------|---------------------------------|--------|
| 151381    | MC203-25H | 0 ~ 25               | 0.01            | 4                               | 150g   |
| 151382    | MC203-50H | 25 ~ 50              | 0.01            | 4                               | 170g   |

## MICROMETERS WITH DIAL GAUGE



### DIMENSIONS

Units: mm



- USE**
- For direct GO/NG judgment of mass-produced parts

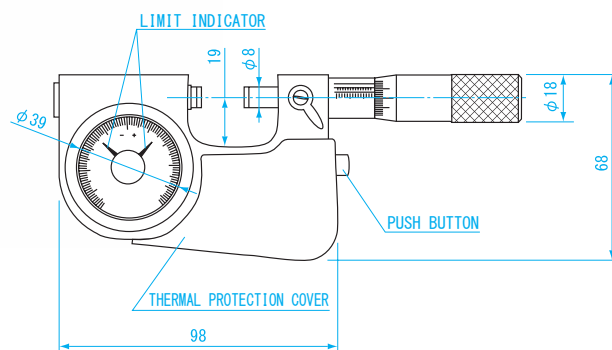
- MATERIAL**
- Frame: Carbon steel
  - Spindle: High carbon chrome steel
  - Dial gauge : Steel

| Order No. | Model No.  | Measuring Range (mm)                            | Graduation (mm) | Micrometer Head Maximum Error ( $\mu\text{m}$ ) | Dial Gauge Error over entire range ( $\mu\text{m}$ ) | Weight |
|-----------|------------|-------------------------------------------------|-----------------|-------------------------------------------------|------------------------------------------------------|--------|
| 151490    | MC204-25DG | Micrometer Head : 0 ~ 25<br>Dial Gauge : 0 ~ 10 | 0.01            | 4                                               | $\pm 14$                                             | 545g   |

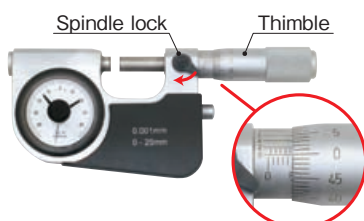


## DIMENSIONS

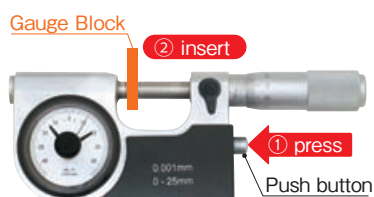
Units: mm



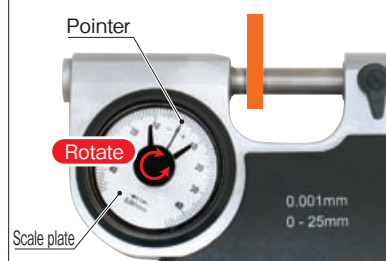
- ① Select a gauge standard (master)  
Example- 5.000mm Ceramic gauge block
- ② Turn the thimble to set the scale to read 5.00 and then lock the spindle with spindle lock



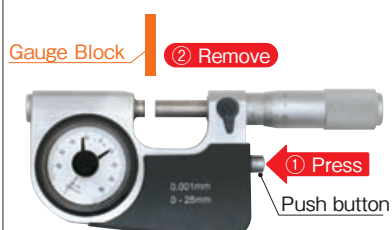
- ③ While pressing "release button" insert gauge block and then release button to catch block in spindle



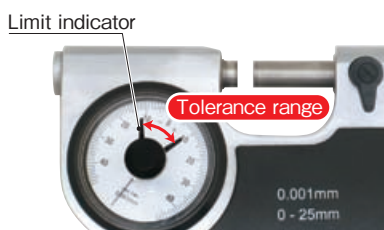
- ④ Rotate the dial scale to align zero with pointer



- ⑤ Press the button again and remove the gauge block. Micrometer is ready for measurement.



※Using the limit indicators, you can instantly determine if a part is within tolerance



## USE

- Retractable anvils with an indicator for precision measurement of mass produced parts

## FEATURES

- Frame: Carbon steel
- Spindle: High carbon chrome steel
- Carbide tipped measuring faces
- Dial indicator has limit indicator clips

| Order No. | Model No.  | Measuring Range (mm)       | Graduation (mm)         | Maximum Error ( $\mu$ m) | Weight |
|-----------|------------|----------------------------|-------------------------|--------------------------|--------|
| 152101    | MC263-25IS | Micrometer Head : 0~25     | Micrometer Head : 0.002 | Micrometer Head : 3      | 530g   |
|           |            | Dial Indicator: $\pm 0.04$ | Dial Indicator: 0.001   | Dial Indicator : 1       |        |



# CALIPER TYPE INSIDE MICROMETERS

NEW ITEM  
MC304-75I  
MC304-100I

T RACEABILITY

PDI



MICROMETER

02

MICRO  
METER

MICRO  
METER

MICRO  
METER  
STAND

Provided with an SK ring gauge (Made in Japan) for zero-point setting! Ready to use immediately.



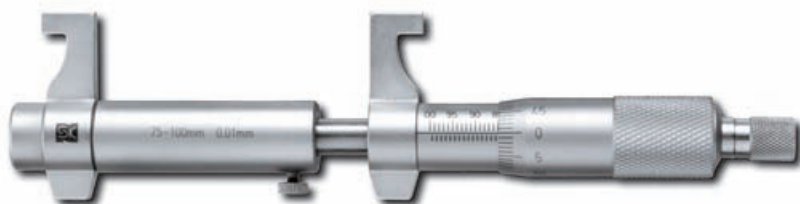
MC304-30I



MC304-50I



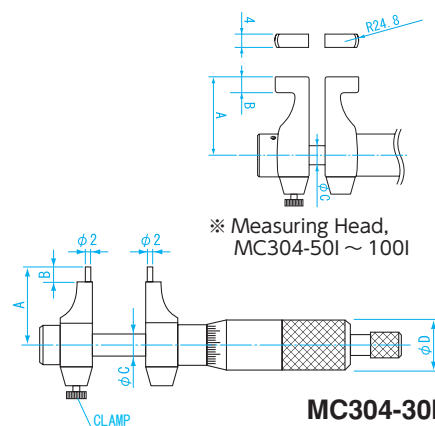
MC304-75I



MC304-100I



## DIMENSIONS



Units: mm

| Model No.  | A  | B | C | D  |
|------------|----|---|---|----|
| MC304-30I  | 28 | 5 | 8 | 18 |
| MC304-50I  | 28 | 5 | 8 | 18 |
| MC304-75I  | 28 | 5 | 8 | 18 |
| MC304-100I | 28 | 5 | 8 | 18 |

**USE** • For inside diameter measurement

### MATERIAL

- High carbon chrome steel

### FEATURES

- Provided with a reference ring gauge
- MC304-30I :  $\phi$  5
- MC304-50I :  $\phi$  25
- MC304-75I :  $\phi$  50
- MC304-100I :  $\phi$  75
- With ratchet stop
- Carbide tipped measuring faces

| Order No.  | Model No.  | Measuring Range (mm) | Resolution (mm) | Maximum Error ( $\mu$ m) | Weight |
|------------|------------|----------------------|-----------------|--------------------------|--------|
| 151230     | MC304-30I  | 5 ~ 30               | 0.01            | 5                        | 140g   |
| 151231     | MC304-50I  | 25 ~ 50              | 0.01            | 6                        | 150g   |
| NEW 151232 | MC304-75I  | 50 ~ 75              | 0.01            | 7                        | 160g   |
| NEW 151233 | MC304-100I | 75 ~ 100             | 0.01            | 8                        | 190g   |



# ELECTRONIC DIGITAL THREE-POINT INTERNAL MICROMETERS

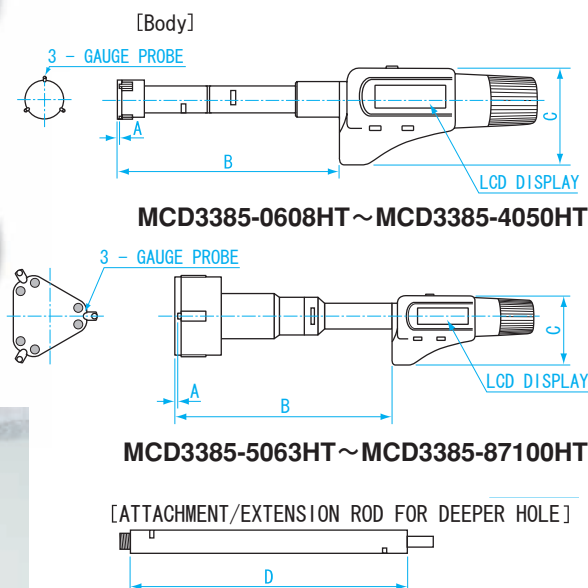


MCD3385-1216HT

MCD3385-7588HT



## DIMENSIONS



Units: mm

| Model No.       | A           | B   | C  | D   |
|-----------------|-------------|-----|----|-----|
| MCD3385-0608HT  | less than 2 | 85  | 43 | 100 |
| MCD3385-0810HT  | less than 2 | 85  | 43 | 100 |
| MCD3385-1012HT  | less than 2 | 85  | 43 | 100 |
| MCD3385-1216HT  | less than 1 | 100 | 43 | 150 |
| MCD3385-1620HT  | less than 1 | 100 | 43 | 150 |
| MCD3385-2025HT  | less than 1 | 105 | 43 | 150 |
| MCD3385-2530HT  | less than 1 | 105 | 43 | 150 |
| MCD3385-3040HT  | less than 1 | 110 | 43 | 150 |
| MCD3385-4050HT  | less than 1 | 110 | 43 | 150 |
| MCD3385-5063HT  | less than 1 | 127 | 43 | 150 |
| MCD3385-6275HT  | less than 1 | 127 | 43 | 150 |
| MCD3385-7588HT  | less than 1 | 127 | 43 | 150 |
| MCD3385-87100HT | less than 1 | 127 | 43 | 150 |

## USE

- Measurement of internal diameter

## FEATURES

- Self-centering, three-points for accurate measurement of internal diameters. Measurement can be taken closer to the bottom of the blind bore, and can be taken into a deep hole with an extension rod
- Carbide tipped contact points
- Quick display of the measured value
- With ratchet stop
- Includes a setting ring
- Auto display off function( after 5 min.)
- One SR44 (Silver oxide) battery included for testing
- High carbon chrome steel

| Order No. | Model No.       | Measuring Range (mm) | Resolution (mm) | Maximum Error* (μm) | Weight |
|-----------|-----------------|----------------------|-----------------|---------------------|--------|
| 152221    | MCD3385-0608HT  | 6 - 8                | 0.001           | 4                   | 180g   |
| 152222    | MCD3385-0810HT  | 8 - 10               | 0.001           | 4                   | 180g   |
| 152223    | MCD3385-1012HT  | 10 - 12              | 0.001           | 4                   | 180g   |
| 152224    | MCD3385-1216HT  | 12 - 16              | 0.001           | 4                   | 230g   |
| 152225    | MCD3385-1620HT  | 16 - 20              | 0.001           | 4                   | 230g   |
| 152226    | MCD3385-2025HT  | 20 - 25              | 0.001           | 4                   | 300g   |
| 152227    | MCD3385-2530HT  | 25 - 30              | 0.001           | 4                   | 320g   |
| 152228    | MCD3385-3040HT  | 30 - 40              | 0.001           | 4                   | 420g   |
| 152229    | MCD3385-4050HT  | 40 - 50              | 0.001           | 5                   | 510g   |
| 152230    | MCD3385-5063HT  | 50 - 63              | 0.001           | 5                   | 710g   |
| 152231    | MCD3385-6275HT  | 62 - 75              | 0.001           | 5                   | 720g   |
| 152232    | MCD3385-7588HT  | 75 - 88              | 0.001           | 5                   | 990g   |
| 152233    | MCD3385-87100HT | 87 - 100             | 0.001           | 5                   | 1010g  |

\* Three-point micrometer is precision instrument. For best performance, temperature should be around 20°C with sufficient time to acclimate. Extreme temperatures may affect accuracy and performance of measurement instruments

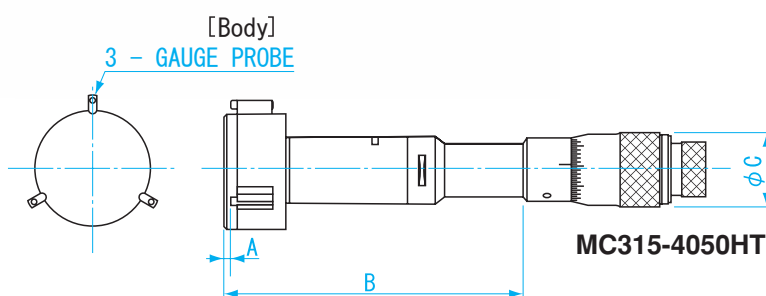
※ Quantization Error ( ± 1 digit ) not included





MC315-1216HT

## DIMENSIONS



[ATTACHMENT/EXTENSION ROD FOR DEEPER HOLE]



Units: mm

| Model No.    | A           | B  | C  | D   |
|--------------|-------------|----|----|-----|
| MC315-0608HT | less than 2 | 55 | 18 | 100 |
| MC315-0810HT | less than 2 | 55 | 18 | 100 |
| MC315-1012HT | less than 2 | 55 | 18 | 100 |
| MC315-1216HT | less than 1 | 80 | 25 | 150 |
| MC315-1620HT | less than 1 | 80 | 25 | 150 |
| MC315-2025HT | less than 1 | 90 | 25 | 150 |
| MC315-2530HT | less than 1 | 90 | 25 | 150 |
| MC315-3040HT | less than 1 | 97 | 25 | 150 |
| MC315-4050HT | less than 1 | 97 | 25 | 150 |

## USE

- Measurement of internal diameter

## FEATURES

- Self-centering, three-points for accurate measurement of internal diameters. Measurement can be taken closer to the bottom of the blind bore, and can be taken into a deep hole with an extension rod
- Carbide tipped contact points
- High carbon chrome steel
- With ratchet stop
- Includes a setting ring

| Order No. | Model No.    | Measuring Range (mm) | Graduation (mm) | Maximum Error (μm) | Weight |
|-----------|--------------|----------------------|-----------------|--------------------|--------|
| 152201    | MC315-0608HT | 6 ~ 8                | 0.001           | 4                  | 70g    |
| 152202    | MC315-0810HT | 8 ~ 10               | 0.001           | 4                  | 70g    |
| 152203    | MC315-1012HT | 10 ~ 12              | 0.001           | 4                  | 80g    |
| 152204    | MC315-1216HT | 12 ~ 16              | 0.005           | 4                  | 200g   |
| 152205    | MC315-1620HT | 16 ~ 20              | 0.005           | 4                  | 210g   |
| 152206    | MC315-2025HT | 20 ~ 25              | 0.005           | 4                  | 290g   |
| 152207    | MC315-2530HT | 25 ~ 30              | 0.005           | 4                  | 310g   |
| 152208    | MC315-3040HT | 30 ~ 40              | 0.005           | 4                  | 430g   |
| 152209    | MC315-4050HT | 40 ~ 50              | 0.005           | 5                  | 520g   |

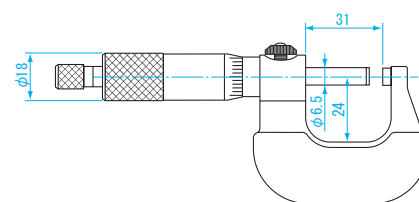
※ Three-point micrometer is precision instrument. For best performance, temperature should be around 20°C with sufficient time to acclimate. Extreme temperatures may affect accuracy and performance of measurement instruments

## LR TYPE MICROMETERS



### DIMENSIONS

Units: mm



**USE** • Measuring an outside diameter or distance

### FEATURES

- Can be read on either side
- Frame: Carbon steel
- Spindle: High carbon chrome steel
- Carbide measuring faces
- With thermal protection cover
- Painted frame



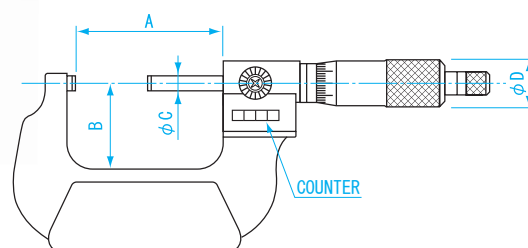
| Order No. | Model No.  | Measuring Range (mm) | Graduation (mm) | Maximum Error ( $\mu\text{m}$ ) | Weight |
|-----------|------------|----------------------|-----------------|---------------------------------|--------|
| 151026    | MC101-25LR | 0 ~ 25               | 0.01            | 4                               | 200g   |

## OUTSIDE COUNT MICROMETERS



MC122-25C

### DIMENSIONS



**USE** • Measuring an outside diameter or distance

### FEATURES

- Frame: Carbon steel
- Spindle: High carbon chrome steel
- Carbide measuring faces
- With ratchet stop
- Painted frame
- MC122-50C Includes a setting standard
- Mechanical digit counter for quick and error-free reading

Units: mm

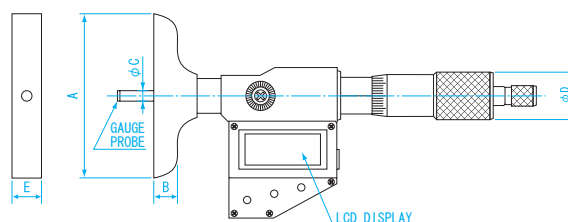
| Model No. | A  | B  | C   | D  |
|-----------|----|----|-----|----|
| MC122-25C | 28 | 25 | 6.5 | 18 |
| MC122-50C | 53 | 32 | 6.5 | 18 |

| Order No. | Model No. | Measuring Range (mm) | Graduation (mm) | Maximum Error ( $\mu\text{m}$ ) | Weight | Note                      |
|-----------|-----------|----------------------|-----------------|---------------------------------|--------|---------------------------|
| 151391    | MC122-25C | 0 ~ 25               | 0.01            | 4                               | 220g   | -                         |
| 151392    | MC122-50C | 25 ~ 50              | 0.01            | 4                               | 300g   | includes setting standard |



MCD233-25FA

## DIMENSIONS



Units: mm

| Model No.   | A     | B | C   | D  | E  |
|-------------|-------|---|-----|----|----|
| MCD233-25FA | 63    | 9 | 4.5 | 18 | 17 |
| MCD233-25FB | 101.5 | 9 | 4.5 | 18 | 17 |

## USE

- For depth measurement

## FEATURES

- $\phi$  4.5mm measuring rod
- High carbon chrome steel
- Quick display of the measured value
- With ratchet stop
- Auto display off function (after 5 min.)
- One SR44 (Silver oxide) battery included for testing

| Order No. | Model No.   | Measuring Range (mm) | Resolution (mm) | Maximum Error* ( $\mu$ m) | Weight |
|-----------|-------------|----------------------|-----------------|---------------------------|--------|
| 152181    | MCD233-25FA | 0-25                 | 0.001           | 6                         | 310g   |
| 152182    | MCD233-25FB | 0-25                 | 0.001           | 6                         | 380g   |

※ Quantization Error ( $\pm 1$  digit) not included

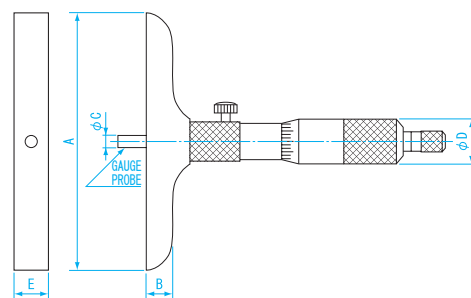
## DEPTH MICROMETERS



MC202-25F



## DIMENSIONS



Units: mm

| Model No.  | A     | B | C   | D  | E  |
|------------|-------|---|-----|----|----|
| MC202-25F  | 63    | 9 | 4.5 | 18 | 17 |
| MC202-25FS | 101.5 | 9 | 4.5 | 18 | 17 |

## USE

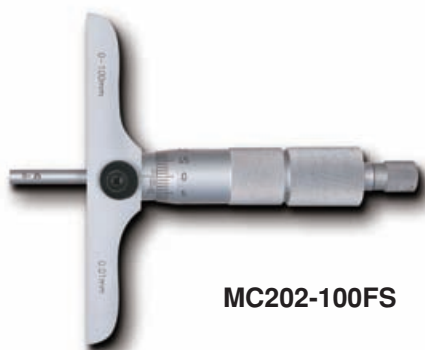
- For depth measurement

## FEATURES

- $\phi$  4.5mm measuring rod
- High carbon chrome steel
- With ratchet stop

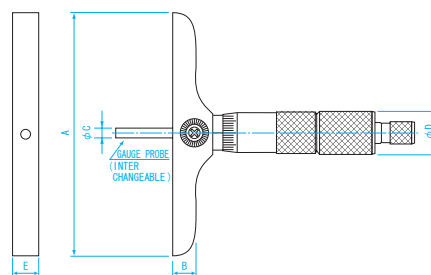
| Order No. | Model No.  | Measuring Range (mm) | Graduation (mm) | Maximum Error ( $\mu$ m) | Weight |
|-----------|------------|----------------------|-----------------|--------------------------|--------|
| 151220    | MC202-25F  | 0 ~ 25               | 0.01            | 4                        | 210g   |
| 151221    | MC202-25FS | 0 ~ 25               | 0.01            | 4                        | 265g   |

# INTERCHANGEABLE ROD TYPE DEPTH MICROMETERS



MC202-100FS

## DIMENSIONS



Units: mm

| Model No.   | A     | B | C   | D  | E  |
|-------------|-------|---|-----|----|----|
| MC202-50F   | 63    | 9 | 4.5 | 18 | 17 |
| MC202-50FS  | 101.5 | 9 | 4.5 | 18 | 17 |
| MC202-100F  | 63    | 9 | 4.5 | 18 | 17 |
| MC202-100FS | 101.5 | 9 | 4.5 | 18 | 17 |

## USE

- For depth measurement

## FEATURES

- High carbon chrome steel
- Able to provide a wide measuring range
- With ratchet stop
- Interchangeable rod:  
MC202-50F/ 50FS : 25mm, 50mm  
MC202-100F/ 100FS : 25mm, 50mm, 75mm, 100mm

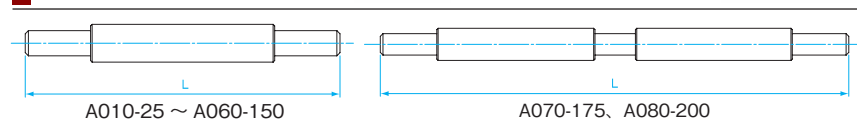
| Order No. | Model No.   | Measuring Range (mm) | Graduation (mm) | Maximum Error (μm) | Note                                |
|-----------|-------------|----------------------|-----------------|--------------------|-------------------------------------|
| 152211    | MC202-50F   | 0 ~ 50               | 0.01            | 4                  | 25·50mm Interchangeable rod         |
| 152212    | MC202-50FS  | 0 ~ 50               | 0.01            | 4                  | 25·50mm Interchangeable rod         |
| 152213    | MC202-100F  | 0 ~ 100              | 0.01            | 5                  | 25· 50·75·100mm Interchangeable rod |
| 152214    | MC202-100FS | 0 ~ 100              | 0.01            | 5                  | 25· 50·75·100mm Interchangeable rod |

# SETTING STANDARDS



Units: mm

## DIMENSIONS



## USE

- For calibrating zero position of outside micrometers

## FEATURES

- With heat insulating handle to prevent heat expansion
- Body: High Carbon chrome steel
- Grip: Plastic

| Model No. | L   |
|-----------|-----|
| A010-25   | 25  |
| A020-50   | 50  |
| A030-75   | 75  |
| A040-100  | 100 |
| A050-125  | 125 |
| A060-150  | 150 |
| A070-175  | 175 |
| A080-200  | 200 |

| Order No. | Model No. | Micrometer size (mm) | Accuracy (μm) | Dimension (mm) | Weight |
|-----------|-----------|----------------------|---------------|----------------|--------|
| 151491    | A010-25   | 25~ 50               | 2             | φ 7            | 10g    |
| 151492    | A020-50   | 50~ 75               | 2             | φ 7            | 15g    |
| 151493    | A030-75   | 75~100               | 2.5           | φ 7            | 25g    |
| 151494    | A040-100  | 100~125              | 3             | φ 8            | 45g    |
| 151495    | A050-125  | 125~150              | 3.5           | φ 8            | 50g    |
| 151496    | A060-150  | 150~175              | 4             | φ 8            | 65g    |
| 151497    | A070-175  | 175~200              | 4.5           | φ 8            | 75g    |
| 151498    | A080-200  | 200~225              | 5             | φ 8            | 85g    |

## MICROMETER STANDS



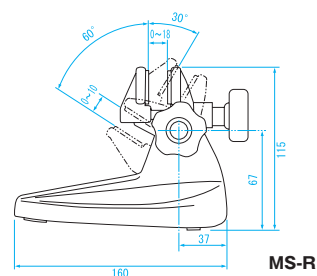
MS-R



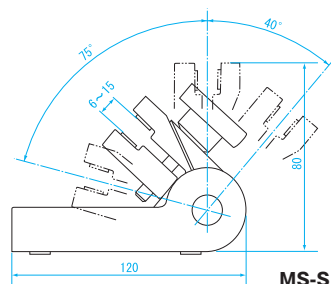
MS-S

## DIMENSIONS

Units: mm



MS-R



MS-S

## USE

- Stand for outside micrometers

## FEATURES

- Body: Cast iron
- Folding structure for portability
- Clamp range:  
Outside micrometers up to 100mm

Can measure using both hands



| Order No | Model No. | Weight |
|----------|-----------|--------|
| 011761   | MS-R      | 990g   |
| 011764   | MS-S      | 1.7kg  |

## LARGE MICROMETER STAND

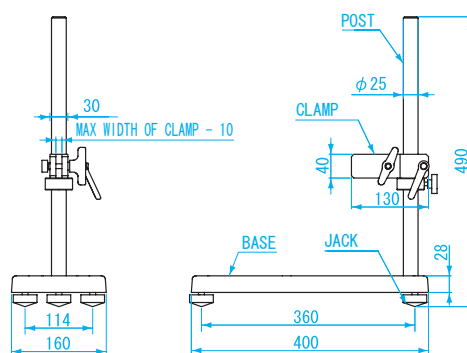


### Example of use



## DIMENSIONS

Units: mm



**USE**

- Stand for outside micrometers

## FEATURES

- Clamp range: 125-300mm
- Column, clamp : Carbon steel
- Base: Cast iron

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 011765    | LMS-300   | 8.8kg  |





## MICROMETER STAND

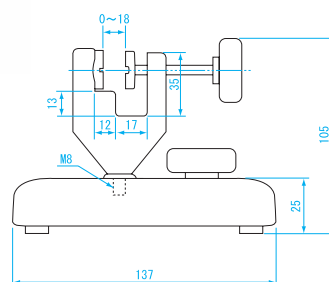


- USE**
- Outside micrometer up to 100mm, Caliper up to 200mm
  - Dial gauge stand (when used with MA-110 arm, sold separately)

- FEATURES**
- Essential item for inspection
  - Clamp is perfect for micrometer, calipers
  - Designed for universal application
  - Stabilized foundation for ease of use

### DIMENSIONS

Units: mm



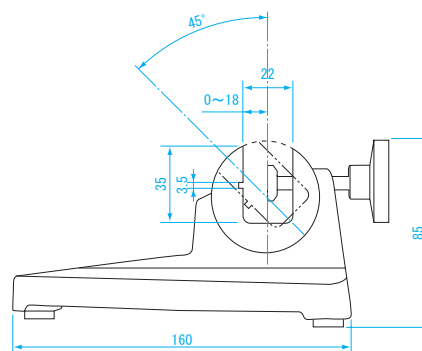
| Order No. | Model No. | Body Material | Weight |
|-----------|-----------|---------------|--------|
| 011762    | MD-101    | Cast Iron     | 1.8kg  |

## MICROMETER STAND



### DIMENSIONS

Units: mm



- USE**
- Outside micrometer up to 100mm, caliper up to 200mm

- FEATURES**
- Body : Cast iron
  - Stable stand with moderate weight and low center of gravity
  - Rubber no-slip feet



Clamp with grooves to hold calipers securely



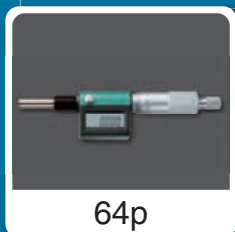
Adjustable angle



Rubber no-slip feet

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 011760    | NMS-1     | 1.5kg  |

## MICROMETER HEAD



64p



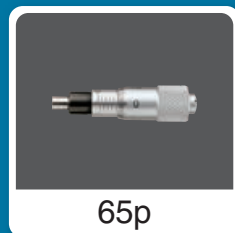
64p



65p



65p



65p



66p



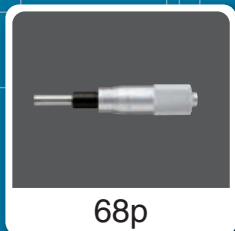
66p



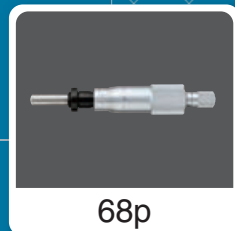
67p



67p



68p



68p



68p

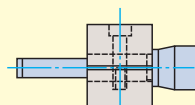
MICRO  
METER  
HEAD

## Micrometer Head Basic Points

### ■ Stem

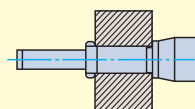
- The Stem is the cylindrical part where the micrometer head is fixed to the equipment where it is used. There are 3 options, selected according to application and method for holding the micrometer head.
- (1) Straight stem: can be mounted using a through hole with slot for clamping. Cost of attachment hardware can be higher. Allows or some adjustment of Head position in axial direction.
- (2) Stem with clamp nut: Mounts in through hole in plate. Installs easily using hole diameter slightly larger than stem and clamping by tightening the supplied nut.

Straight stem

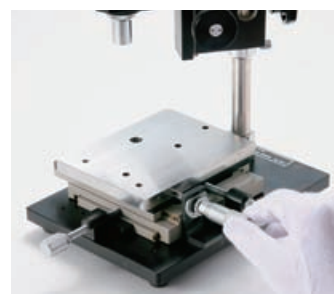


Example of mounting a straight stem (tighten with slotted flexure)

Stem with Clamp Nut



Example of mounting a stem with clamp nut (in through hole)



Example of use

※ Stem Length in catalog is the length when graduation is set to 0mm

- (3) Stem with Spindle Clamp. The basic structure is similar to (1) and (2) above. Spindle clamp is recommended when micrometer head is used as a position stop as it prevents spindle motion or changing position during use. (Refer to pictures for items 1709-050, and 1719-350 on following pages for examples of Stem with Clamp Micrometer Heads)

### ■ Spindle Face

- Flat spindle: Primarily selected when micrometer head is used as a measuring device.
- Spherical spindle: Primarily selected when micrometer head is used as a "feeding device". Also has advantage of reducing error caused by head not being mounted exactly perpendicular to axis of travel.



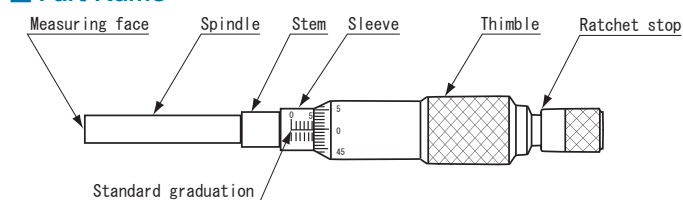
Flat Face



Spherical Face

■ **Thimble diameter**: Outer diameter of portion behind spindle used for advancing and retracting spindle.

### ■ Part Name



## DIGITAL MICROMETER HEAD



### ● Measuring Range : 0-25mm



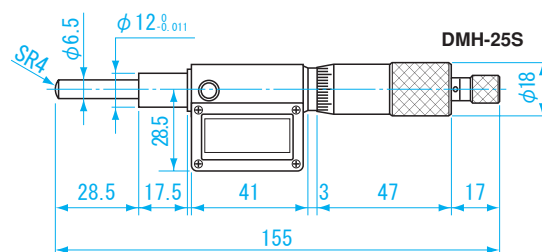
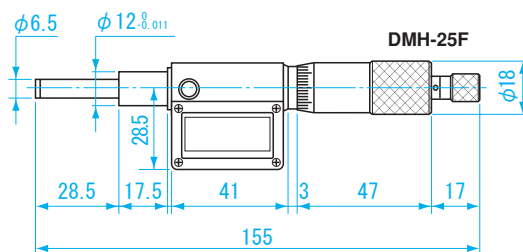
DMH-25F



DMH-25S

### ■ DIMENSIONS

Units : mm



### ■ USE

- Mount on precision equipment or machinery to measure position and feed

### ■ MATERIAL

- Thimble: Alloy tool steel
- Spindle: High carbon chromium steel

### ■ FEATURES

- Quick display of measured value
- Measuring range : 0 ~ 25mm
- Auto display off function (after 4 min)
- One SR44 battery included for testing

| Order No.       | Model No.                      | Stem        | Spindle Dimension (mm) | Stem Dimension (mm) | Spindle Face    |
|-----------------|--------------------------------|-------------|------------------------|---------------------|-----------------|
| 151151          | DMH-25F                        | Straight    | φ6.5×28.5              | φ12×17.5            | Flat            |
| 151152          | DMH-25S                        | Straight    | φ6.5×28.5              | φ12×17.5            | Spherical (SR4) |
| Resolution (mm) | Maximum Permissible Error (μm) | Length (mm) | Thimble Diameter (mm)  | Weight              |                 |
| 0.001           | 3                              | 155         | 18                     | 195g                |                 |
| 0.001           | 3                              | 155         | 18                     | 195g                |                 |

## MICROMETER HEAD



### ● Measuring Range : 0 ~ 5.0mm



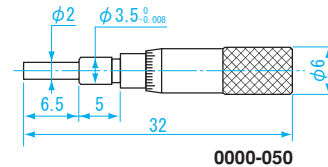
0000-050



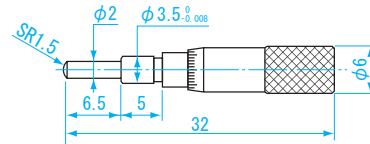
0010-050

### DIMENSIONS

Units : mm



0000-050



0010-050

- USE** • Mount on precision equipment or machinery to measure position and feed
- MATERIAL** • Thimble : Alloy tool steel  
• Spindle : High carbon chromium steel
- FEATURES** • Measuring range : 0 ~ 5mm, small and lightweight

| Order No. | Model No. | Stem     | Spindle Dimension (mm) | Stem Dimension (mm) | Spindle Face      | Graduation (mm) | Maximum Permissible Error (μm) | Length (mm) | Thimble Diameter (mm) | Weight |
|-----------|-----------|----------|------------------------|---------------------|-------------------|-----------------|--------------------------------|-------------|-----------------------|--------|
| 151145    | 0000-050  | Straight | φ2×6.5                 | φ3.5×5              | Flat              | 0.02            | 5                              | 32          | 6                     | 4g     |
| 151146    | 0010-050  | Straight | φ2×6.5                 | φ3.5×5              | Spherical (SR1.5) | 0.02            | 5                              | 32          | 6                     | 4g     |

## MICROMETER HEAD



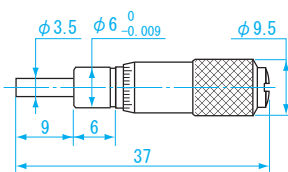
### ● Measuring Range : 0 ~ 6.5mm



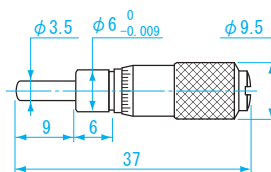
1001-050

### DIMENSIONS

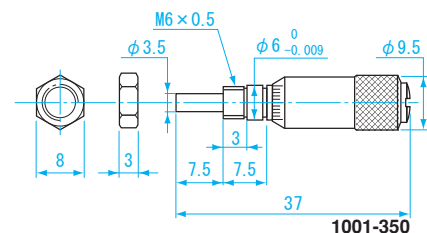
Units : mm



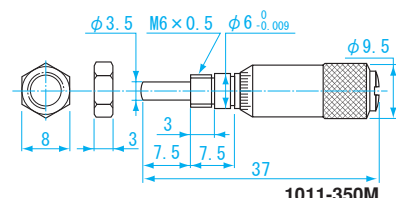
1001-050



1011-050



1001-350



1011-350M

- USE** • Mount on precision equipment or machinery to measure position and feed
- MATERIAL** • Thimble : Alloy tool steel  
• Spindle : High carbon chromium steel
- FEATURES** • Measuring range : 0 ~ 6.5mm, small and lightweight  
• Threaded versions supplied with matching nut

| Order No. | Model No. | Stem     | Spindle Dimension (mm) | Stem Dimension (mm) | Nut (mm) | Spindle Face    | Graduation (mm) | Maximum Permissible Error (μm) | Length (mm) | Thimble Diameter (mm) | Weight |
|-----------|-----------|----------|------------------------|---------------------|----------|-----------------|-----------------|--------------------------------|-------------|-----------------------|--------|
| 151134    | 1001-050  | Straight | φ3.5×9                 | φ6×6                | —        | Flat            | 0.01            | 5                              | 37          | 9.5                   | 10g    |
| 151135    | 1011-050  | Straight | φ3.5×9                 | φ6×6                | —        | Spherical (SR3) | 0.01            | 5                              | 37          | 9.5                   | 10g    |
| 151136    | 1001-350  | Threaded | φ3.5×7.5               | φ6×7.5              | 8×3      | Flat            | 0.01            | 5                              | 37          | 9.5                   | 10g    |
| 151150    | 1011-350M | Threaded | φ3.5×7.5               | φ6×7.5              | 8×3      | Spherical (SR3) | 0.01            | 5                              | 37          | 9.5                   | 10g    |

# MICROMETER HEAD



● Measuring Range : 0 ~ 13mm



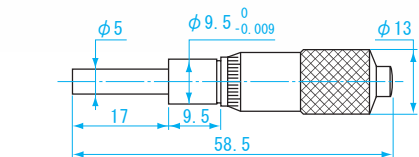
1002-050



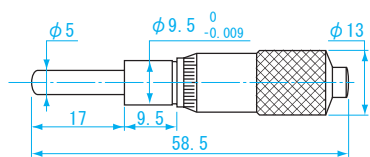
1702-350

## DIMENSIONS

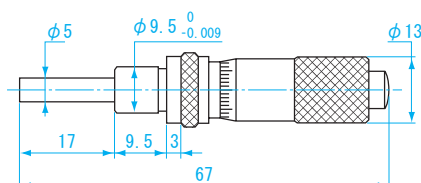
Units : mm



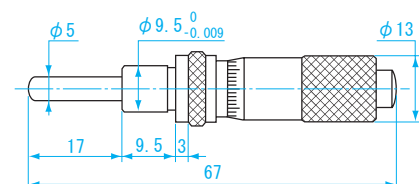
1002-050



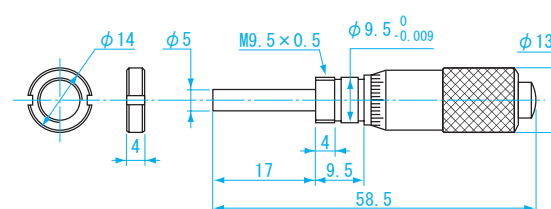
1012-050



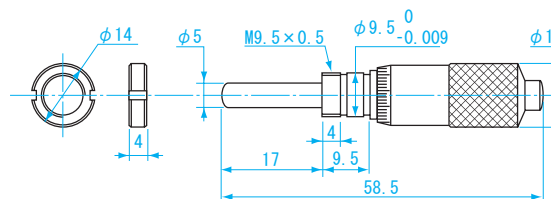
1702-050



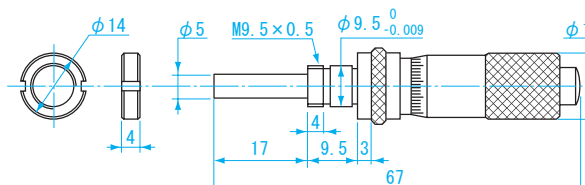
1712-050



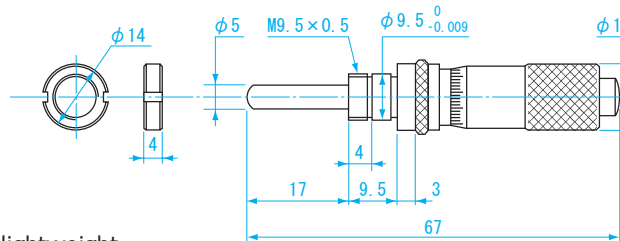
1002-350



1012-350



1702-350



1712-350

## USE

- Mount on precision equipment or machinery to measure position and feed

## MATERIAL

- Thimble : Alloy tool steel
- Spindle : High Carbon chromium steel

## FEATURES

- Measuring range : 0 ~ 13mm, small and lightweight
- Threaded versions supplied with matching nut

| Order No. | Model No. | Stem/<br>Spindle<br>Clamp | Spindle<br>Dimension<br>(mm) | Stem<br>Dimension<br>(mm) | Nut<br>(mm)   | Spindle Face    | Graduation<br>(mm) | Maximum<br>Permissible Error<br>( $\mu$ m) | Length<br>(mm) | Thimble<br>Diameter<br>(mm) | Weight |
|-----------|-----------|---------------------------|------------------------------|---------------------------|---------------|-----------------|--------------------|--------------------------------------------|----------------|-----------------------------|--------|
| 151110    | 1002-050  | Straight                  | $\phi 5 \times 17$           | $\phi 9.5 \times 9.5$     | —             | Flat            | 0.01               | 4                                          | 58.5           | 13                          | 40g    |
| 151111    | 1012-050  | Straight                  | $\phi 5 \times 17$           | $\phi 9.5 \times 9.5$     | —             | Spherical (SR4) | 0.01               | 4                                          | 58.5           | 13                          | 40g    |
| 151112    | 1002-350  | Threaded                  | $\phi 5 \times 17$           | $\phi 9.5 \times 9.5$     | 14 $\times$ 4 | Flat            | 0.01               | 4                                          | 58.5           | 13                          | 40g    |
| 151113    | 1012-350  | Threaded                  | $\phi 5 \times 17$           | $\phi 9.5 \times 9.5$     | 14 $\times$ 4 | Spherical (SR4) | 0.01               | 4                                          | 58.5           | 13                          | 40g    |
| 151114    | 1702-050  | Straight with Clamp       | $\phi 5 \times 17$           | $\phi 9.5 \times 9.5$     | —             | Flat            | 0.01               | 4                                          | 67             | 13                          | 40g    |
| 151115    | 1712-050  | Straight with Clamp       | $\phi 5 \times 17$           | $\phi 9.5 \times 9.5$     | —             | Spherical (SR4) | 0.01               | 4                                          | 67             | 13                          | 40g    |
| 151116    | 1702-350  | Threaded with Clamp       | $\phi 5 \times 17$           | $\phi 9.5 \times 9.5$     | 14 $\times$ 4 | Flat            | 0.01               | 4                                          | 67             | 13                          | 40g    |
| 151117    | 1712-350  | Threaded with Clamp       | $\phi 5 \times 17$           | $\phi 9.5 \times 9.5$     | 14 $\times$ 4 | Spherical (SR4) | 0.01               | 4                                          | 67             | 13                          | 40g    |





## ● Measuring range : 0 ~ 15mm



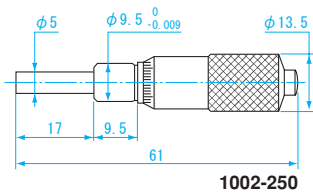
1709-050



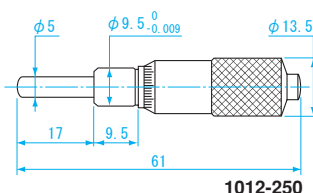
1719-350

### DIMENSIONS

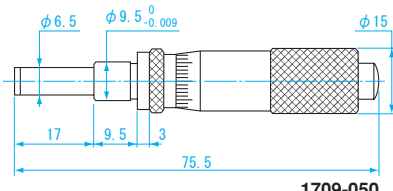
Units : mm



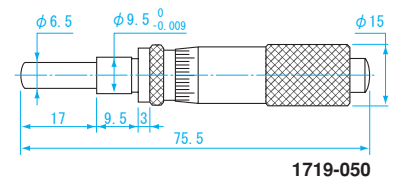
1002-250



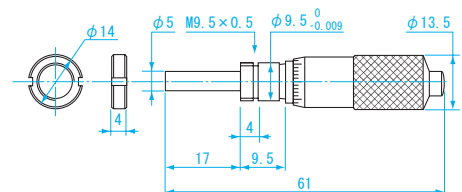
1012-250



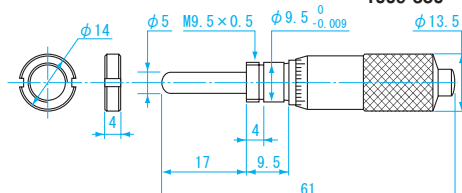
1709-050



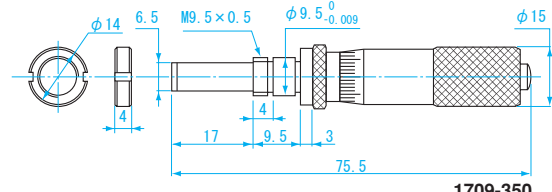
1719-050



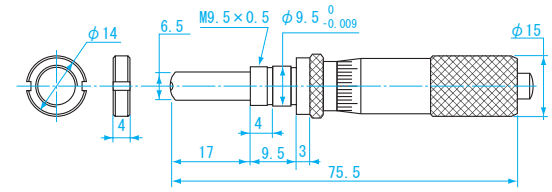
1009-350



1019-350



1709-350



1719-350

### USE

- Mount on precision equipment or machinery to measure position and feed

### MATERIAL

- Thimble : Alloy tool steel
- Spindle : High carbon chromium steel

### FEATURES

- Measuring range : 0 ~ 15mm
- Carbide tipped measuring faces (1709-050, 1709-350, 719-050, 1719-350 )
- Threaded versions supplied with matching nut

| Order No. | Model No. | Stem/<br>Spindle Clamp   | Spindle<br>Dimension<br>(mm) | Stem<br>Dimension<br>(mm) | Nut<br>(mm)   | Spindle<br>Face    | Graduation<br>(mm) | Maximum<br>Permissible Error<br>( $\mu$ m) | Length<br>(mm) | Thimble<br>Diameter<br>(mm) | Weight |
|-----------|-----------|--------------------------|------------------------------|---------------------------|---------------|--------------------|--------------------|--------------------------------------------|----------------|-----------------------------|--------|
| 151118    | 1002-250  | Straight                 | $\phi 5 \times 17$           | $\phi 9.5 \times 9.5$     | —             | Flat               | 0.01               | 4                                          | 61             | 13.5                        | 60g    |
| 151119    | 1012-250  | Straight                 | $\phi 5 \times 17$           | $\phi 9.5 \times 9.5$     | —             | Spherical<br>(SR4) | 0.01               | 4                                          | 61             | 13.5                        | 60g    |
| 151120    | 1009-350  | Threaded                 | $\phi 5 \times 17$           | $\phi 9.5 \times 9.5$     | 14 $\times$ 4 | Flat               | 0.01               | 4                                          | 61             | 13.5                        | 60g    |
| 151121    | 1019-350  | Threaded                 | $\phi 5 \times 17$           | $\phi 9.5 \times 9.5$     | 14 $\times$ 4 | Spherical<br>(SR4) | 0.01               | 4                                          | 61             | 13.5                        | 60g    |
| 151122    | 1709-050  | Straight /<br>with Clamp | $\phi 6.5 \times 17$         | $\phi 9.5 \times 9.5$     | —             | Flat               | 0.01               | 4                                          | 75.5           | 15                          | 60g    |
| 151123    | 1719-050  | Straight /<br>with Clamp | $\phi 6.5 \times 17$         | $\phi 9.5 \times 9.5$     | —             | Spherical<br>(SR4) | 0.01               | 4                                          | 75.5           | 15                          | 60g    |
| 151124    | 1709-350  | Threaded /<br>with Clamp | $\phi 6.5 \times 17$         | $\phi 9.5 \times 9.5$     | 14 $\times$ 4 | Flat               | 0.01               | 4                                          | 75.5           | 15                          | 60g    |
| 151125    | 1719-350  | Threaded /<br>with Clamp | $\phi 6.5 \times 17$         | $\phi 9.5 \times 9.5$     | 14 $\times$ 4 | Spherical<br>(SR4) | 0.01               | 4                                          | 75.5           | 15                          | 60g    |

# MICROMETER HEAD



● Measuring Range : 0 ~ 25mm



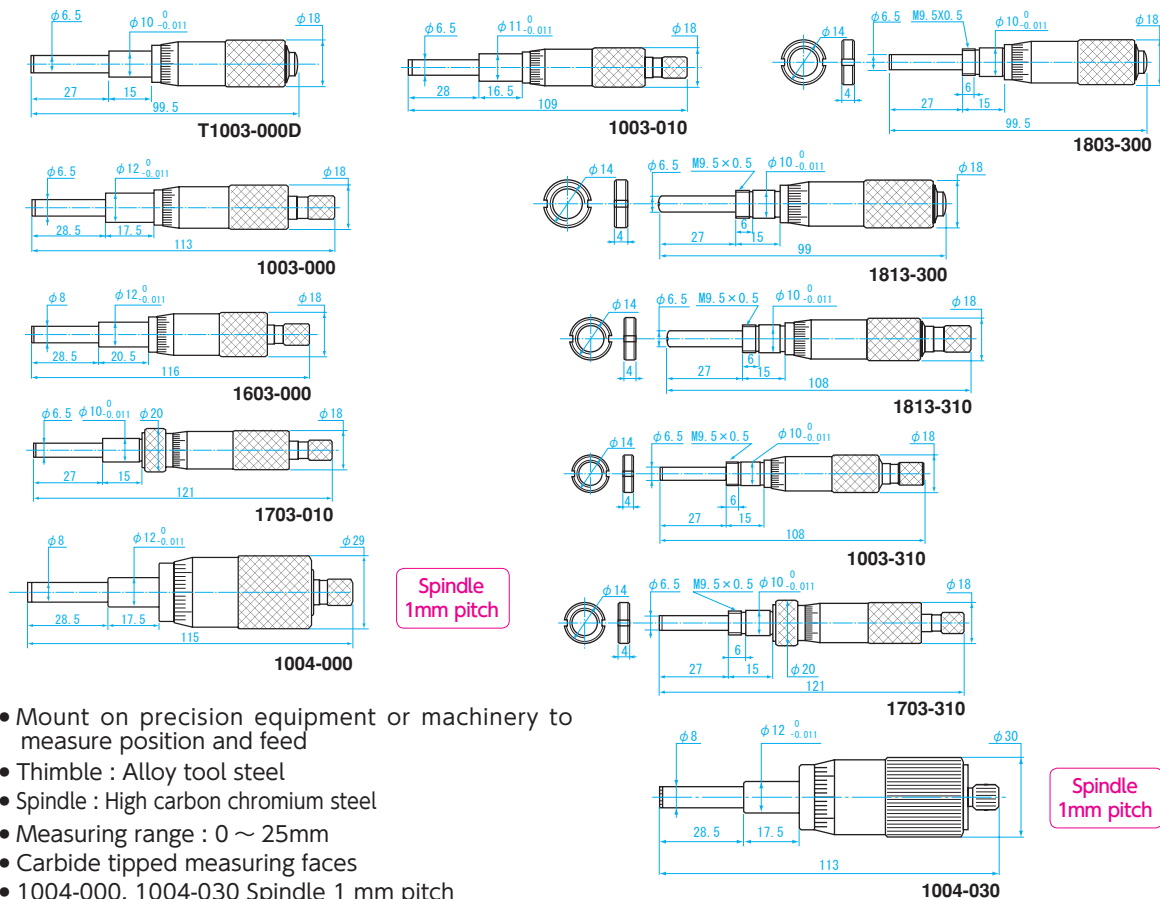
T1003-000D

1813-310

1004-000

## DIMENSIONS

Units : mm



## USE

- Mount on precision equipment or machinery to measure position and feed

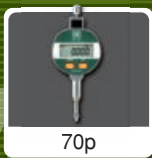
## MATERIAL

- Thimble : Alloy tool steel
- Spindle : High carbon chromium steel

## FEATURES

- Measuring range : 0 ~ 25mm
- Carbide tipped measuring faces
- 1004-000, 1004-030 Spindle 1 mm pitch
- Threaded versions supplied with matching nut

| Order No. | Model No.  | Ratchet | Stem / Spindle Clamp  | Spindle Dimension (mm) | Stem Dimension (mm) | Nut (mm) | Spindle Face    | Graduation (mm) | Maximum Permissible Error (μm) | Length (mm) | Thimble Diameter (mm) | Weight |
|-----------|------------|---------|-----------------------|------------------------|---------------------|----------|-----------------|-----------------|--------------------------------|-------------|-----------------------|--------|
| 151138    | T1003-000D | None    | Straight              | φ6.5×27                | φ10×15              | —        | Flat            | 0.01            | 3                              | 99.5        | 18                    | 100g   |
| 151126    | 1003-010   | Yes     | Straight              | φ6.5×28                | φ11×16.5            | —        | Flat            | 0.01            | 3                              | 109         | 18                    | 90g    |
| 151139    | 1803-300   | None    | Threaded              | φ6.5×27                | φ10×15              | 14×4     | Flat            | 0.01            | 3                              | 99.5        | 18                    | 100g   |
| 151141    | 1813-300   | None    | Threaded              | φ6.5×27                | φ10×15              | 14×4     | Spherical (SR4) | 0.01            | 3                              | 99          | 18                    | 100g   |
| 151140    | 1813-310   | Yes     | Threaded              | φ6.5×27                | φ10×15              | 14×4     | Spherical (SR4) | 0.01            | 3                              | 108         | 18                    | 100g   |
| 151127    | 1003-000   | Yes     | Straight              | φ6.5×28.5              | φ12×17.5            | —        | Flat            | 0.01            | 3                              | 113         | 18                    | 100g   |
| 151128    | 1603-000   | Yes     | Straight              | φ8×28.5                | φ12×20.5            | —        | Flat            | 0.01            | 3                              | 117         | 18                    | 100g   |
| 151129    | 1003-310   | Yes     | Threaded              | φ6.5×27                | φ10×15              | 14×4     | Flat            | 0.01            | 3                              | 108         | 18                    | 100g   |
| 151130    | 1703-010   | Yes     | Straight / with Clamp | φ6.5×27                | φ10×15              | —        | Flat            | 0.01            | 3                              | 121         | 18                    | 100g   |
| 151131    | 1703-310   | Yes     | Threaded / with Clamp | φ6.5×27                | φ10×15              | 14×4     | Flat            | 0.01            | 3                              | 121         | 18                    | 120g   |
| 151133    | 1004-000   | Yes     | Straight              | φ8×28.5                | φ12×17.5            | —        | Flat            | 0.01            | 4                              | 115         | 29                    | 230g   |
| 151132    | 1004-030   | Yes     | Straight              | φ8×28.5                | φ12×17.5            | —        | Flat            | 0.01            | 4                              | 113         | 30                    | 200g   |



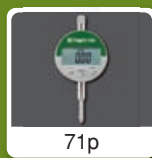
70p



70p



71p



71p



72p



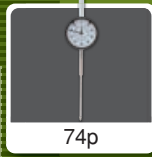
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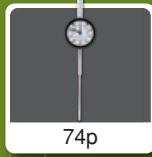
73p



73p



74p



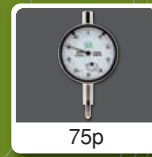
74p



74p



74p



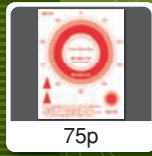
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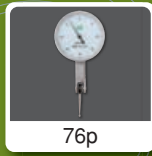
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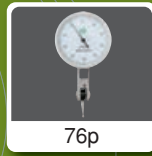
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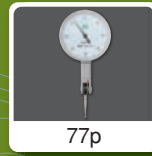
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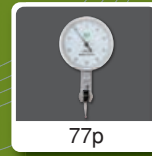
76p



76p



77p



77p



78p



78p



79p

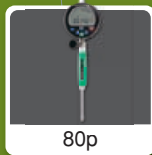
# DIAL GAUGES



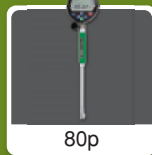
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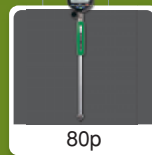
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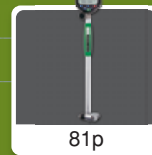
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80p



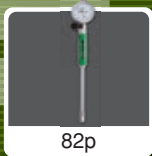
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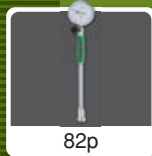
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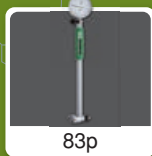
82p



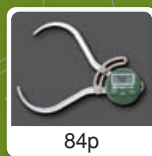
82p



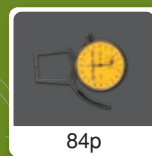
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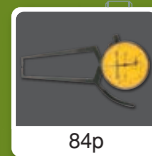
83p



84p



84p



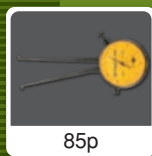
84p



85p



85p



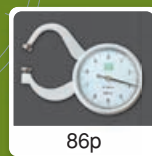
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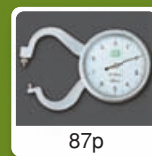
86p



86p



86p



87p



87p



87p



87p



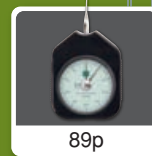
88p



88p



89p



89p



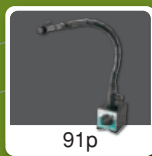
90p



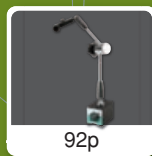
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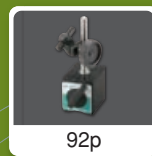
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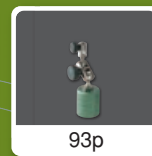
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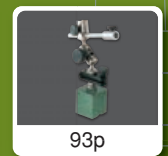
92p



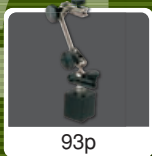
92p



93p



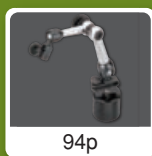
93p



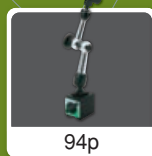
93p



93p



94p



94p



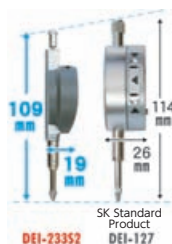
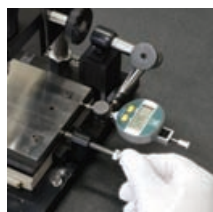
94p

DIAL  
GAUGESDIAL  
INDICATORSTHICKNESS  
GAUGESBORE  
GAUGESCALIPER  
GAUGESHARDNESS-  
TENSION  
GAUGEMAGNETIC  
BASE



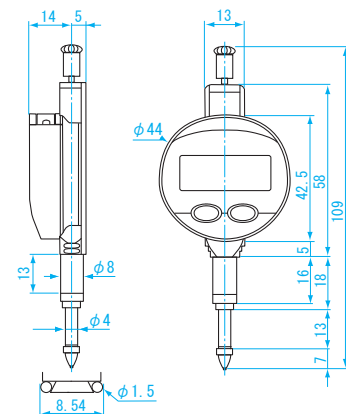
## DIGITAL S-LINE INDICATOR (IP65)

**IP65 rated, can be used in cutting fluid environment!**  
**Small type - 109mm long, 19mm thick**



### DIMENSIONS

Units : mm



DEI-233S2

**USE** • Measuring surface flatness, checking tool set up, axial runout, checking squareness

**MATERIAL** • Stem & spindle : stainless steel

### FEATURES

- **IP65** rating (comparable to NEMA 4,) digital indicator electronics are protected against dust and water.
- Small type dial gauge is suitable for use in a narrow space
- Measuring direction (+or -) function switch
- Preset function
- Auto-power-off function (after 4 hrs)
- Can select minimum reading display 0.01mm or 0.001mm (DEI-233S2 only)

### POWER

- One CR2032 (Lithium) battery included for testing

• IP rating for electrical equipment is defined based on IEC standard for water and solid body protection.  
 • IP indication  
**IP 65**  
 2nd digit : water proof rating  
 1st digit : direct contact-protection for ingress of solid foreign object

| 1st digit | Description                              | Definition                                                      | Testing for                                                                                                           |
|-----------|------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| 6         | Solid                                    | No ingress of dust allowed                                      | Complete protection against contact                                                                                   |
| 2nd digit | Description                              | Definition                                                      | Testing for                                                                                                           |
| 5         | Protected against low pressure water jet | No harmful effects from direct jet of water from any direction. | spray rotating equipment from 6.3mm nozzle, 2.5L/min flow from at distance of 2.5 to 3 m for more than three minutes. |

| Order No.  | Model No. | Measuring Range (mm) | Resolution (mm) | Minimum reading display | Maximum Error* (μm) | Measuring Force (N) | Repeatability (μm) | Weight |
|------------|-----------|----------------------|-----------------|-------------------------|---------------------|---------------------|--------------------|--------|
| NEW 151724 | DEI-233S1 | 0-12.5               | 0.01            | 0.01                    | 20                  | 0.5-0.9             | 2                  | 70g    |
| NEW 151725 | DEI-233S2 | 0-12.5               | 0.001           | 0.01/0.001 (Switchable) | 5                   | 0.5-0.9             | 2                  | 70g    |

※ Quantization Error (± 1 digit) not included



## DIGITAL S-LINE INDICATOR

**GO/ NOGO lights up with tolerance setting function!**

### USE

- Measuring surface flatness, checking tool set up, axial runout, checking squareness

### MATERIAL

- Stem & spindle : stainless

### FEATURES

- GO/ NOGO lights up with tolerance setting function, suitable for precision measurement of mass produced parts
- Display can rotate 270° to desired position
- Math function
- Button for 'favorite function' to call up frequently used functions
- MIN, MAX, DELTA measurement function
- Measuring direction (+or -) switching function
- Preset function
- Stand-by mode function (after 20 min)
- Can select minimum display resolution 0.01mm or 0.001mm (DEI-WKS2 only)

### POWER

- One CR2032 (Lithium) battery included for testing

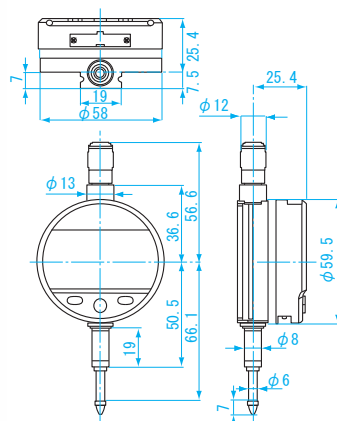


DEI-WKS2



### DIMENSIONS

Units : mm



| Order No.  | Model No. | Measuring Range (mm) | Resolution (mm) | Minimum reading display | Maximum Error* (μm) | Measuring Force (N) | Repeatability (μm) | Weight |
|------------|-----------|----------------------|-----------------|-------------------------|---------------------|---------------------|--------------------|--------|
| NEW 151726 | DEI-WKS1  | 0-12.5               | 0.01            | 0.01                    | 20                  | 0.65-0.9            | 2                  | 115g   |
| NEW 151727 | DEI-WKS2  | 0-12.5               | 0.001           | 0.01/0.001 (Switchable) | 3                   | 0.65-0.9            | 2                  | 115g   |

※ Quantization Error (± 1 digit) not included





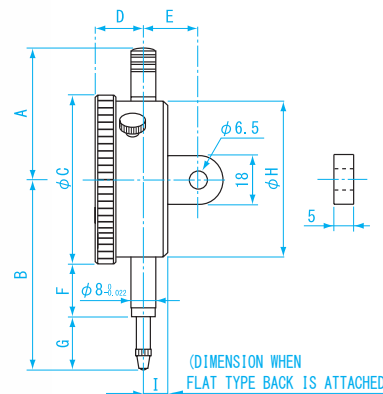




## DIAL GAUGES



## DIMENSIONS



T 237

Units : mm

| Model No. | A  | B  | C  | D  | E  | F  | G  | H  | I |
|-----------|----|----|----|----|----|----|----|----|---|
| DI-10     | 45 | 67 | 60 | 16 | 20 | 21 | 20 | 55 | 9 |

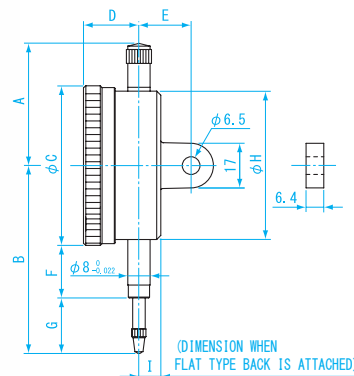
- USE**
- Measuring surface flatness, checking tool set up, axial runout, checking squareness
- MATERIALS**
- Body : Steel
- FEATURES**
- Measuring Range: 0-10mm/ 0.01mm Graduation
  - Limit indicator clips included
  - O-Ring sealed between inner and outer lid to protect from water or oil
  - White scale plate
  - Flat type back and center-lug back included

| Order No. | Model No. | Graduation (mm) | Measuring Range (mm) | Dial Reading (mm) | Backlash Error ( $\mu$ m) | Measuring Force less than (N) | 1 Revolution (mm) | Indication Error 1/10 rev ( $\mu$ m) | Error over entire range ( $\mu$ m) | Repeatability ( $\mu$ m) | Weight |
|-----------|-----------|-----------------|----------------------|-------------------|---------------------------|-------------------------------|-------------------|--------------------------------------|------------------------------------|--------------------------|--------|
| 151044    | DI-10     | 0.01            | 0~10                 | $\pm 0-100$       | 5                         | 1.5                           | 1                 | 8                                    | $\pm 20$                           | 5                        | 150g   |

## DIAL GAUGES



## DIMENSIONS

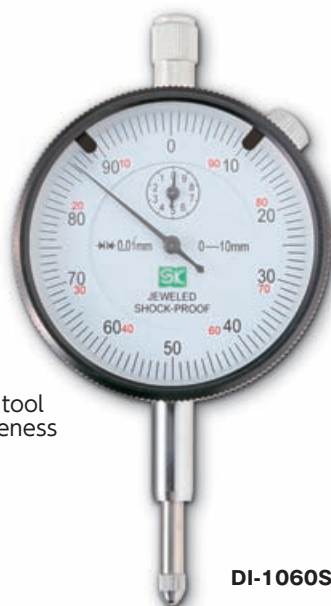


Units : mm

| Model No. | A    | B    | C  | D    | E  | F    | G  | H    | I |
|-----------|------|------|----|------|----|------|----|------|---|
| DI-1058   | 43.5 | 68.5 | 58 | 16.5 | 19 | 18.5 | 21 | 53.5 | 8 |

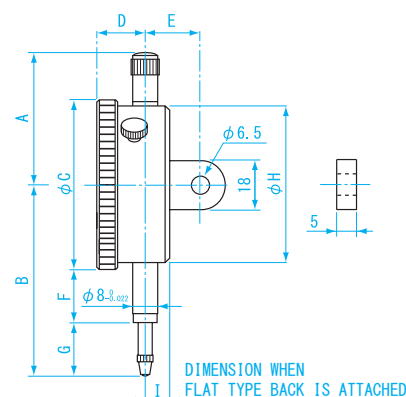
- USE**
- Measuring surface flatness, checking tool set up, axial runout, checking squareness
- MATERIAL**
- Body : Steel
- FEATURES**
- Limit indicator clips included
  - O-Ring sealed between inner and outer lid to protect from water or oil
  - Jeweled bearings
  - Yellow scale plate
  - Flat type back and center-lug back included

| Order No. | Model No. | Graduation (mm) | Measuring Range (mm) | Dial Reading (mm) | Backlash Error ( $\mu$ m) | Measuring Force less than (N) | 1 Revolution (mm) | Indication Error 1/10 rev ( $\mu$ m) | Error over entire range ( $\mu$ m) | Repeatability ( $\mu$ m) | Weight |
|-----------|-----------|-----------------|----------------------|-------------------|---------------------------|-------------------------------|-------------------|--------------------------------------|------------------------------------|--------------------------|--------|
| 151504    | DI-1058   | 0.01            | 0~10                 | $\pm 0-100$       | 5                         | 1.5                           | 1                 | 8                                    | $\pm 20$                           | 5                        | 180g   |



DI-1060SC

## DIMENSIONS



Units : mm

| Model No. | A  | B  | C  | D  | E  | F  | G  | H  | I |
|-----------|----|----|----|----|----|----|----|----|---|
| DI-0560SC | 45 | 67 | 60 | 16 | 20 | 21 | 20 | 55 | 9 |
| DI-1060SC | 45 | 67 | 60 | 16 | 20 | 21 | 20 | 55 | 9 |

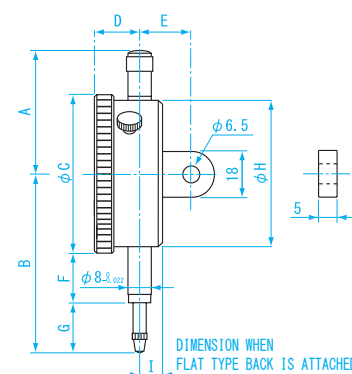
- USE**
  - Measuring surface flatness, checking tool set up, axial runout, checking squareness
- MATERIAL**
  - Body : Steel
- FEATURES**
  - Limit indicator clips included
  - O-Ring sealed between inner and outer lid to protect from water or oil
  - Jeweled bearings
  - White scale plate
  - Flat type back and center-lug back included.
  - Shock proof spindle mechanism protects the gear from abrupt motion.

| Order No. | Model No. | Graduation (mm) | Measuring Range (mm) | Dial Reading (mm) | Backlash Error ( $\mu\text{m}$ ) | Measuring Force less than (N) | 1 Revolution (mm) | Indication Error 1/10 rev ( $\mu\text{m}$ ) | Error over entire range ( $\mu\text{m}$ ) | Repeatability ( $\mu\text{m}$ ) | Weight |
|-----------|-----------|-----------------|----------------------|-------------------|----------------------------------|-------------------------------|-------------------|---------------------------------------------|-------------------------------------------|---------------------------------|--------|
| 151671    | DI-0560SC | 0.01            | 0~ 5                 | $\pm 0.100$       | 3                                | 1.5                           | 1                 | 8                                           | $\pm 12$                                  | 3                               | 130g   |
| 151672    | DI-1060SC | 0.01            | 0~10                 | $\pm 0.100$       | 3                                | 1.5                           | 1                 | 8                                           | $\pm 14$                                  | 3                               | 150g   |

# DIAL GAUGES



## DIMENSIONS



Units : mm

| Model No. | A  | B  | C  | D  | E  | F  | G  | H  | I |
|-----------|----|----|----|----|----|----|----|----|---|
| DI-0160SC | 40 | 60 | 60 | 16 | 20 | 21 | 13 | 55 | 9 |

- USE**
  - Measuring surface flatness, checking tool set up, axial runout, checking squareness
- FEATURES**
  - Body : Steel
  - Measuring Range: 0-10mm/ 0.001mm graduation
  - Limit indicator clips included
  - O-Ring sealed between inner and outer lid to protect from water or oil
  - Jeweled bearings
  - White scale plate
  - Flat type back and center-lug back included
  - Shock proof spindle mechanism protects the gear from abrupt motion.

| Order No. | Model No. | Graduation (mm) | Measuring Range (mm) | Dial Reading (mm) | Backlash Error ( $\mu\text{m}$ ) | Measuring Force less than (N) | 1 Revolution (mm) | Indication Error 1/10 rev ( $\mu\text{m}$ ) | Error over entire range ( $\mu\text{m}$ ) | Repeatability ( $\mu\text{m}$ ) | Weight |
|-----------|-----------|-----------------|----------------------|-------------------|----------------------------------|-------------------------------|-------------------|---------------------------------------------|-------------------------------------------|---------------------------------|--------|
| 151670    | DI-0160SC | 0.001           | 0~1                  | $\pm 0.100$       | 2.5                              | 3                             | 0.1               | 3.5                                         | $\pm 5$                                   | 0.4                             | 150g   |



## LONG STROKE DIAL GAUGES



DI-10078



DI-8058

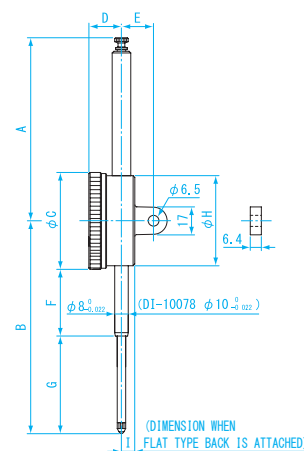


DI-5058



DI-3058

## DIMENSIONS



Units : mm

| Model No. | A     | B     | C  | D  | E    | F    | G    | H    | I   |
|-----------|-------|-------|----|----|------|------|------|------|-----|
| DI-3058   | 37.5  | 86.5  | 58 | 19 | 19.5 | 19.5 | 38   | 53.5 | 8.5 |
| DI-5058   | 108.5 | 126   | 58 | 19 | 19.5 | 39.5 | 57.5 | 53.5 | 8.5 |
| DI-8058   | 138.5 | 168.5 | 58 | 19 | 19.5 | 51.5 | 88   | 53.5 | 8.5 |
| DI-10078  | 167.5 | 208   | 78 | 20 | 20.5 | 61   | 108  | 69   | 10  |

| Order No. | Model No. | Graduation (mm) | Measuring Range (mm) | Dial Reading (mm) | Backlash Error (μm) | Measuring force less than (N) | 1 Revolution (mm) | Indication Error 1/10 rev (μm) | Error over entire range (μm) | Repeatability (μm) | Weight |
|-----------|-----------|-----------------|----------------------|-------------------|---------------------|-------------------------------|-------------------|--------------------------------|------------------------------|--------------------|--------|
| 151505    | DI-3058   | 0.01            | 0~ 30                | 0-100             | 7                   | 3.0                           | 1                 | 14                             | ±35                          | 5                  | 210g   |
| 151506    | DI-5058   | 0.01            | 0~ 50                | 0-100             | 9                   | 3.5                           | 1                 | 15                             | ±40                          | 5                  | 270g   |
| 151507    | DI-8058   | 0.01            | 0~ 80                | 0-100             | 11                  | 4.0                           | 1                 | —                              | ±50                          | 6                  | 290g   |
| 151508    | DI-10078  | 0.01            | 0~100                | 0-100             | 15                  | 4.5                           | 1                 | —                              | ±50                          | 6                  | 530g   |

※ For vertical measurements please keep measurement head above shaft

DIAL GAUGES

DIAL GAUGES

DIAL INDICATORS

THICKNESS GAUGES

BORE GAUGES

CALIPER GAUGES

HARDNESS-TENSION GAUGE

MAGNETIC BASE

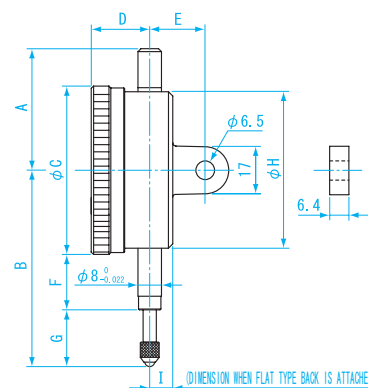


DI-0342



DI-0542

## DIMENSIONS



Units : mm

| Model No. | A  | B  | C  | D  | E  | F    | G  | H  | I |
|-----------|----|----|----|----|----|------|----|----|---|
| DI-0342   | 31 | 46 | 42 | 14 | 18 | 14.5 | 10 | 40 | 7 |
| DI-0542   | 31 | 48 | 42 | 14 | 18 | 14.5 | 12 | 40 | 7 |

**USE** • Measuring surface flatness, checking tool set up, axial runout, checking squareness.

## MATERIALS

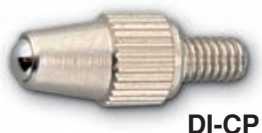
• Body : Steel

## FEATURES

- Limit indicator clips included
- O-Ring sealed between inner and outer lid to protect from water or oil
- Jeweled bearings
- White scale plate
- Flat type back and center-lug back included.

| Order No. | Model No. | Graduation (mm) | Measuring Range (mm) | Dial Reading (mm) | Backlash Error (μm) | Measuring Force less than (N) | 1 Revolution (mm) | Indication Error 1/10 rev (μm) | Error over entire range (μm) | Repeatability (μm) | Weight |
|-----------|-----------|-----------------|----------------------|-------------------|---------------------|-------------------------------|-------------------|--------------------------------|------------------------------|--------------------|--------|
| 151509    | DI-0342   | 0.01            | 0~3                  | ±0.50             | 6                   | 1.5                           | 0.5               | 8                              | ±14                          | 5                  | 100g   |
| 151510    | DI-0542   | 0.01            | 0~5                  | ±0.50             | 6                   | 1.5                           | 0.5               | 9                              | ±16                          | 5                  | 100g   |

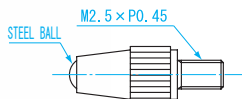
## DIAL GAUGE REPLACEABLE TIP



DI-CP

## DIMENSIONS

Units : mm



**USE** • Dial gauge probe tip

## MATERIALS

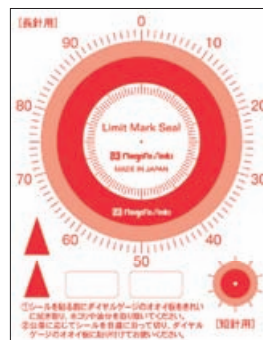
• Measurement tip : steel ball

## Compatibility Table

| Model No. | Applicable Dial Indicator                                 |           |           |
|-----------|-----------------------------------------------------------|-----------|-----------|
| DI-CP     | DI-1058                                                   | DI-3058   | DI-5058   |
|           | DI-8058                                                   | DI-10078  | DI-0342   |
|           | DI-0542                                                   |           |           |
|           | • Ex-model No.<br>DI-1220A DI-1220AS DI-1102A<br>DI-1810A |           |           |
| DI-CPK    | DI-10 (Rev. since 2007)                                   |           |           |
|           | DI-1060SC                                                 | DI-0560SC | DI-0160SC |

| Order No. | Model No. |
|-----------|-----------|
| 151500    | DI-CP     |
| 151675    | DI-CPK    |

## DIAL GAUGE LIMIT MARK STICKER



**USE** • GO/ NO GO judgment for diameter inspection

## MATERIAL

• Pobick #100Rt-H (High strength, transparent, removable)

## FEATURES

- Acceptable range is clearly visible. Ideal for inspection of mass produced parts.
- Includes arrow pointers for use with notes, indicating alert points, etc.

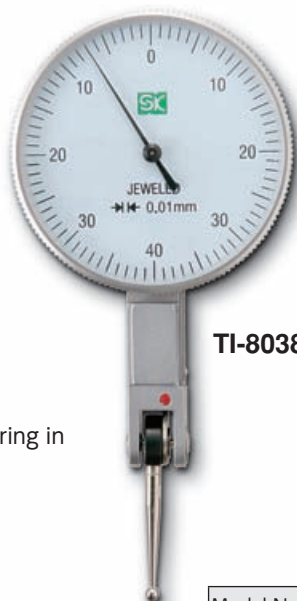
## SPECIFICATIONS

- Applicable dial gauge : DIAL face more than  $\phi 52\text{mm}$
- Sticker outside diameter : long indicator...  $\phi 51.5\text{mm}$   
Short indicator ...  $\phi 10\text{mm}$
- Contains 10pcs

| Order No. | Model No. | Quantity | Weight |
|-----------|-----------|----------|--------|
| 151674    | DI-LMS    | 10       | 20g    |

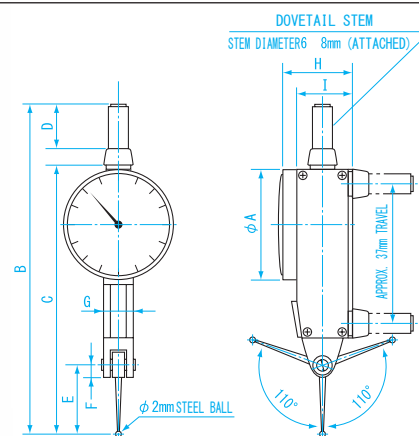


## DIAL INDICATORS



TI-8038

## DIMENSIONS



Units : mm

| Model No. | A  | B    | C  | D  | E  | F | G | H  | I  |
|-----------|----|------|----|----|----|---|---|----|----|
| TI-8032   | 32 | 96.5 | 75 | 13 | 22 | 4 | 8 | 24 | 17 |
| TI-8038   | 38 | 96.5 | 75 | 13 | 22 | 4 | 8 | 24 | 17 |

**USE** • Measuring surface flatness, straightness, axial runout.

**MATERIAL**

- Body: Steel

**FEATURES**

- Compact with long reach for measuring in deep and confined spaces
- Jeweled bearings

※ Replacement probes also available.

■ Dial indicator steel ball probes

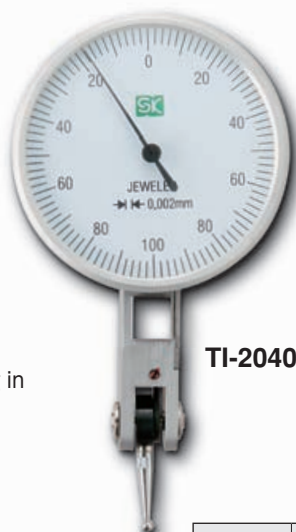
| Order No. | Model No. |
|-----------|-----------|
| 151696    | TI-S80    |

※ Applicable to TI-8032, TI-8038

※ Requires calibration with standard when replacing gauge head

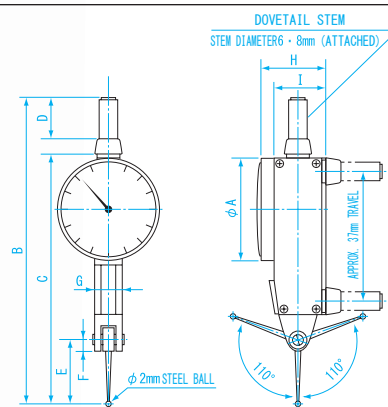
| Order No. | Model No. | Graduation (mm) | Measuring Range (mm) | Dial Reading | Error over entire range (μm) | Backlash Error (μm) | Measuring Force less than (N) | Repeatability (μm) | Indication Error 1/10 rev (μm) | Weight |
|-----------|-----------|-----------------|----------------------|--------------|------------------------------|---------------------|-------------------------------|--------------------|--------------------------------|--------|
| 151692    | TI-8032   | 0.01            | 0~0.8                | 0-40-0       | 13                           | 3                   | 0.5                           | 3                  | 5                              | 47g    |
| 151693    | TI-8038   | 0.01            | 0~0.8                | 0-40-0       | 13                           | 3                   | 0.5                           | 3                  | 5                              | 50g    |

## DIAL INDICATORS



TI-2040

## DIMENSIONS



Units : mm

| Model No. | A  | B  | C    | D  | E  | F | G   | H  | I  |
|-----------|----|----|------|----|----|---|-----|----|----|
| TI-2032   | 32 | 92 | 72.5 | 13 | 17 | 4 | 8.5 | 25 | 17 |
| TI-2040   | 40 | 92 | 72.5 | 13 | 17 | 4 | 8.5 | 25 | 17 |

**USE** • Measuring surface flatness, straightness, axial runout

**MATERIAL**

- Body : Steel

**FEATURES**

- Compact with long reach for measuring in deep and confined spaces
- Jeweled bearings

※ Replacement probes also available

■ Dial indicator steel ball probes

| Order No. | Model No. |
|-----------|-----------|
| 151695    | TI-S20    |

※ Applicable to TI-2032, TI-2040

※ Requires calibration with standard when replacing gauge head

| Order No. | Model No. | Graduation (mm) | Measuring Range (mm) | Dial Reading | Indication Error over Entire Range (μm) | Backlash Error (μm) | Measuring Force less than (N) | Repeatability (μm) | Indication Error 1/10 rev (μm) | Weight |
|-----------|-----------|-----------------|----------------------|--------------|-----------------------------------------|---------------------|-------------------------------|--------------------|--------------------------------|--------|
| 151690    | TI-2032   | 0.002           | 0~0.2                | 0-100-0      | 4                                       | 2                   | 0.5                           | 1                  | 2                              | 53g    |
| 151691    | TI-2040   | 0.002           | 0~0.2                | 0-100-0      | 4                                       | 2                   | 0.5                           | 1                  | 2                              | 65g    |



## Ruby ball attributes

- High abrasion resistance
- Not electrically conductive
- Non magnetic

**USE** • Measuring surface flatness, straightness, axial runout

### MATERIAL

- Body : Steel
- Probe : Ruby

### FEATURES

- Compact with long reach for measuring in deep and confined spaces
- Jeweled bearings

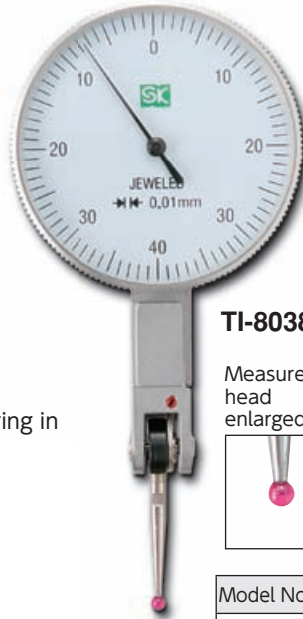
※ Replacement probes also available

■ Dial indicator ruby ball probes

| Order No. | Model No. |
|-----------|-----------|
| 151706    | TI-S80R   |

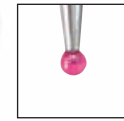
※ Applicable to TI-8032R, TI-8038R

※ Requires calibration with standard when replacing gauge head

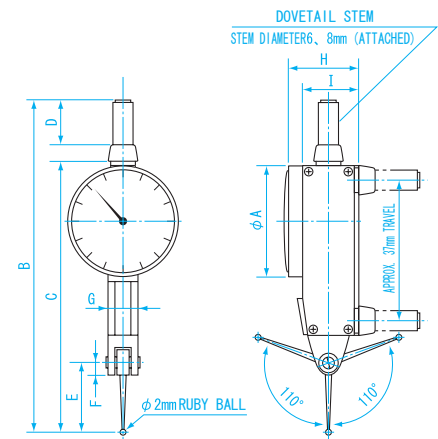


TI-8038R

Measurement head enlarged view



## DIMENSIONS



Units : mm

| Model No. | A  | B    | C  | D  | E  | F | G | H  | I  |
|-----------|----|------|----|----|----|---|---|----|----|
| TI-8032R  | 32 | 96.5 | 75 | 13 | 22 | 4 | 8 | 24 | 17 |
| TI-8038R  | 38 | 96.5 | 75 | 13 | 22 | 4 | 8 | 24 | 17 |

| Order No. | Model No. | Graduation (mm) | Measuring Range (mm) | Dial Reading | Indication Error over Entire Range (μm) | Backlash Error (μm) | Measuring Force less than (N) | Repeatability (μm) | Indication Error 1/10 rev (μm) | Weight |
|-----------|-----------|-----------------|----------------------|--------------|-----------------------------------------|---------------------|-------------------------------|--------------------|--------------------------------|--------|
| 151702    | TI-8032R  | 0.01            | 0~0.8                | 0-40-0       | 13                                      | 3                   | 0.5                           | 3                  | 5                              | 47g    |
| 151703    | TI-8038R  | 0.01            | 0~0.8                | 0-40-0       | 13                                      | 3                   | 0.5                           | 3                  | 5                              | 50g    |

## DIAL INDICATORS

## Ruby ball attributes

- High abrasion resistance
- Not electrically conductive
- Non magnetic

**USE** • Measuring surface flatness, straightness, axial runout

### MATERIAL

- Body : Steel
- Probe : Ruby

### FEATURES

- Compact with long reach for measuring in deep and confined spaces
- Jeweled bearings

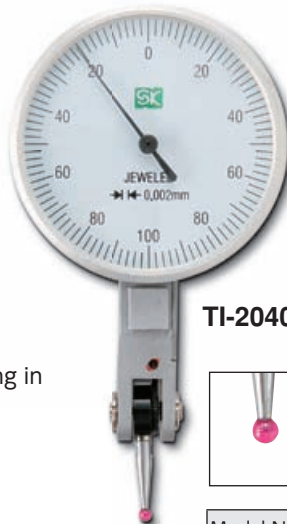
※ Replacement probes also available

■ Dial indicator ruby ball probes

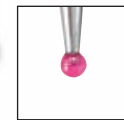
| Order No. | Model No. |
|-----------|-----------|
| 151705    | TI-S20R   |

※ Applicable to TI-2032R, TI-2040R

※ Requires calibration with standard when replacing gauge head

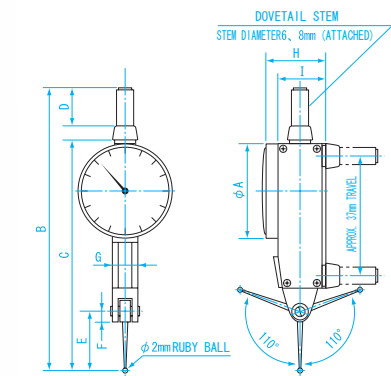


TI-2040R



Measurement head enlarged view

## DIMENSIONS



Units : mm

| Model No. | A  | B  | C    | D  | E  | F | G   | H  | I  |
|-----------|----|----|------|----|----|---|-----|----|----|
| TI-2032R  | 32 | 92 | 72.5 | 13 | 17 | 4 | 8.5 | 25 | 17 |
| TI-2040R  | 40 | 92 | 72.5 | 13 | 17 | 4 | 8.5 | 25 | 17 |

| Order No. | Model No. | Graduation (mm) | Measuring Range (mm) | Dial Reading | Indication Error over Entire Range (μm) | Backlash Error (μm) | Measuring Force less than (N) | Repeatability (μm) | Indication Error 1/10 rev (μm) | Weight |
|-----------|-----------|-----------------|----------------------|--------------|-----------------------------------------|---------------------|-------------------------------|--------------------|--------------------------------|--------|
| 151700    | TI-2032R  | 0.002           | 0~0.2                | 0-100-0      | 4                                       | 2                   | 0.5                           | 1                  | 2                              | 53g    |
| 151701    | TI-2040R  | 0.002           | 0~0.2                | 0-100-0      | 4                                       | 2                   | 0.5                           | 1                  | 2                              | 65g    |

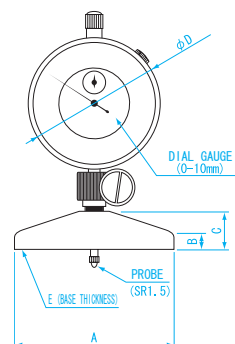


## DIAL DEPTH GAUGES



DD-1050

## DIMENSIONS



Units : mm

| Model No. | A   | B | C  | D  | E  |
|-----------|-----|---|----|----|----|
| DD-1050   | 50  | 7 | 18 | 60 | 16 |
| DD-10100  | 100 | 7 | 18 | 60 | 16 |

**USE** • Depth measuring

**MATERIALS**

- Body, probe: steel

**FEATURES**

- Includes multiple extension rods (10mm•20mm•40mm•60mm•80mm), combined up to 210mm depths can be measured

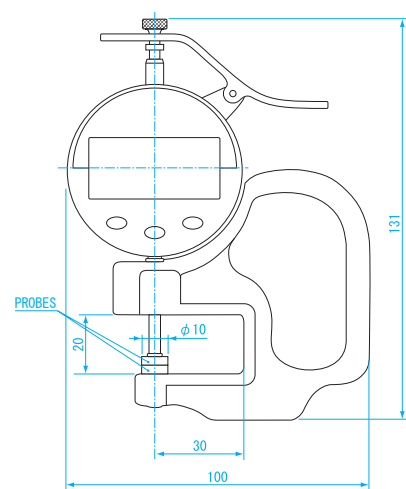
| Order No. | Model No. | Measuring Range (mm)               | Graduation (mm) | Weight |
|-----------|-----------|------------------------------------|-----------------|--------|
| 151711    | DD-1050   | Depth: up to 210<br>Dial gauge :10 | 0.01            | 280g   |
| 151712    | DD-10100  | Depth: up to 210<br>Dial gauge:10  | 0.01            | 350g   |

## DIGITAL THICKNESS GAUGES



## DIMENSIONS

Units : mm



**USE** • One touch thickness measurement of sheet material

**MATERIAL** • Body : Steel  
• Probes : Ceramic

**FEATURES** • Digital display for easy reading  
• Easy to operate for quick measurements  
• Auto power off function (after 5 min.)  
• Display hold function  
• One CR2032 (Lithium) battery included for testing

| Order No. | Model No. | Resolution (mm) | Measuring Range (mm) | Insert Depth (mm) | Accuracy* (μm) | Measuring Faces | Weight |
|-----------|-----------|-----------------|----------------------|-------------------|----------------|-----------------|--------|
| 151720    | DES-3010  | 0.01            | 0-10                 | 30                | ±20            | φ10mm Flat      | 180g   |

※ Quantization Error ( ± 1 digit) not included



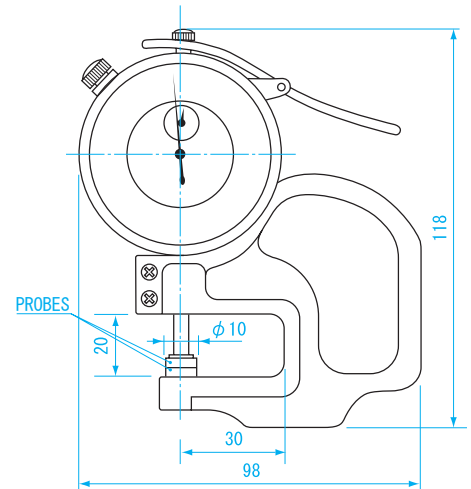
Example of mounting  
DSB-3010S



※ Photo shows with optional base

## DIMENSIONS

Units : mm



- USE**
  - One touch thickness measurement of sheet material
- MATERIAL**
  - Body : Steel
  - Probes : Ceramic
- FEATURES**
  - Easy to operate for quick measurements
  - Shock proof spindle mechanism protects the gear from abrupt motion
  - Dedicated base DSB-3010S sold separately (for DS-3010S only)

| Order No. | Model No. | Graduation (mm) | Measurement Range (mm) | Insertion Depth (mm) | Accuracy ( $\mu$ m) | Measuring Faces   | Weight |
|-----------|-----------|-----------------|------------------------|----------------------|---------------------|-------------------|--------|
| 151680    | DS-3010S  | 0.01            | 0~10                   | 30                   | $\pm 20$            | $\phi 10$ mm Flat | 200g   |

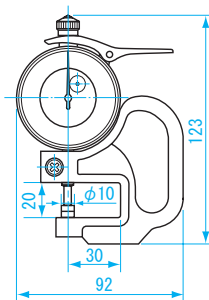
Dial thickness gauge dedicated base

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 151685    | DSB-3010S | 370g   |

# DIAL THICKNESS GAUGES



## DIMENSIONS Units : mm



- USE**
  - One touch thickness measurement of sheet metal
- MATERIAL**
  - Body : Steel
  - Probes : Steel
- FEATURES**
  - Easy to operate for a quick measurement



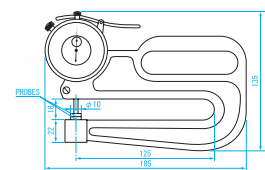
| Order No.            | Model No.           | Graduation (mm)      | Measurement Range (mm) |
|----------------------|---------------------|----------------------|------------------------|
| 151532               | DS-1211             | 0.01                 | 0~10                   |
| Insertion Depth (mm) | Accuracy ( $\mu$ m) | Measuring Faces (mm) | Weight                 |
| 30                   | $\pm 20$            | $\phi 10$ mm Flat    | 260g                   |

# DIAL THICKNESS GAUGES



## DIMENSIONS

Units : mm



- USE**
  - One touch thickness measurement of sheet material
- MATERIAL**
  - Body : Steel
  - Probes : Ceramic
- FEATURES**
  - Easy to operate for quick measurement
  - Long throat for greater measurement depth
  - Shock proof spindle mechanism protects the gear from abrupt motion

| Order No.            | Model No.           | Graduation (mm)      | Measurement Range (mm) |
|----------------------|---------------------|----------------------|------------------------|
| 151681               | DS-12510S           | 0.01                 | 0~10                   |
| Insertion Depth (mm) | Accuracy ( $\mu$ m) | Measuring Faces (mm) | Weight                 |
| 125                  | $\pm 20$            | $\phi 10$ mm Flat    | 480g                   |



## DIGITAL BORE GAUGES



Includes digital gauge and protective cover

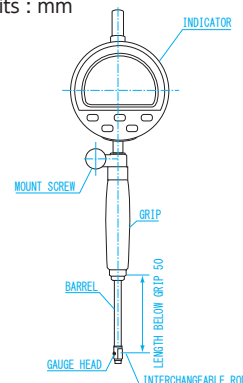


Measuring Head



## DIMENSIONS • PARTS NAME

Units : mm



- USE** • Bore measurement
- MATERIAL** • Body : Steel
- FEATURES** • Includes digital gauge and protective cover  
• Digital display for easy reading  
• One CR2032(Lithium)battery included for testing

|                    |                              |                                      |                                        |                         |                                           |                        |                           |
|--------------------|------------------------------|--------------------------------------|----------------------------------------|-------------------------|-------------------------------------------|------------------------|---------------------------|
| Order No.          |                              | Model No.                            |                                        | Weight                  |                                           |                        |                           |
| 151730             |                              | CDI-10D                              |                                        | 250g                    |                                           |                        |                           |
| Resolution<br>(mm) | Measurement<br>Range<br>(mm) | Error over<br>Entire Range*<br>(μm)* | Indication Error<br>1/10 rev*<br>(μm)* | Repeatability*<br>(μm)* | Effective Stroke<br>of Gauge Head<br>(mm) | Interchangeable<br>Rod | Interchangeable<br>Washer |
| 0.002              | 6-10                         | 12                                   | 5                                      | 3                       | 0.6                                       | 9 pcs (0.5mm step)     | None                      |

※ Quantization Error ( ± 1 digit) not included

\* Including attached digital gauge

## DIGITAL BORE GAUGES



Includes digital gauge and protective cover



CDI-18D Measuring Head CDI-35D Measuring Head



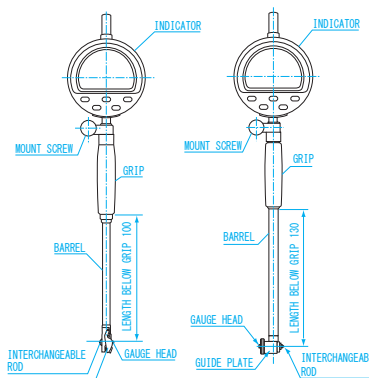
CDI-18D



CDI-35D

## DIMENSIONS • PARTS NAME

Units : mm



CDI-18D

CDI-35D

- USE** • Bore measurement
- MATERIAL** • Body : Steel
- FEATURES** • Includes digital gauge and protective cover  
• Digital display for easy reading  
• One CR2032 (Lithium) battery included for testing

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 151731    | CDI-18D   | 270g   |
| 151732    | CDI-35D   | 350g   |

| Resolution (mm) | Measurement Range (mm) | Error over Entire Range* (μm)* | Indication Error 1/10 rev* (μm)* | Repeatability* (μm)* | Effective Stroke of Gauge Head (mm) | Interchangeable Rod | Interchangeable Washer |
|-----------------|------------------------|--------------------------------|----------------------------------|----------------------|-------------------------------------|---------------------|------------------------|
| 0.002           | 10-18                  | 12                             | 5                                | 3                    | 0.8                                 | 9 pcs (1.0mm step)  | 0.5mm - 1pc            |
| 0.002           | 18-35                  | 15                             | 5                                | 3                    | 1.2                                 | 9 pcs (2.0mm step)  | 0.5+1mm - 1 pc each    |

※ Quantization Error ( ± 1 digit) not included

\* Including attached digital gauge



Includes digital gauge and protective cover



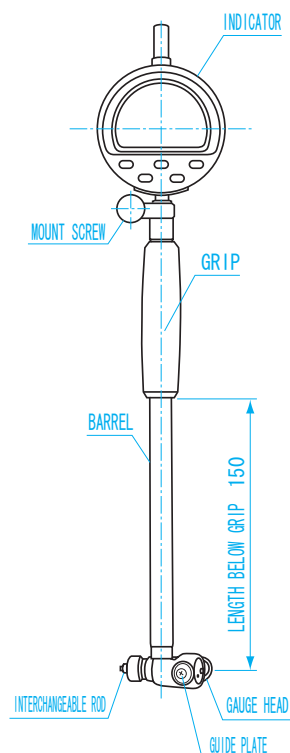
CDI-160D



Measuring Head

## DIMENSIONS • PARTS NAME

Units : mm



- USE** • Bore measurement instrument
- MATERIAL** • Body : Steel
- FEATURES** • Includes digital gauge and protective cover  
• Digital display for easy reading  
• One CR2032(Lithium) battery included for testing

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 151733    | CDI-50D   | 400g   |
| 151734    | CDI-100D  | 450g   |
| 151735    | CDI-160D  | 450g   |

| Resolution (mm) | Measurement Range (mm) | Error over Entire Range* ( $\mu\text{m}$ ) | Indication Error 1/10 rev* ( $\mu\text{m}$ ) | Repeatability* ( $\mu\text{m}$ ) | Effective Stroke of Gauge Head (mm) | Interchangeable Rod                | Interchangeable Washer   |
|-----------------|------------------------|--------------------------------------------|----------------------------------------------|----------------------------------|-------------------------------------|------------------------------------|--------------------------|
| 0.002           | 35- 50                 | 15                                         | 5                                            | 3                                | 1.2                                 | 4 pcs (5.0mm step)                 | 0.5•1•2•3mm<br>1 pc each |
| 0.002           | 50-100                 | 18                                         | 6                                            | 3                                | 1.6                                 | 11pcs (5.0mm step)                 |                          |
| 0.002           | 50-160                 | 18                                         | 6                                            | 3                                | 1.6                                 | 12 pcs (5.0mm step)<br>1pc sub rod |                          |

※ Quantization Error (  $\pm 1$  digit) not included

\* Including attached digital gauge





## DIAL BORE GAUGES



Includes dial gauge and protective cover

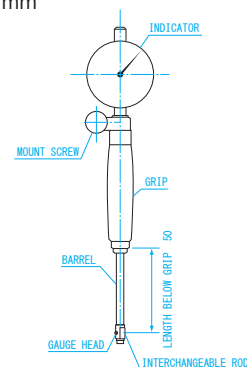


Measuring Head



## DIMENSIONS • PARTS NAME

Units : mm



- USE** • Bore measurement
- MATERIAL** • Body : Steel
- FEATURES** • Includes dial gauge and protective cover

|                    |                              |                                   |                                        |                         |                                           |                        |                           |
|--------------------|------------------------------|-----------------------------------|----------------------------------------|-------------------------|-------------------------------------------|------------------------|---------------------------|
| Order No.          |                              | Model No.                         |                                        | Weight                  |                                           |                        |                           |
| 151591             |                              | CDI-10                            |                                        | 520g                    |                                           |                        |                           |
| Graduation<br>(mm) | Measurement<br>Range<br>(mm) | Error over entire<br>range (μm) * | Indication Error<br>1/10 rev<br>(μm) * | Repeatability<br>(μm) * | Effective stroke<br>of Gauge head<br>(mm) | Interchangeable<br>Rod | Interchangeable<br>Washer |
| 0.01               | 6~10                         | 12                                | 5                                      | 3                       | 0.7                                       | 9 pc (0.5mm step)      | None                      |

\* Including attached dial gauge

## DIAL BORE GAUGES



Includes dial gauge and protective cover



CDI-18 Measuring Head



CDI-35 Measuring Head



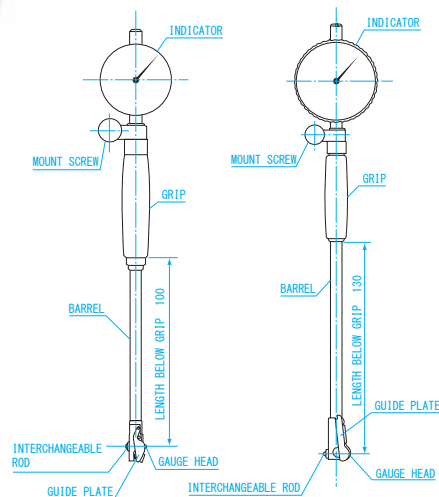
CDI-18



CDI-35

## DIMENSIONS • PARTS NAME

Units : mm



CDI-18

CDI-35

- USE** • Bore measurement
- MATERIAL** • Body : Steel
- FEATURES** • Includes dial gauge and protective cover

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 151592    | CDI-18    | 520g   |
| 151593    | CDI-35    | 680g   |

| Graduation (mm) | Measurement Range (mm) | Error over Entire Range ( $\mu\text{m}$ )* | Indication Error 1/10 rev ( $\mu\text{m}$ )* | Repeatability ( $\mu\text{m}$ )* | Effective Stroke of gauge head (mm) | Interchangeable Rod | Interchangeable Washer |
|-----------------|------------------------|--------------------------------------------|----------------------------------------------|----------------------------------|-------------------------------------|---------------------|------------------------|
| 0.01            | 10~18                  | 12                                         | 5                                            | 3                                | 0.9                                 | 9 pc (1.0mm step)   | 1 pc 0.5mm             |
| 0.01            | 18~35                  | 15                                         | 5                                            | 3                                | 1.0                                 | 7 pc (2.5mm)        | None                   |

\* Including attached dial gauge

Includes dial gauge and protective cover



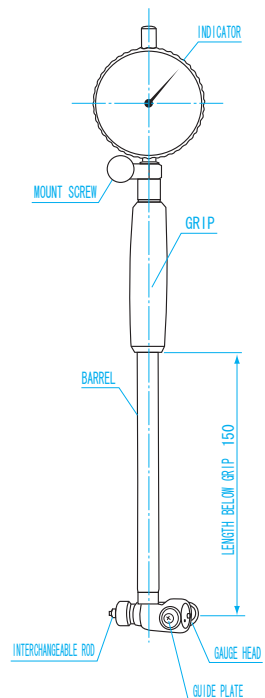
CDI-100



Measuring head

## DIMENSIONS • PARTS NAME

Units : mm



- USE** • Bore measurement
- MATERIAL** • Body : Steel
- FEATURES** • Includes dial gauge and protective cover

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 151594    | CDI-50    | 1 kg   |
| 151595    | CDI-100   | 1.1 kg |
| 151596    | CDI-160   | 1.15kg |

| Graduation (mm) | Measurement Range (mm) | Error over Entire Range ( $\mu m$ )* | Indication Error 1/10 rev ( $\mu m$ )* | Repeatability ( $\mu m$ )* | Effective Stroke of Gauge Head (mm) | Interchangeable Rod                 | Interchangeable Washer   |
|-----------------|------------------------|--------------------------------------|----------------------------------------|----------------------------|-------------------------------------|-------------------------------------|--------------------------|
| 0.01            | 35~ 50                 | 15                                   | 5                                      | 3                          | 1.2                                 | 4 pcs(5.0mm step)                   | 0.5•1•2•3mm<br>1 pc each |
| 0.01            | 50~100                 | 18                                   | 6                                      | 3                          | 1.6                                 | 11 pcs (5.0mm step)                 |                          |
| 0.01            | 50~160                 | 18                                   | 6                                      | 3                          | 1.6                                 | 12 pcs (5.0mm step)<br>1 pc Sub rod |                          |

\* Including attached dial gauge

DIAL GAUGES

DIAL GAUGES

DIAL INDICATORS

THICKNESS GAUGES

BORE GAUGES

CALIPER GAUGES

HARDNESS- TENSION GAUGE

MAGNETIC BASE

# DIGITAL CALIPER GAUGE

Wide measuring range of 0-150mm!

## USE

- For outside diameter measurement

## MATERIAL

- Body : Steel, Plastic

## FEATURES

- Digital display for easy reading
- Wide measuring range of 0-150mm

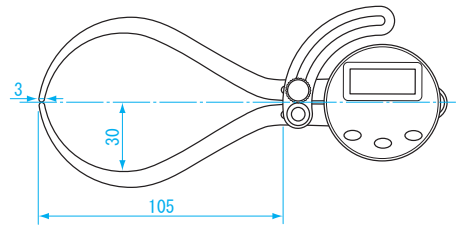
## POWER

- One CR2032 (Lithium) battery included for testing



## DIMENSIONS

Units : mm

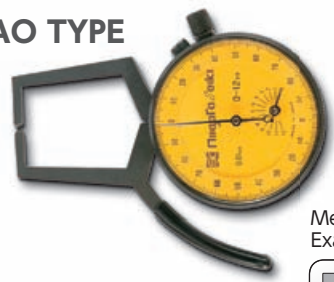


| Order No.  | Model No. | Resolution (mm) | Measuring Range (mm) | Accuracy* (mm) | Weight |
|------------|-----------|-----------------|----------------------|----------------|--------|
| NEW 152053 | EDC-A1150 | 0.1             | 0-150                | ±0.2           | 140g   |

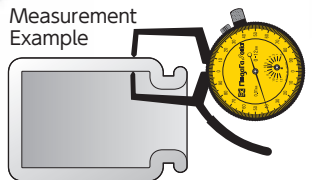
※ Quantization Error ( ± 1 digit) not included

# DIAL CALIPER GAUGES (OUTSIDE)

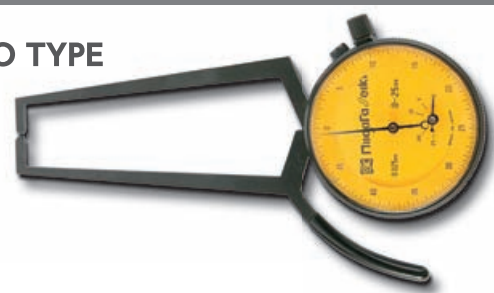
## AO TYPE



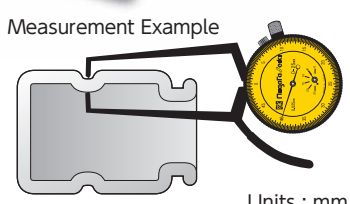
AO-1



## BO TYPE

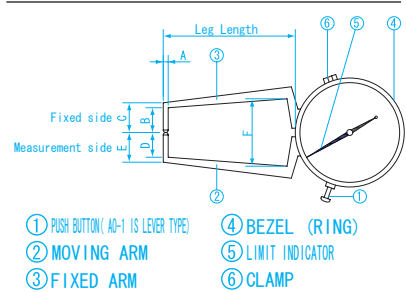


BO-1



## DIMENSIONS

Units : mm



## USE

- Measuring wall thickness and irregular parts

## MATERIAL

- Body : Steel

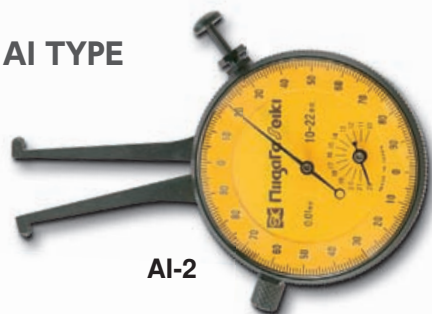
| Model No. | Leg Length | A   | B    | C    | D    | E    | F    |
|-----------|------------|-----|------|------|------|------|------|
| AO-1      | 40         | 2.3 | 11.5 | 14.5 | 11.5 | 14.5 | 27   |
| AO-2      | 40         | 2.3 | 18.5 | 20.5 | 11.5 | 14.5 | 45   |
| AO-3      | 40         | 2.3 | 8.5  | 10.5 | 11.5 | 14.5 | 49   |
| BO-1      | 80         | 2.3 | 8.5  | 10.5 | 8.5  | 10.5 | 27.5 |
| BO-2      | 80         | 2.3 | 8.5  | 10.5 | 8.5  | 10.5 | 46.5 |
| BO-3      | 80         | 2.3 | 8.5  | 10.5 | 8.5  | 10.5 | 55.5 |

※ Gauge head : φ 1.6mm ball

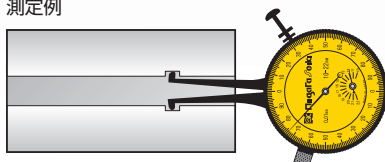
※ Custom shape product available by special order

| Order No. | Model No. | Graduation (mm) | Measuring Range (mm) | Accuracy (mm) |
|-----------|-----------|-----------------|----------------------|---------------|
| 151561    | AO-1      | 0.01            | 0~12                 | ±0.05         |
| 151562    | AO-2      | 0.01            | 10~22                | ±0.05         |
| 151563    | AO-3      | 0.01            | 20~32                | ±0.05         |
| 151571    | BO-1      | 0.025           | 0~25                 | ±0.05         |
| 151572    | BO-2      | 0.025           | 10~35                | ±0.05         |
| 151573    | BO-3      | 0.025           | 20~45                | ±0.05         |

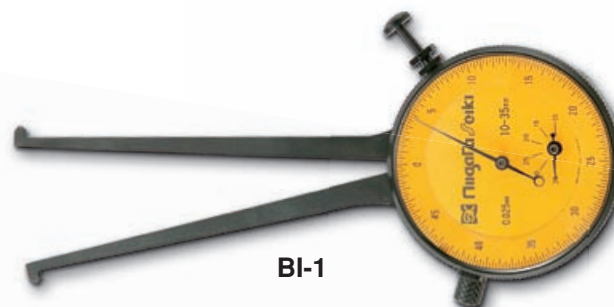
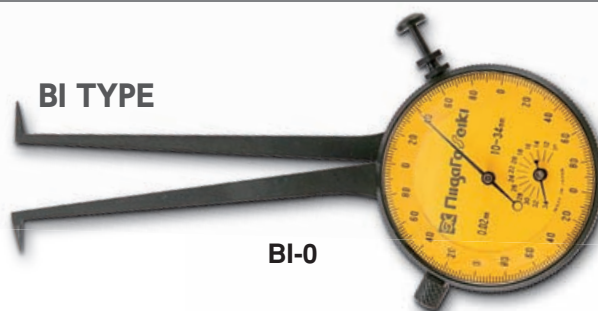
## AI TYPE



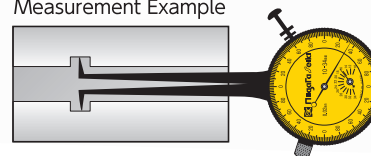
測定例



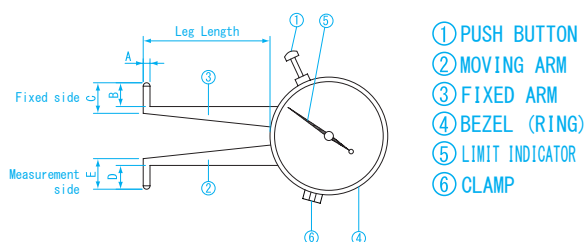
## BI TYPE



Measurement Example



## DIMENSIONS



Units : mm

| Model No. | Leg Length | A       | B    | C   | D   | E    |
|-----------|------------|---------|------|-----|-----|------|
| AI-0      | 40         | 2.3     | 1.1  | 2.8 | 1.1 | 2.8  |
| AI-1      | 40         | 2.3     | 1.1  | 2.8 | 1.1 | 2.8  |
| AI-2      | 40         | 2.3     | 2.7  | 4.5 | 2.3 | 4.8  |
| AI-3      | 40         | 2.3     | 8    | 11  | 4.4 | 6.7  |
| AI-4      | 40         | 2.3     | 18   | 21  | 4.4 | 6.7  |
| AI-5      | 40         | 2.3     | 28   | 31  | 4.4 | 6.7  |
| BI-0      | 80         | Tip 0.5 | 7    | 9   | 7   | 9    |
| BI-1      | 80         | 2.3     | 2.6  | 4.6 | 2.6 | 4.6  |
| BI-2      | 80         | 2.3     | 5.1  | 7.1 | 4.8 | 6.8  |
| BI-3      | 80         | 2.3     | 7.5  | 10  | 8.6 | 10.6 |
| BI-4      | 80         | 2.3     | 17.5 | 20  | 8.6 | 10.6 |
| BI-5      | 80         | 2.3     | 27.5 | 30  | 8.6 | 10.6 |

## USE

- For measuring bore size

## MATERIAL

- Body : Steel

※ Custom shape product available by special order

| Order No. | Model No. | Graduation (mm) | Measuring Range (mm) | Accuracy (mm) |
|-----------|-----------|-----------------|----------------------|---------------|
| 151540    | AI-0      | 0.01            | 3~ 9                 | ±0.05         |
| 151541    | AI-1      | 0.01            | 6~18                 | ±0.05         |
| 151542    | AI-2      | 0.01            | 10~22                | ±0.05         |
| 151543    | AI-3      | 0.01            | 20~32                | ±0.05         |
| 151544    | AI-4      | 0.01            | 30~42                | ±0.05         |
| 151545    | AI-5      | 0.01            | 40~52                | ±0.05         |
| 151550    | BI-0      | 0.02            | 10~34                | ±0.05         |
| 151551    | BI-1      | 0.025           | 10~35                | ±0.05         |
| 151552    | BI-2      | 0.025           | 20~45                | ±0.05         |
| 151553    | BI-3      | 0.025           | 30~55                | ±0.05         |
| 151554    | BI-4      | 0.025           | 40~65                | ±0.05         |
| 151555    | BI-5      | 0.025           | 50~75                | ±0.05         |





## DIGITAL CALIPER GAUGES



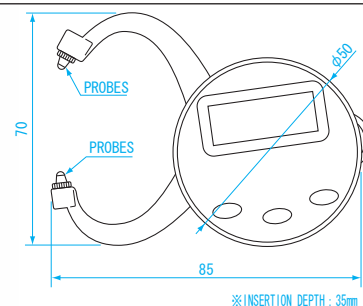
EDC-A125



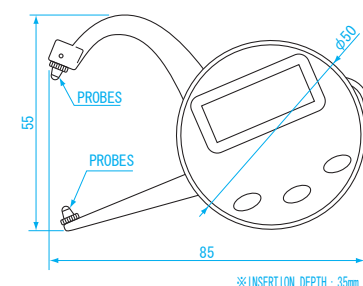
EDC-A225

## DIMENSIONS

Units : mm



EDC-A125



EDC-A225

- USE**
- One touch thickness measurement of tube, casting, etc.
- MATERIAL**
- Body : Steel, Plastic
- FEATURES**
- Easy to read digital display
  - Display hold function, Auto power off function (after 2 min.)
  - One CR2032 (Lithium) battery included for testing



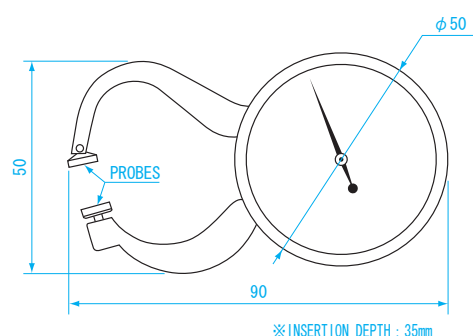
| Order No. | Model No. | Resolution (mm) | Measuring Range (mm) | Accuracy (mm)                            | Weight |
|-----------|-----------|-----------------|----------------------|------------------------------------------|--------|
| 152051    | EDC-A125  | 0.02            | 0-25                 | 0.00- 5.00mm:±0.04<br>5.02-25.00mm:±0.08 | 90g    |
| 152052    | EDC-A225  | 0.02            | 0-25                 | 0.00- 5.00mm:±0.04<br>5.02-25.00mm:±0.08 | 90g    |

## DIAL CALIPER GAUGES



## DIMENSIONS

Units : mm



- USE**
- Measure thickness of thin material
- MATERIAL**
- Body : Steel, Silver finish
- FEATURES**
- Convenient portable size
  - Flat probe surface for sheet metal thickness measurement

| Order No. | Model No. | Graduation (mm) | Measuring Range (mm) | Accuracy (mm) | Weight |
|-----------|-----------|-----------------|----------------------|---------------|--------|
| 151585    | DCG-MG1   | 0.05            | 0~10                 | ±0.1          | 75g    |





DCG-MA1

**USE** • Ideal for measuring tube and fitting thickness

**MATERIAL**  
• Body : Steel, Silver finish

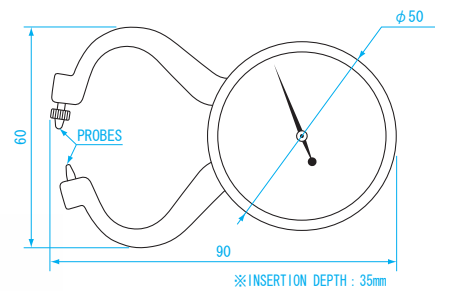
**FEATURES**  
• Convenient portable size  
• Round probe tip for measuring irregular shapes



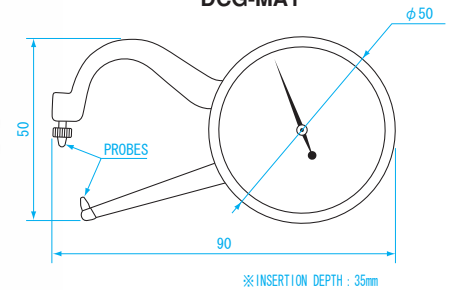
DCG-MA2

## DIMENSIONS

Units : mm



DCG-MA1



DCG-MA2

| Order No. | Model No. | Graduation (mm) | Measuring Range (mm) | Accuracy (mm) | Weight |
|-----------|-----------|-----------------|----------------------|---------------|--------|
| 151581    | DCG-MA1   | 0.05            | 0~10                 | $\pm 0.1$     | 75g    |
| 151582    | DCG-MA2   | 0.05            | 0~10                 | $\pm 0.1$     | 75g    |

# DIAL CALIPER GAUGES



DCG-MA115

**USE** • Ideal for measuring tube and fitting thickness

**MATERIAL**  
• Body : Steel, Silver finish

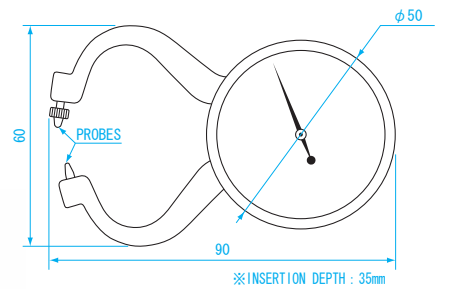
**FEATURES**  
• Convenient portable size  
• Round probe tip for measuring irregular shapes



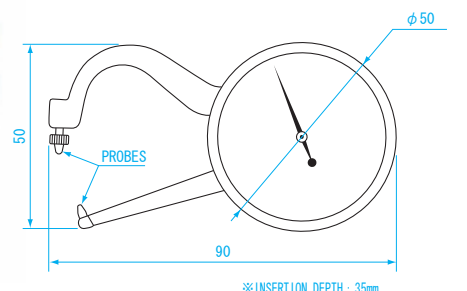
DCG-MA215

## DIMENSIONS

Units : mm



DCG-MA115



DCG-MA215

| Order No. | Model No. | Graduation (mm) | Measuring Range (mm) | Accuracy (mm) | Weight |
|-----------|-----------|-----------------|----------------------|---------------|--------|
| 151575    | DCG-MA115 | 0.05            | 0~15                 | $\pm 0.1$     | 75g    |
| 151576    | DCG-MA215 | 0.05            | 0~15                 | $\pm 0.1$     | 75g    |



## DUROMETER



**New product! Measure hardness of rubber or plastic. Conforms to JIS, ISO standards**



ADM-A



- USE** • Checking the hardness of a material such as rubber or plastic

**MATERIAL**

- Body: aluminum
- Presser foot: HM35 (SKH55) tool steel

**FEATURES**

- Presser foot geometry and spring force in compliance with the following standards:
- ISO 7619(E) 『Rubber-Determination of indentation hardness by means of pocket hardness meters』

**ACCESSORIES**

- Block to check wear (ADM-A, ADM-D)

| Model No.          | ADM-A                                          | ADM-D                                                          | ADM-E                                                   |
|--------------------|------------------------------------------------|----------------------------------------------------------------|---------------------------------------------------------|
| Hardness Range     | A20 ~ A90                                      | Greater than A90                                               | Less than A20                                           |
| Material for test  | Rubber, Soft plastic, Tires, Medium elastomers | Hard Rubber, Plastic, Ebonite rubber, High hardness elastomers | Soft rubber, Eraser, Roll film, Low hardness elastomers |
| Specimen thickness | 6.0mm or greater                               | 6.0mm or greater                                               | 10.0mm or greater                                       |
| Display accuracy   | ± 1 Gradation                                  |                                                                |                                                         |

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 151721    | ADM-A     | 160g   |
| 151722    | ADM-D     | 160g   |
| 151723    | ADM-E     | 170g   |

## DUROMETER STAND



**Stand to provide stable measurements for durometer testing**



DMS-D



- USE** • Stand for holding durometer

**MATERIAL**

- Stem, Weight : Iron
- Base: Cast iron

**FEATURES**

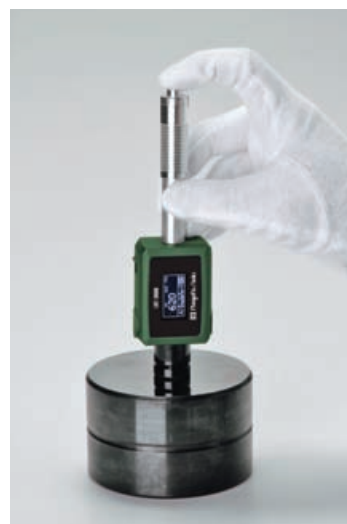
- When durometer is attached, provides constant pressure for consistent measurements.

| Order No. | Model No. | Applicable durometer | Weight |
|-----------|-----------|----------------------|--------|
| 151713    | DMS-AE    | ADM-A<br>ADM-E       | 5.5kg  |
| 151714    | DMS-D     | ADM-D                | 9.5kg  |

**New product! Portable hardness tester for measuring hardness of metals**



LHT-300D



**USE** • Measuring hardness of metal

**MATERIAL** • Body: ABS

## FEATURES

- Suitable for general metal hardness testing. Excellent for high volume use.
- Can be converted to display in any of 6 hardness scales - HRC, HV, HL, HRB, HS, HB
- Average can be automatically calculated for between 2 to 8 measurements.
- Includes software for recording measured values to PC
- DL stylus for measuring hardness in narrow spaces such as the bottom of groove in a large gear. (LHT-300DL)

## SPECIFICATIONS

- Material for test : Steel • Cast steel • Alloy tool steel • Stainless steel • High temperature steel • Cast iron • Ductile iron • Aluminum alloy • Brass • Bronze • Copper

## ACCESSORIES

- Master block • AC adapter • USB cable • Dedicated software
- DL Stylus (LHT-300DL only)

| Order No.  | Model No. | Measuring Range *            | Resolution | Accuracy          | Weight |
|------------|-----------|------------------------------|------------|-------------------|--------|
| New 151751 | LHT-300D  | Minimum 174 to maximum 900HL | 0.1        | within $\pm 17HL$ | 120g   |
| New 151752 | LHT-300DL | Minimum 174 to maximum 900HL | 0.1        | within $\pm 17HL$ | 120g   |

※ For D gauge head, HL units within range. Unit of measure varies depending on material to be measured.

# DIAL TENSION GAUGE

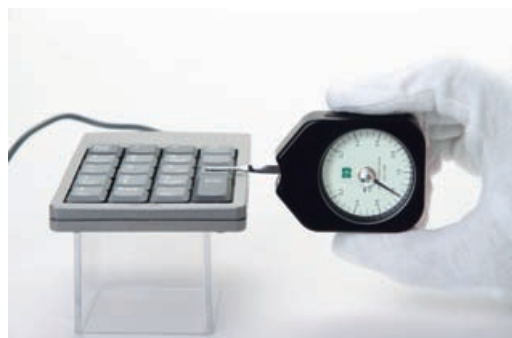
**New product! Measures the spring force to press button**



DITG-50P



Measuring head



**USE** • Button pressing force, spring tension

## MATERIAL

- Main body : ABS
- Measuring element : steel

## FEATURES

- Max indication needle for easily recording the maximum value required for button press.

| Order No.  | Model No. | Range (N)   | Resolution (N) | Accuracy                       | Weight |
|------------|-----------|-------------|----------------|--------------------------------|--------|
| New 151534 | DITG-30P  | 0.03 ~ 0.30 | 0.01           | less than $\pm 1.5$ graduation | 60g    |
| New 151535 | DITG-50P  | 0.06 ~ 0.50 | 0.02           | less than $\pm 1.5$ graduation | 60g    |
| New 151536 | DITG-100P | 0.10 ~ 1.00 | 0.05           | less than $\pm 1.5$ graduation | 60g    |
| New 151537 | DITG-150P | 0.15 ~ 1.50 | 0.05           | less than $\pm 1.5$ graduation | 60g    |
| New 151538 | DITG-300P | 0.30 ~ 3.00 | 0.10           | less than $\pm 1.5$ graduation | 60g    |
| New 151539 | DITG-500P | 0.60 ~ 5.00 | 0.20           | less than $\pm 1.5$ graduation | 60g    |



## MAGNETIC BASE

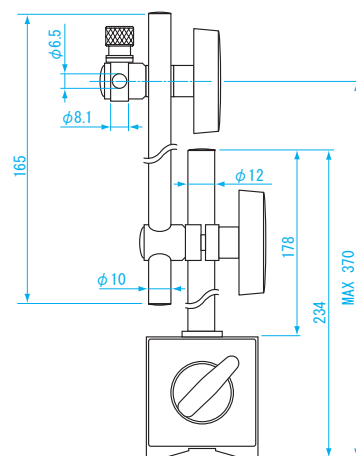


## Standard type



## DIMENSIONS

Units : mm



- USE** • Measurements that require a dial gauge or dial indicator to be held in fixed position

**MATERIAL**

- Ferrite magnet

**FEATURES**

- Standard type
- Removable, with ON/ OFF lever operation
- Magnetic adsorption : approx. 800N (180 lb)
- Stem holder :  $\phi$  6mm •  $\phi$  8mm
- Main post screw : M8  $\times$  P1.25

| Order No. | Model No. | Base Dimension (mm)        | Surface magnetic flux density (mT) | Weight |
|-----------|-----------|----------------------------|------------------------------------|--------|
| 012870    | SB-6C     | 50 $\times$ 60 $\times$ 55 | Max100                             | 1.5kg  |

## MAGNETIC BASE

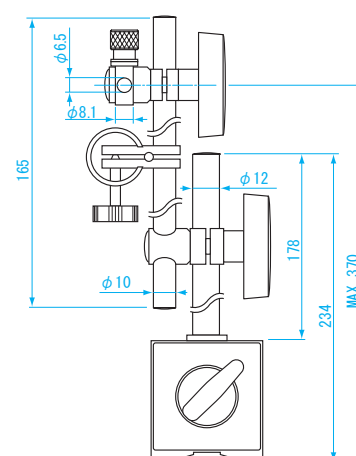


## Fine Adjustment type



## DIMENSIONS

Units : mm



- USE** • Measurements that require a dial gauge or dial indicator to be held in fixed position

**MATERIAL**

- Ferrite magnet

**FEATURES**

- With fine adjustment ( 2mm adj. range)
- Removable, with ON/ OFF magnet operation
- Magnetic force : approx. 800N (180 lb)
- Stem holder :  $\phi$  6mm •  $\phi$  8mm
- Main post screw : M8  $\times$  P1.25

| Order No. | Model No. | Base Dimension (mm)        | Surface magnetic flux density (mT) | Weight |
|-----------|-----------|----------------------------|------------------------------------|--------|
| 012871    | SB-6B     | 50 $\times$ 60 $\times$ 55 | Max100                             | 1.5kg  |



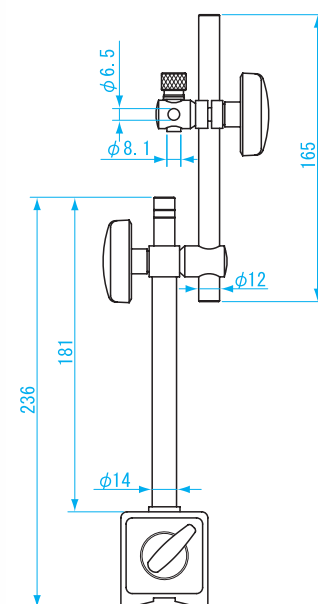
## MAGNETIC BASE



### Thick Main Post type



#### DIMENSIONS Units : mm



- USE** • Measurements that require a dial gauge or dial indicator to be held in fixed position
- MATERIAL**
  - Ferrite magnet
- FEATURES**
  - Thick main post type
  - Removable, with ON/ OFF magnet operation
  - Magnetic force : approx. 800N (180 lb)
  - Stem holder :  $\phi$  6mm •  $\phi$  8mm
  - Main post screw : M8  $\times$  P1.25

| Order No. | Model No. | Base Dimension (mm)        | Surface magnetic flux density (mT) | Weight |
|-----------|-----------|----------------------------|------------------------------------|--------|
| 012873    | SB-80P    | 50 $\times$ 60 $\times$ 55 | Max100                             | 1.5kg  |

## MAGNETIC BASE

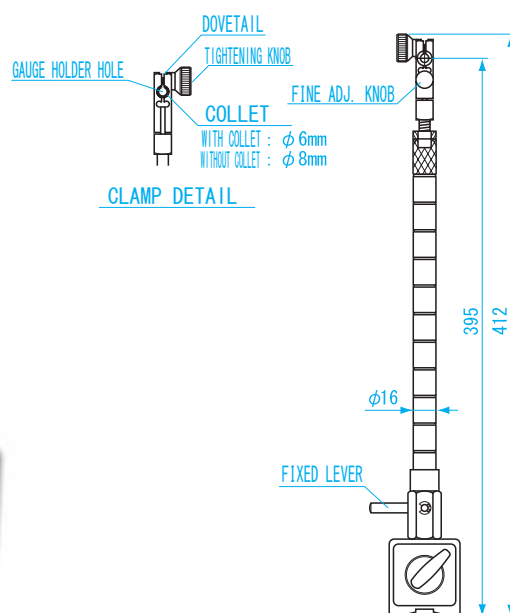


### Flexible type



#### DIMENSIONS

Units : mm



- USE** • Measurements that require a dial gauge or dial indicator to be held in fixed position
- MATERIAL**
  - Ferrite magnet
- FEATURES**
  - Flexible shaft for quick and easy positioning. One touch lever to fix position securely
  - Removable, with ON/OFF magnet operation
  - Magnetic Force : approx. 800N (180 lb)
  - Stem holder :  $\phi$  6mm •  $\phi$  8mm
  - With dovetail mount
  - Main post screw : M8  $\times$  P1.25

| Order No. | Model No. | Base Dimension (mm)        | Surface magnetic flux density (mT) | Weight |
|-----------|-----------|----------------------------|------------------------------------|--------|
| 012874    | SB-80F    | 50 $\times$ 60 $\times$ 55 | Max100                             | 1.3kg  |





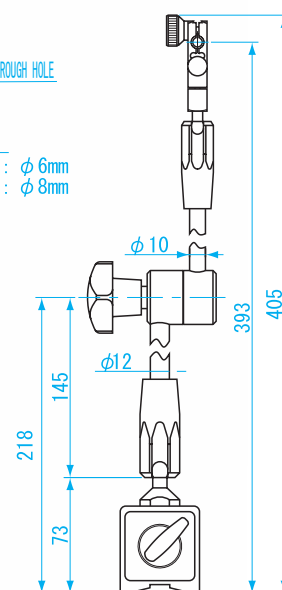
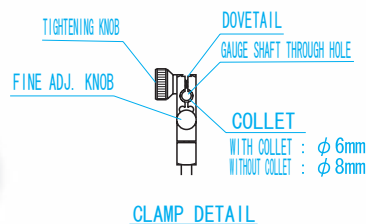
## MAGNETIC BASE



### Locking type

### DIMENSIONS

Units : mm



- USE**
- Measurements that require a dial gauge or dial indicator to be held in fixed position

**MATERIAL**

- Ferrite magnet

**FEATURES**

- Mechanical lock knob tightens all joints with a single operation
- Removable, with ON/OFF magnet operation
- Magnetic force : approx.1000N (225 lb)
- Stem holder : φ 6mm · φ 8mm
- With dovetail mount
- Main post screw : M8 × P1.25

| Order No. | Model No. | Base Dimension (mm) | Surface magnetic flux density (mT) | Weight |
|-----------|-----------|---------------------|------------------------------------|--------|
| 012875    | SB-100G   | 50×75×55            | Max100                             | 1.7kg  |

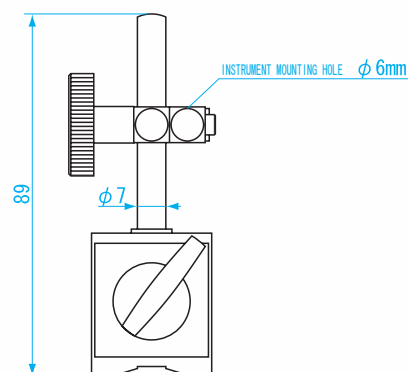
## MAGNETIC BASE MINI TYPE



### Mini type

### DIMENSIONS

Units : mm



- USE**
- Measurements that require a dial indicator to be held in fixed position

**MATERIAL**

- Ferrite magnet

**FEATURES**

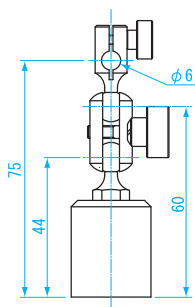
- Compact size
- Removable, with ON/ OFF magnet operation
- Magnetic force : approx. 250N (55 lb)
- Stem holder : φ 6mm
- Main post screw : M5 × P0.8

| Order No. | Model No. | Base Dimension (mm) | Surface magnetic flux density (mT) | Weight |
|-----------|-----------|---------------------|------------------------------------|--------|
| 012872    | SB-25M    | 30×35×35            | Max100                             | 270g   |

## MINI MAGNETIC BASE

### Mini type

#### DIMENSIONS Units : mm



**USE** • Measurements that require a dial indicator to be held in fixed position

**MATERIAL** • Alnico magnet

#### FEATURES

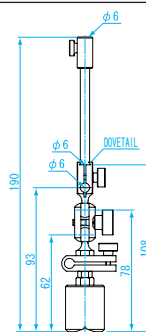
- Excellent holding force using high power alnico magnet
- Fixed type
- Magnetic force : approx. 80N (18 lb)
- Stem holder :  $\phi$  6mm
- Main post screw : M5  $\times$  P0.8

| Order No. | Model No. | Base Dimension (mm)   | Surface magnetic flux density (mT) | Weight |
|-----------|-----------|-----------------------|------------------------------------|--------|
| 012700    | B-2       | $\phi$ 25 $\times$ 30 | Max50                              | 160g   |

## MINI MAGNETIC BASE

### Mini/ Fine Adjustment type

#### DIMENSIONS Units : mm



**USE** • Measurements that require a dial indicator to be held in fixed position

**MATERIAL** • Alnico magnet

#### FEATURES

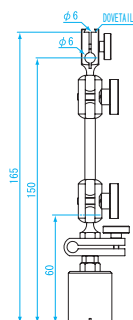
- Excellent holding force using high power alnico magnet
- 90mm arm
- With fine adjustment (0.5mm adj. range)
- Magnetic Force : approx. 65N (15 lb)
- Stem holder :  $\phi$  6mm
- With dovetail mount
- Main post screw : M5  $\times$  P0.8

| Order No. | Model No. | Base Dimension (mm)        | Surface magnetic flux density (mT) | Weight |
|-----------|-----------|----------------------------|------------------------------------|--------|
| 012701    | B-3       | 25 $\times$ 25 $\times$ 25 | Max50                              | 230g   |

## MINI MAGNETIC BASE

### Mini / Fine Adjustment/ Long type

#### DIMENSIONS Units : mm



**USE** • Measurements that require a dial indicator to be held in fixed position

**MATERIAL** • Alnico magnet

#### FEATURES

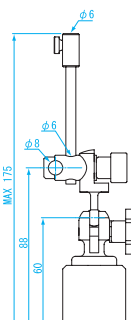
- Excellent holding force using high power alnico magnet
- Two joints, with long arm
- With fine adjustment (0.5mm adj. range)
- Magnetic force : approx. 85N (20 lb)
- Stem holder :  $\phi$  6mm
- With dovetail mount
- Main post screw : M5  $\times$  P0.8

| Order No. | Model No. | Base Dimension (mm)        | Surface magnetic flux density (mT) | Weight |
|-----------|-----------|----------------------------|------------------------------------|--------|
| 012702    | B-4       | 25 $\times$ 25 $\times$ 30 | Max50                              | 280g   |

## MINI MAGNETIC BASE

### Universal/ Mini type

#### DIMENSIONS Units : mm



**USE** • Measurements that require a dial indicator to be held in fixed position

**MATERIAL** • Samarium Cobalt (Sm-Co) magnet

#### FEATURES

- Strong holding force using samarium cobalt magnet
- Universal joint can be set to any angle
- Locking knob for easy tightening
- Magnetic force : approx. 200N (45 lb)
- Stem holder :  $\phi$  6mm  $\cdot$   $\phi$  8mm
- With clamp for mounting dial gauge
- Main post screw : M5  $\times$  P0.8

| Order No. | Model No. | Base Dimension (mm)   | Surface magnetic flux density (mT) | Weight |
|-----------|-----------|-----------------------|------------------------------------|--------|
| 012703    | B-5       | $\phi$ 35 $\times$ 32 | Max90                              | 270g   |

DIAL GAUGES

DIAL INDICATORS

THICKNESS GAUGES

BORE GAUGES

CALIPER GAUGES

HARDNESS-TENSION GAUGE

MAGNETIC BASE



## MINI MAGNETIC BASE

### Universal/ Mini/ Fine Adjustment type

**USE** • Measurements that require a dial indicator to be held in fixed position

**MATERIAL**

- Samarium Cobalt (Sm-Co) magnet

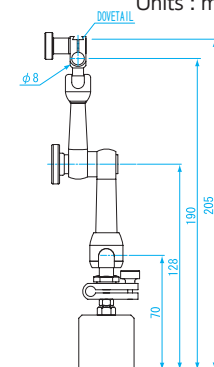
**FEATURES**

- Strong holding force using samarium cobalt magnet
- Universal joint can be set to any angle
- Locking knob for easy tightening
- With fine adjustment (0.5mm adj. range)
- Magnetic force : approx. 200N (45 lb)
- Stem holder :  $\phi$  8mm
- With dovetail mount
- Main post screw : M5  $\times$  P0.8



### DIMENSIONS

Units : mm



| Order No. | Model No. | Base Dimension (mm)   | Surface magnetic flux density (mT) | Weight |
|-----------|-----------|-----------------------|------------------------------------|--------|
| 012704    | MB-6      | $\phi$ 35 $\times$ 32 | Max90                              | 510g   |

## MINI MAGNETIC BASE



### Small/ Lock type

**USE** • Measurements that require a dial indicator to be held in fixed position

**MATERIAL**

- Ferrite magnet

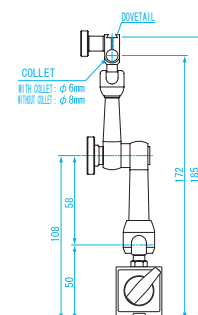
**FEATURES**

- Mechanical lock knob tightens all three joints with a single operation
- Removable, with ON/ OFF magnet operation
- Magnetic force : approx. 250N (55 lb)
- Stem holder :  $\phi$  6mm $\cdot$   $\phi$  8mm
- With dovetail mount
- Main post screw : M5  $\times$  P0.8



### DIMENSIONS

Units : mm



| Order No. | Model No. | Base Dimension (mm)        | Surface magnetic flux density (mT) | Weight |
|-----------|-----------|----------------------------|------------------------------------|--------|
| 012705    | MB-7      | 30 $\times$ 35 $\times$ 35 | Max100                             | 550g   |

## VACUUM CLAMPING BASE



**USE** • For mounting dial indicator

**MATERIAL**

- Main body : Aluminum
- Suction cup : Rubber

**FEATURES**

- Suction cup for fixing to non-magnetic surface such as granite surface plate

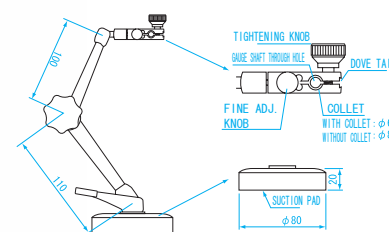
**SPECIFICATIONS**

- Holding force : approx. 200N (45 lb)
- Stem holder :  $\phi$  6,  $\phi$  8 (with dovetail groove)
- Shaft diameter : M8



### DIMENSIONS

Units : mm



| Order No. | Model No. | Base Dimension (mm)   | Weight |
|-----------|-----------|-----------------------|--------|
| 011755    | VB-20     | $\phi$ 80 $\times$ 20 | 550g   |



96p



96p



97p



97p



98p



98p



98p



99p



99p



99p



100p

# STANDARDS



101p



101p



102p



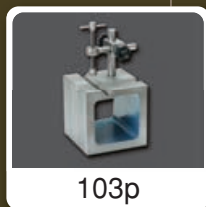
102p



102p



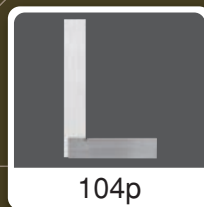
102p



103p



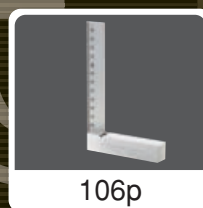
103p



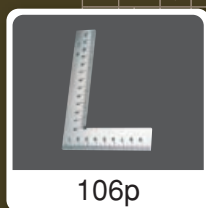
104p



105p



106p



106p



107p



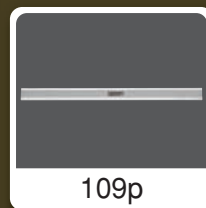
107p



108p



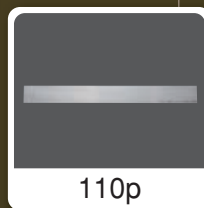
108p



109p



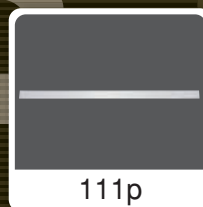
109p



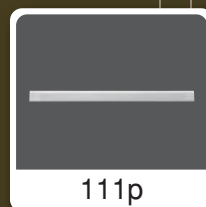
110p



110p



111p



111p



112p

GRANITE

CAST IRON  
SURFACE  
PLATE

PARALLEL  
BLOCK

V BLOCK

SQUARE

STRAIGHT  
EDGE

PARALLEL  
CLAMPS



## GRANITE SURFACE PLATE

### GRANITE SURFACE PLATE

- USE**
- Measurement of flatness, parallelism and squareness
  - For tooling set up, precision inspection etc.

- MATERIAL**
- Granite

- FEATURES**
- Granite is abrasion resistant and unlike cast iron, granite does not rust or deteriorate with time



**G6060**

| Order No. | Model No. | W × D × H (mm)    | Flatness (μm) | Weight  |
|-----------|-----------|-------------------|---------------|---------|
| 151102    | G1520     | 150 × 200 × 50    | 3             | 5 kg    |
| 151103    | G2020     | 200 × 200 × 50    | 3             | 6 kg    |
| 151104    | G2525     | 250 × 250 × 70    | 3             | 13 kg   |
| 151001    | G3030     | 300 × 300 × 100   | 3             | 55 kg   |
| 151002    | G3045     | 300 × 450 × 100   | 3             | 61 kg   |
| 151007    | G5050     | 500 × 500 × 100   | 4             | 93 kg   |
| 151003    | G4560     | 450 × 600 × 100   | 4             | 96 kg   |
| 151008    | G5075     | 500 × 750 × 130   | 5             | 169 kg  |
| 151004    | G6060     | 600 × 600 × 130   | 5             | 161 kg  |
| 151005    | G75100    | 750 × 1000 × 150  | 7             | 380 kg  |
| 151006    | G10100    | 1000 × 1000 × 150 | 8             | 500 kg  |
| 151000    | G10150    | 1000 × 1500 × 200 | 9             | 980 kg  |
| 151105    | G10200    | 1000 × 2000 × 200 | 12            | 1500 kg |

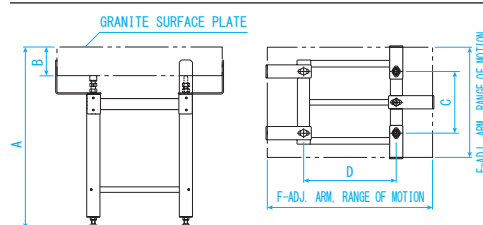
### GRANITE SURFACE PLATE STEEL STAND



**GT-5075J + G5075**

**GT-75100J**

#### DIMENSIONS



Units : mm

| Model No. | A                 | B   | C   | D   | E          | F           |
|-----------|-------------------|-----|-----|-----|------------|-------------|
| GT-5050J  | Approx. 800 ~ 850 | 100 | 280 | 280 | 485 ~ 515  | 485 ~ 515   |
| GT-4560J  | Approx. 800 ~ 850 | 100 | 252 | 336 | 435 ~ 465  | 585 ~ 615   |
| GT-5075J  | Approx. 800 ~ 850 | 130 | 280 | 420 | 485 ~ 515  | 735 ~ 765   |
| GT-6060J  | Approx. 800 ~ 850 | 130 | 336 | 336 | 585 ~ 615  | 585 ~ 615   |
| GT-75100J | Approx. 800 ~ 850 | 150 | 420 | 560 | 735 ~ 765  | 985 ~ 1015  |
| GT-10100J | Approx. 800 ~ 850 | 150 | 560 | 560 | 985 ~ 1015 | 985 ~ 1015  |
| GT-10150J | Approx. 800 ~ 850 | 200 | 560 | 840 | 985 ~ 1015 | 1485 ~ 1515 |

- USE**
- Steel stand for SK granite surface plate

- MATERIAL**
- Angle steel

- FEATURES**
- Heavy duty bolted steel construction
  - Leveling bolts for horizontal adjustment
  - Gray painted frame

| Order No.                    | Model No. | Applicable Surface Plate Size (mm) | W × D × H (mm)        | Weight |
|------------------------------|-----------|------------------------------------|-----------------------|--------|
| <b>N<sub>FW</sub></b> 151241 | GT-5050J  | 500 × 500 × 100                    | 380 × 380 × 775 ~ 800 | 17.5kg |
| <b>N<sub>FW</sub></b> 151242 | GT-4560J  | 450 × 600 × 100                    | 350 × 400 × 775 ~ 800 | 17.5kg |
| <b>N<sub>FW</sub></b> 151243 | GT-5075J  | 500 × 750 × 130                    | 380 × 515 × 775 ~ 800 | 18.5kg |
| <b>N<sub>FW</sub></b> 151244 | GT-6060J  | 600 × 600 × 130                    | 420 × 440 × 775 ~ 800 | 18.5kg |
| <b>N<sub>FW</sub></b> 151245 | GT-75100J | 750 × 1000 × 150                   | 530 × 660 × 775 ~ 800 | 48kg   |
| <b>N<sub>FW</sub></b> 151246 | GT-10100J | 1000 × 1000 × 150                  | 640 × 700 × 675 ~ 700 | 50kg   |
| <b>N<sub>FW</sub></b> 151247 | GT-10150J | 1000 × 1500 × 200                  | 700 × 940 × 675 ~ 700 | 60kg   |

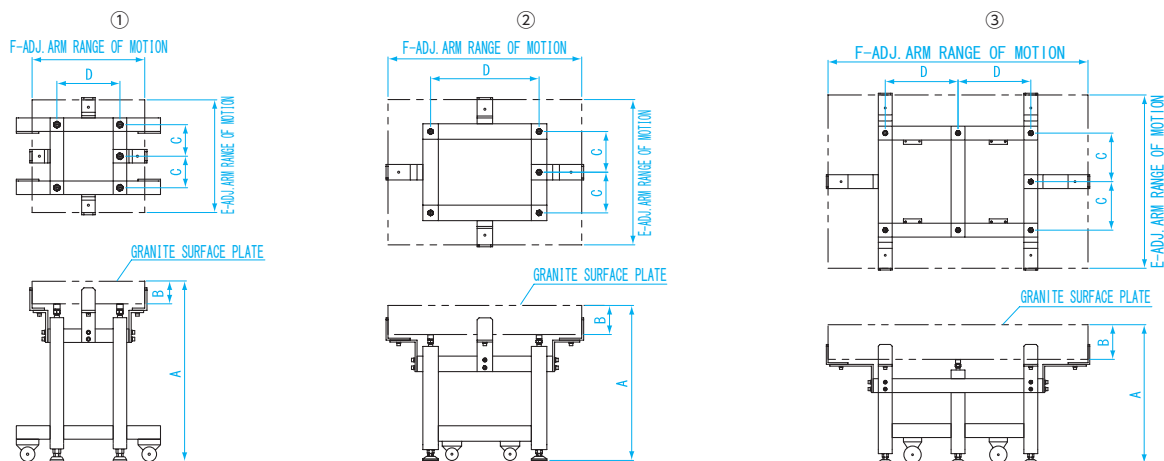




GTW-5075J



## DIMENSIONS



Units : mm

| DIMENSIONS | Model No.  | A                 | B   | C   | D   | E          | F           |
|------------|------------|-------------------|-----|-----|-----|------------|-------------|
| ①          | GTW-5050J  | Approx. 800 ~ 850 | 100 | 140 | 280 | 485 ~ 515  | 485 ~ 515   |
| ①          | GTW-4560J  | Approx. 800 ~ 850 | 100 | 126 | 336 | 440 ~ 465  | 590 ~ 615   |
| ①          | GTW-6060J  | Approx. 800 ~ 850 | 130 | 168 | 336 | 590 ~ 615  | 590 ~ 615   |
| ①          | GTW-5075J  | Approx. 800 ~ 850 | 130 | 140 | 420 | 485 ~ 515  | 735 ~ 765   |
| ②          | GTW-75100J | Approx. 800 ~ 850 | 150 | 210 | 560 | 730 ~ 770  | 980 ~ 1020  |
| ②          | GTW-10100J | Approx. 800 ~ 850 | 150 | 280 | 560 | 980 ~ 1040 | 980 ~ 1040  |
| ③          | GTW-10150W | Approx. 800 ~ 850 | 200 | 280 | 420 | 980 ~ 1040 | 1480 ~ 1540 |
| ③          | GT-10200W  | Approx. 800 ~ 850 | 200 | 280 | 560 | 980 ~ 1040 | 1980 ~ 2040 |

## USE

- Designed to fit SK granite surface plate

## MATERIAL

- Square tubular machine grade steel

## FEATURES

- Leveling bolts for horizontal adjustment
- Side stop arms
- Casters for easy movement

GRANITE

CAST IRON  
SURFACE  
PLATE

PARALLEL  
BLOCK

V BLOCK

SQUARE

STRAIGHT  
EDGE

PARALLEL  
CLAMPS

| Order No.  | Model No.  | Surface Plate Size (mm) | Weight |
|------------|------------|-------------------------|--------|
| NEW 151253 | GTW-5050J  | 500 × 500 × 100         | 29kg   |
| NEW 151254 | GTW-4560J  | 450 × 600 × 100         | 30kg   |
| NEW 151255 | GTW-6060J  | 600 × 600 × 130         | 33kg   |
| NEW 151256 | GTW-5075J  | 500 × 750 × 130         | 31kg   |
| NEW 151257 | GTW-75100J | 750 × 1000 × 150        | 43kg   |
| NEW 151258 | GTW-10100J | 1000 × 1000 × 150       | 50kg   |
| NEW 151259 | GTW-10150W | 1000 × 1500 × 200       | 77kg   |
| NEW 151260 | GT-10200W  | 1000 × 2000 × 200       | 102kg  |



## GRANITE SURFACE PLATE T TYPE

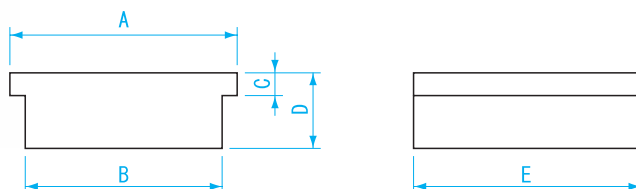


G3030T



T-shape for easy lifting

### DIMENSIONS



Units : mm

| Model No. | A   | B   | C  | D   | E   |
|-----------|-----|-----|----|-----|-----|
| G3030T    | 300 | 260 | 30 | 100 | 300 |
| G3045T    | 450 | 410 | 30 | 100 | 300 |

- USE**
- Measurement of flatness, parallelism and squareness
  - For tooling set up, precision inspection, etc.

**MATERIAL**

- Granite

**FEATURES**

- Convenient to lift and move
- Granite is abrasion resistant and unlike cast iron, granite does not rust or deteriorate with time

| Order No. | Model No. | W × D × H (mm)  | Flatness (μm) | Weight |
|-----------|-----------|-----------------|---------------|--------|
| 150710    | G3030T    | 300 × 300 × 100 | 3.5           | 22kg   |
| 150711    | G3045T    | 300 × 450 × 100 | 4.5           | 40kg   |

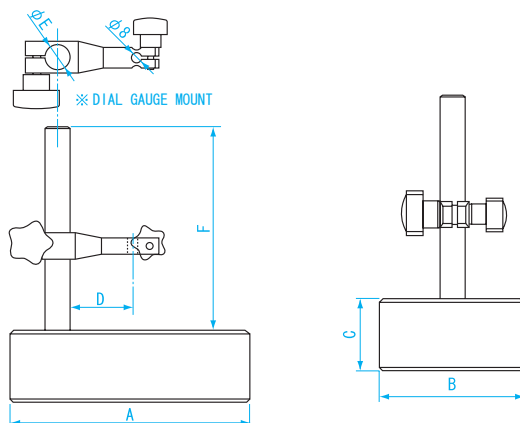
## GRANITE COMPARATOR STAND



GC-150C

GC-200C

### DIMENSIONS



Units : mm

| Model No. | A   | B   | C  | D  | E  | F   |
|-----------|-----|-----|----|----|----|-----|
| GC-150C   | 150 | 100 | 40 | 45 | 18 | 150 |
| GC-200C   | 200 | 150 | 50 | 65 | 30 | 300 |

- USE**
- Provides flat surface for dial indicator measurements

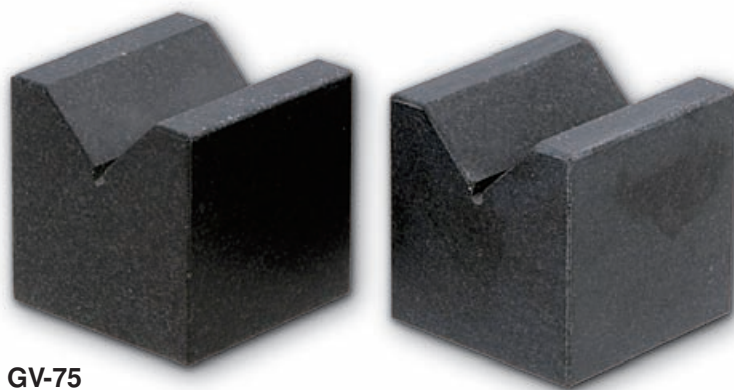
**MATERIAL**

- Granite

**FEATURES**

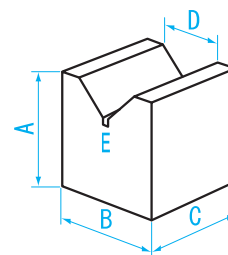
- Granite is abrasion resistant. Unlike cast iron, granite does not rust or deteriorate with time

| Order No. | Model No. | Measuring Range (mm) | Flatness(base) (μm) | Dial Indicator Mounting hole (mm) | Weight |
|-----------|-----------|----------------------|---------------------|-----------------------------------|--------|
| 150973    | GC-150C   | 0 ~ 100              | 2                   | φ 8                               | 2.5kg  |
| 150974    | GC-200C   | 0 ~ 250              | 2                   | φ 8                               | 7.5kg  |



GV-75

## DIMENSIONS



Units : mm

**USE** • Tools for precise holding of round parts

## MATERIAL

- Granite

## FEATURES

- Granite is abrasion resistant. Unlike cast iron, granite does not rust or deteriorate with time
- 2 PCS(matched pair)

| Model No. | A   | B   | C   | D   | E*        |
|-----------|-----|-----|-----|-----|-----------|
| GV-50     | 50  | 50  | 50  | 40  | Approx. 4 |
| GV-75     | 75  | 75  | 75  | 50  | Approx. 4 |
| GV-100    | 100 | 100 | 100 | 63  | Approx. 6 |
| GV-150    | 150 | 150 | 150 | 110 | Approx. 8 |

※ reference value

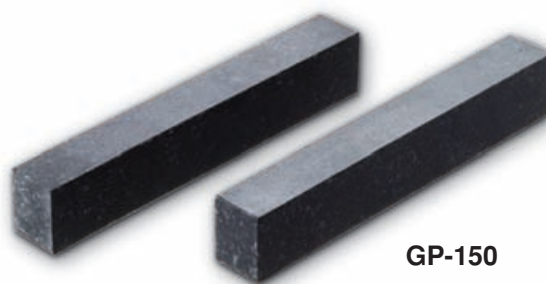
| Order No. | Model No. | Nominal size (mm) | V groove squareness<br>Squareness of parallels sides | Weight |
|-----------|-----------|-------------------|------------------------------------------------------|--------|
| 150961    | GV-50     | 50                | 5μm/100mm                                            | 430g   |
| 150962    | GV-75     | 75                | 5μm/100mm                                            | 1.2kg  |
| 150963    | GV-100    | 100               | 5μm/100mm                                            | 2.5kg  |
| 150964    | GV-150    | 150               | 5μm/100mm                                            | 8.6kg  |

## GRANITE STRAIGHT EDGE RACEABILITY



## GS-750

## GRANITE PARALLEL BLOCK



## GP-150

USE • For parallel unit

## MATERIAL

- Granite

## FEATURES

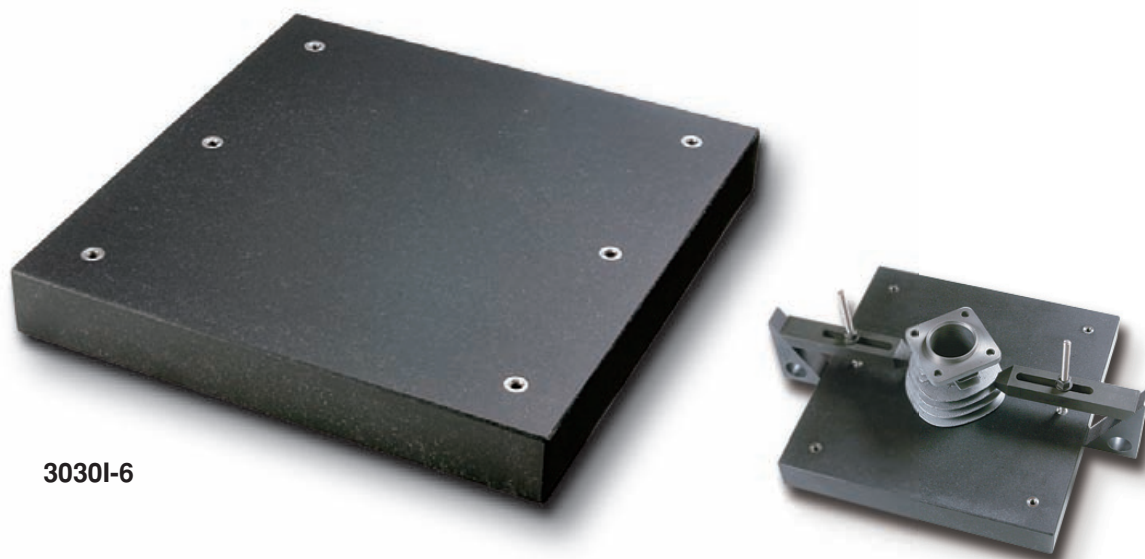
- Granite is abrasion resistant. Unlike cast iron, granite does not rust or deteriorate with time
- Precision surface on four sides
- 2 PCS(matched pair)

| Order No. | Model No. | Nominal Size (mm) | Straightness ( $\mu\text{m}$ ) | Parallelism ( $\mu\text{m}$ ) | Weight |
|-----------|-----------|-------------------|--------------------------------|-------------------------------|--------|
| 150951    | GS-750    | 750               | 3                              | 5                             | 12kg   |
| 150952    | GS-1000   | 1000              | 4                              | 6                             | 25kg   |

| Order No. | Model No. | Nominal Size (mm) | Squareness/<br>Parallelism ( $\mu m$ ) | Weight |
|-----------|-----------|-------------------|----------------------------------------|--------|
| 150965    | GP-150    | 150               | 1.5                                    | 520g   |
| 150966    | GP-200    | 200               | 2                                      | 1kg    |
| 150967    | GP-300    | 300               | 3                                      | 3.5kg  |

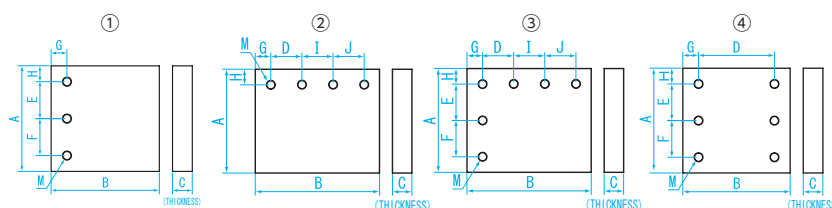


## GRANITE MEASURING JIG PLATE



3030I-6

## DIMENSIONS



Units : mm

| DIMENSIONS | Model No. | A   | B   | C  | D   | E   | F   | G  | H  | I  | J  | M               |
|------------|-----------|-----|-----|----|-----|-----|-----|----|----|----|----|-----------------|
| ①          | 2020I-3   | 200 | 200 | 30 | —   | 70  | 70  | 30 | 30 | —  | —  | M6×P1.0 (D)12mm |
| ④          | 2020I-6   | 200 | 200 | 30 | 140 | 70  | 70  | 30 | 30 | —  | —  | M6×P1.0 (D)12mm |
| ②          | 2025I-4   | 200 | 250 | 40 | 60  | —   | —   | 30 | 30 | 60 | 60 | M6×P1.0 (D)12mm |
| ③          | 2025L-6   | 200 | 250 | 40 | 60  | 70  | 70  | 30 | 30 | 60 | 60 | M6×P1.0 (D)12mm |
| ②          | 2530I-4   | 250 | 300 | 40 | 80  | —   | —   | 30 | 30 | 80 | 80 | M6×P1.0 (D)12mm |
| ③          | 2530L-6   | 250 | 300 | 40 | 80  | 95  | 95  | 30 | 30 | 80 | 80 | M6×P1.0 (D)12mm |
| ①          | 3030I-3   | 300 | 300 | 40 | —   | 120 | 120 | 30 | 30 | —  | —  | M6×P1.0 (D)12mm |
| ④          | 3030I-6   | 300 | 300 | 40 | 240 | 120 | 120 | 30 | 30 | —  | —  | M6×P1.0 (D)12mm |

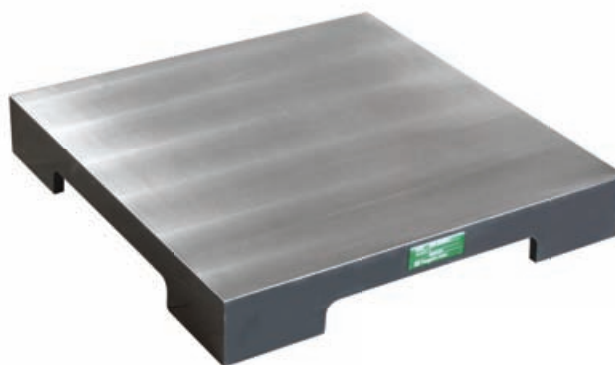
**USE** • Sample can be clamped to surface for inspection

**MATERIAL**  
• Granite

**FEATURES**

- Threaded holes in the surface of the plate. High hardness and superior abrasion resistance. Resist water deterioration and corrosion with time

| Order No. | Model No. | W × D × H (mm) | Flatness (μm) | Weight |
|-----------|-----------|----------------|---------------|--------|
| 151170    | 2020I-3   | 200×200×30     | 5             | 4kg    |
| 151171    | 2020I-6   | 200×200×30     | 5             | 4kg    |
| 151172    | 2025I-4   | 200×250×40     | 5             | 6kg    |
| 151173    | 2025L-6   | 200×250×40     | 5             | 6kg    |
| 151174    | 2530I-4   | 250×300×40     | 5             | 9kg    |
| 151175    | 2530L-6   | 250×300×40     | 5             | 9kg    |
| 151176    | 3030I-3   | 300×300×40     | 5             | 11kg   |
| 151177    | 3030I-6   | 300×300×40     | 5             | 11kg   |



**USE** • For tooling set up, precision inspection etc.

**MATERIAL**

- Cast iron

**FEATURES**

- Planer standard for hand scraping operation

| Order No. | Model No. | W × D × H (mm) | Flatness (μm) | Weight |
|-----------|-----------|----------------|---------------|--------|
| 151011    | S3030     | 300×300× 60    | 38            | 18kg   |
| 151013    | S5050     | 500×500× 75    | 57            | 55kg   |
| 151014    | S4560     | 600×450×100    | 60            | 75kg   |

## STEEL PARALLEL BLOCKS

**USE** • Parallels are used to maintain parallelism and straightness as well as machine set-up.

- Indispensable for inspection and layout work or for miscellaneous setup work in grinding, marking, drilling and milling, in addition to protecting machinery from blade damage

**MATERIAL**

- Machine grade carbon steel

**FEATURES**

- Completely heat treated and accurately ground on all faces
- 2 PCS(matched pair)
- Parallelism/ Straightness accuracy : 5 μm
- Hardness:HV510~590



| Model No. | Dimension (mm) | Weight |
|-----------|----------------|--------|
| P-1       | 6 × 10 × 150   | 140g   |
| P-2       | 6 × 15 × 150   | 200g   |
| P-3       | 6 × 20 × 150   | 300g   |
| P-4       | 10 × 15 × 150  | 400g   |
| P-5       | 10 × 20 × 150  | 500g   |
| P-6       | 15 × 20 × 150  | 720g   |
| P-7       | 15 × 25 × 150  | 900g   |
| P-8       | 15 × 20 × 230  | 550g   |
| P-9       | 15 × 25 × 230  | 700g   |
| P-10      | 20 × 25 × 230  | 900g   |
| P-11      | 20 × 35 × 230  | 1.3kg  |
| P-12      | 20 × 25 × 300  | 1.2kg  |
| P-13      | 20 × 30 × 300  | 1.4kg  |
| P-14      | 25 × 30 × 300  | 1.8kg  |
| P-15      | 25 × 40 × 300  | 2.4kg  |
| P-16      | 25 × 50 × 300  | 3kg    |
| P-17      | 30 × 40 × 300  | 2.9kg  |
| P-18      | 30 × 50 × 300  | 3.6kg  |
| P-19      | 40 × 50 × 300  | 4.8kg  |
| P-20      | 40 × 75 × 300  | 7.1kg  |

GRANITE

CAST IRON  
SURFACE  
PLATE

PARALLEL  
BLOCK

V BLOCK

SQUARE

STRAIGHT  
EDGE

PARALLEL  
CLAMPS



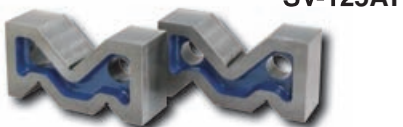


## CAST IRON V BLOCK - A type • B type

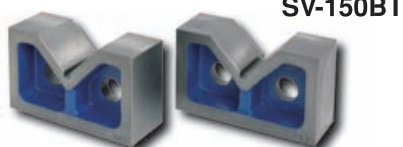
2 piece set. Tool for precise holding of round parts during measurement and production.



SV-100AT

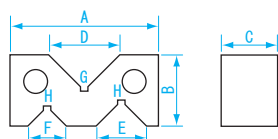


SV-125AT

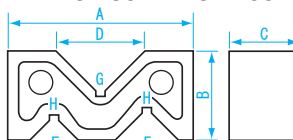


SV-150BT

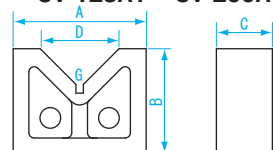
### DIMENSIONS



SV-50AT ~ SV-100AT



SV-125AT ~ SV-200AT



SV-75BT ~ SV-200BT

Units : mm

| Model No. | A   | B   | C  | D   | E  | F  | G* | H* |
|-----------|-----|-----|----|-----|----|----|----|----|
| SV-50AT   | 50  | 24  | 20 | 23  | 17 | 13 | 4  | 2  |
| SV-75AT   | 75  | 35  | 24 | 37  | 24 | 16 | 4  | 2  |
| SV-100AT  | 100 | 52  | 33 | 52  | 32 | 22 | 4  | 4  |
| SV-125AT  | 125 | 69  | 44 | 63  | 37 | 26 | 5  | 3  |
| SV-150AT  | 150 | 80  | 50 | 74  | 45 | 30 | 5  | 4  |
| SV-200AT  | 200 | 110 | 70 | 100 | 60 | 40 | 5  | 4  |
| SV-75BT   | 75  | 53  | 30 | 34  | —  | —  | 2  | —  |
| SV-100BT  | 100 | 60  | 38 | 48  | —  | —  | 5  | —  |
| SV-125BT  | 125 | 79  | 46 | 58  | —  | —  | 5  | —  |
| SV-150BT  | 150 | 88  | 57 | 80  | —  | —  | 5  | —  |
| SV-200BT  | 200 | 140 | 85 | 114 | —  | —  | 5  | —  |

※ Reference value

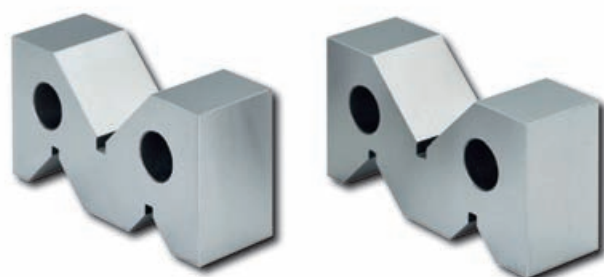
**USE** • Tool for precise holding of round parts

**MATERIAL** • Cast iron

**FEATURES** • Machine finish  
• 2 pcs (matched pair)

| Order No.  | Model No. | Type   | Nominal Size (mm) | Pair groove height tolerance (mm) | Weight |
|------------|-----------|--------|-------------------|-----------------------------------|--------|
| NEW 150975 | SV-50AT   | A type | 50                | 0.05                              | 300g   |
| NEW 150976 | SV-75AT   | A type | 75                | 0.05                              | 600g   |
| NEW 150977 | SV-100AT  | A type | 100               | 0.05                              | 1.8kg  |
| NEW 150978 | SV-125AT  | A type | 125               | 0.06                              | 3.4kg  |
| NEW 150979 | SV-150AT  | A type | 150               | 0.06                              | 5.4kg  |
| NEW 150980 | SV-200AT  | A type | 200               | 0.07                              | 12.5kg |
| NEW 150956 | SV-75BT   | B type | 75                | 0.05                              | 1.1kg  |
| NEW 150957 | SV-100BT  | B type | 100               | 0.05                              | 1.8kg  |
| NEW 150958 | SV-125BT  | B type | 125               | 0.06                              | 3.6kg  |
| NEW 150959 | SV-150BT  | B type | 150               | 0.06                              | 5.8kg  |
| NEW 150960 | SV-200BT  | B type | 200               | 0.07                              | 16.2kg |

## CAST IRON V BLOCK -Ground Finish-



**USE** • Tool for precise holding of round parts

**MATERIAL** • Cast iron

**FEATURES** • Ground finish  
• 2 pcs (matched pair)  
• Compliant with JIS grade 2

### SPECIFICATIONS

- V groove squareness : 20  $\mu$  m (SVG-50, 75)  
30  $\mu$  m (SVG-100 ~ 200)
- Squareness of parallel sides: 20  $\mu$  m (SVG-50, 75)  
30  $\mu$  m (SVG-100 ~ 200)

Refer to Cast Iron V Block A type (SV-\*\*AT) for dimensions

| Order No.  | Model No. | Type   | Nominal Size (mm) | Weight |
|------------|-----------|--------|-------------------|--------|
| NEW 150681 | SVG-50    | A type | 50                | 300g   |
| NEW 150682 | SVG-75    | A type | 75                | 600g   |
| NEW 150683 | SVG-100   | A type | 100               | 1.8kg  |
| NEW 150684 | SVG-125   | A type | 125               | 3.4kg  |
| NEW 150685 | SVG-150   | A type | 150               | 5.4kg  |
| NEW 150686 | SVG-200   | A type | 200               | 12.5kg |

GRANITE

CAST IRON  
SURFACE  
PLATE

PARALLEL  
BLOCK

V BLOCK

SQUARE

STRAIGHT  
EDGE

PARALLEL  
CLAMPS

## CAST IRON BLOCK WITH V GROOVE

Allows clamping of workpiece for processing or measurement



SBV-150T

- USE**
  - Allows clamping of workpiece for marking, processing or measurement
- MATERIAL**
  - Cast iron
- FEATURES**
  - Machine finish
  - with clamp
- SPECIFICATIONS**
  - V groove(dovetail) angle : 90°

| Order No.  | Model No. | Nominal Size (mm) | Groove height squareness / parallelism / perpendicularity (mm) | Length (mm) | Width (mm) | Height (mm) | Thickness (mm) | Weight |
|------------|-----------|-------------------|----------------------------------------------------------------|-------------|------------|-------------|----------------|--------|
| NEW 150987 | SBV-100T  | 100               | 0.05                                                           | 100         | 100        | 100         | 13             | 3.7kg  |
| NEW 150988 | SBV-125T  | 125               | 0.06                                                           | 125         | 125        | 125         | 15             | 6.7kg  |
| NEW 150989 | SBV-150T  | 150               | 0.06                                                           | 150         | 150        | 150         | 19             | 12.2kg |
| NEW 150990 | SBV-200T  | 200               | 0.07                                                           | 200         | 200        | 200         | 25             | 28.1kg |

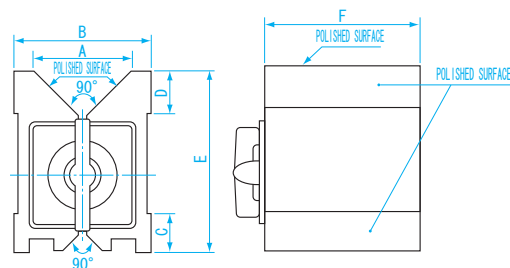
※ accuracy specified above is not guaranteed for open side

## V BLOCK WITH MAGNET



MV-80G

### DIMENSIONS



- USE**
  - Use as a jig to hold cylindrical workpieces for measuring or marking
- MATERIALS**
  - Cast iron/ Ground finish
- FEATURES**
  - Right angle/ Parallelism: 0.025mm/100mm
  - The magnet can be turned ON/OFF by lever operation

Units : mm

| Model No. | A  | B  | C  | D  | E  | F   |
|-----------|----|----|----|----|----|-----|
| MV-80     | 50 | 70 | 20 | 22 | 95 | 80  |
| MV-100    | 50 | 70 | 20 | 22 | 95 | 100 |
| MV-120    | 50 | 70 | 20 | 22 | 95 | 120 |

| Order No.  | Model No. | H × W × D (mm) | Magnetic Power* N / (lb) | Weight |
|------------|-----------|----------------|--------------------------|--------|
| NEW 151178 | MV-80G    | 95×70× 80      | 140 (30)                 | 3.3kg  |
| NEW 151179 | MV-100G   | 95×70×100      | 180 (40)                 | 4.1kg  |
| NEW 151180 | MV-120G   | 95×70×120      | 200 (45)                 | 4.9kg  |

※ Magnetic power when used with  $\phi$  20mm cylindrical workpiece



## STEEL SQUARE (AA TYPE)

## FIRST GRADE(Hardened)

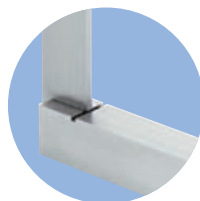
USE • Measurement of squareness

## MATERIAL

- Machine grade carbon steel
- Hardness: Over HV450

## FEATURES

- Dimension/ accuracy accordance to JIS B 7526 (※ exceeds JIS)
- Hardened measuring surface for abrasion resistance
- All Hardened, first grade squares are supplied with inspection certificate

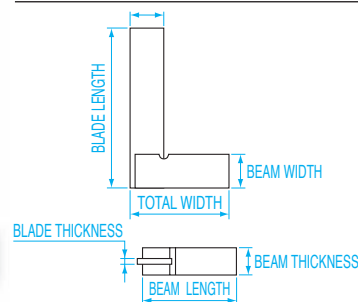


Corner



AA-F150

## DIMENSIONS



$$\text{Squareness} \pm (10 + \frac{L}{20}) \mu\text{m} \text{ (L: Nominal Size)}$$

| Order No. | Model No. | Nominal Size (mm) | Blade Length (mm) | Blade Width (mm) | Blade Thickness (mm) | Beam Length (mm) | Beam Width (mm) | Beam Thickness (mm) | Squareness Accuracy (±mm) | Weight |
|-----------|-----------|-------------------|-------------------|------------------|----------------------|------------------|-----------------|---------------------|---------------------------|--------|
| 002101    | AA-F50    | ※ 50              | 50                | 16               | 2                    | 37               | 16              | 10                  | 0.013                     | 100g   |
| 002102    | AA-F75    | 75                | 75                | 16               | 2                    | 50               | 16              | 10                  | 0.014                     | 100g   |
| 002103    | AA-F100   | 100               | 100               | 20               | 2.5                  | 70               | 18              | 12                  | 0.015                     | 230g   |
| 002104    | AA-F125   | ※ 125             | 125               | 20               | 2.5                  | 80               | 18              | 12                  | 0.016                     | 250g   |
| 002105    | AA-F150   | 150               | 150               | 24               | 3                    | 100              | 22              | 18                  | 0.018                     | 550g   |
| 002107    | AA-F200   | 200               | 200               | 29               | 3.5                  | 130              | 26              | 22                  | 0.02                      | 880g   |
| 002108    | AA-F250   | ※ 250             | 250               | 29               | 3.5                  | 165              | 26              | 22                  | 0.022                     | 1.25kg |
| 002109    | AA-F300   | 300               | 300               | 35               | 4                    | 200              | 32              | 27                  | 0.025                     | 1.95kg |
| 002111    | AA-F400   | ※ 400             | 400               | 40               | 5                    | 200              | 40              | 27                  | 0.03                      | 3kg    |
| 002113    | AA-F500   | 500               | 500               | 46               | 5                    | 300              | 45              | 35                  | 0.035                     | 6kg    |
| 002114    | AA-F600   | ※ 600             | 600               | 50               | 5                    | 320              | 55              | 35                  | 0.04                      | 7kg    |
| 002115    | AA-F750   | 750               | 750               | 58               | 6                    | 400              | 63              | 50                  | 0.048                     | 16kg   |
| 002117    | AA-F1000  | 1000              | 1000              | 65               | 10                   | 550              | 80              | 65                  | 0.06                      | 35kg   |
| 002119    | AA-F1500  | ※ 1500            | 1500              | 90               | 10                   | 600              | 90              | 80                  | 0.085                     | 38kg   |
| 002121    | AA-F2000  | ※ 2000            | 2000              | 100              | 10                   | 800              | 105             | 90                  | 0.11                      | 67kg   |

## SECOND GRADE (Non-hardened)

## FEATURES

- Dimension and accuracy accordance to JIS B 7526 (※ exceeds JIS)
- Non-hardened • Ground finish

$$\text{Squareness} \pm (20 + \frac{L}{10}) \mu\text{m} \text{ (L: Nominal Size)}$$

| Order No. | Model No. | Nominal Size (mm) | Blade Length (mm) | Blade Width (mm) | Blade Thickness (mm) | Beam Length (mm) | Beam Width (mm) | Beam Thickness (mm) | Squareness Accuracy (±mm) | Weight |
|-----------|-----------|-------------------|-------------------|------------------|----------------------|------------------|-----------------|---------------------|---------------------------|--------|
| 002201    | AA-S50    | ※50               | 50                | 16               | 2                    | 37               | 16              | 10                  | 0.025                     | 60g    |
| 002202    | AA-S75    | 75                | 75                | 16               | 2                    | 50               | 16              | 10                  | 0.027                     | 90g    |
| 002203    | AA-S100   | 100               | 100               | 20               | 2.5                  | 70               | 18              | 12                  | 0.03                      | 180g   |
| 002204    | AA-S125   | ※125              | 125               | 20               | 2.5                  | 80               | 18              | 12                  | 0.032                     | 200g   |
| 002205    | AA-S150   | 150               | 150               | 24               | 3                    | 100              | 22              | 18                  | 0.035                     | 420g   |
| 002207    | AA-S200   | 200               | 200               | 29               | 3.5                  | 130              | 26              | 22                  | 0.04                      | 780g   |
| 002208    | AA-S250   | ※250              | 250               | 29               | 3.5                  | 165              | 26              | 22                  | 0.045                     | 1.02kg |
| 002209    | AA-S300   | 300               | 300               | 35               | 4                    | 200              | 32              | 27                  | 0.05                      | 1.8kg  |
| 002211    | AA-S400   | ※400              | 400               | 40               | 5                    | 200              | 40              | 27                  | 0.06                      | 2.4kg  |
| 002213    | AA-S500   | 500               | 500               | 46               | 5                    | 300              | 45              | 35                  | 0.07                      | 5kg    |
| 002214    | AA-S600   | ※600              | 600               | 50               | 5                    | 320              | 55              | 35                  | 0.08                      | 6.5kg  |
| 002215    | AA-S750   | 750               | 750               | 58               | 6                    | 400              | 63              | 50                  | 0.095                     | 16kg   |
| 002217    | AA-S1000  | 1000              | 1000              | 65               | 10                   | 550              | 80              | 65                  | 0.12                      | 35kg   |
| 002219    | AA-S1500  | ※1500             | 1500              | 90               | 10                   | 600              | 90              | 80                  | 0.17                      | 38kg   |
| 002221    | AA-S2000  | ※2000             | 2000              | 100              | 10                   | 800              | 105             | 90                  | 0.22                      | 67kg   |

## FIRST GRADE(Hardened)

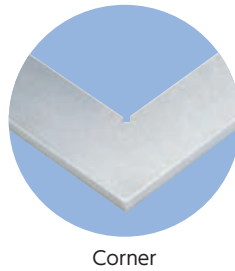
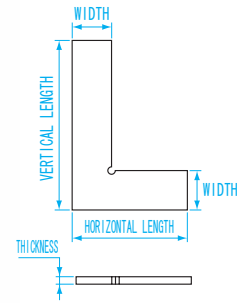
**USE** • Measurement of squareness

**MATERIAL**

- Machine grade carbon steel (hardened measuring face)
- Hardness : Over HV450

**FEATURES**

- Dimension/ accuracy accordance to JIS B 7526 (※ exceeds JIS)
- Hardened measuring surface for abrasion resistance
- All hardened, first grade squares are supplied with inspection certificate

**DIMENSIONS**

$$\text{Squareness} \pm \left(10 + \frac{L}{20}\right) \mu\text{m} \text{ (L: Nominal Size)}$$

| Order No. | Model No. | Nominal Size (mm) | Vertical Length (mm) | Horizontal Length (mm) | Width (mm) | Thickness (mm) | Squareness Accuracy (±mm) | Weight |
|-----------|-----------|-------------------|----------------------|------------------------|------------|----------------|---------------------------|--------|
| 002301    | DD-F50    | ※50               | 50                   | 38                     | 16         | 3              | 0.013                     | 70g    |
| 002302    | DD-F75    | 75                | 75                   | 50                     | 18         | 3              | 0.014                     | 90g    |
| 002303    | DD-F100   | 100               | 100                  | 70                     | 20         | 4              | 0.015                     | 180g   |
| 002304    | DD-F125   | ※125              | 125                  | 80                     | 20         | 4              | 0.016                     | 200g   |
| 002305    | DD-F150   | 150               | 150                  | 100                    | 25         | 5              | 0.018                     | 400g   |
| 002307    | DD-F200   | 200               | 200                  | 130                    | 25         | 6              | 0.02                      | 550g   |
| 002308    | DD-F250   | ※250              | 250                  | 165                    | 30         | 6              | 0.022                     | 880g   |
| 002309    | DD-F300   | 300               | 300                  | 200                    | 30         | 6              | 0.025                     | 1kg    |
| 002311    | DD-F400   | ※400              | 400                  | 200                    | 40         | 8              | 0.03                      | 1.9kg  |
| 002313    | DD-F500   | 500               | 500                  | 300                    | 40         | 8              | 0.035                     | 2.5kg  |
| 002314    | DD-F600   | ※600              | 600                  | 325                    | 50         | 10             | 0.04                      | 4.3kg  |
| 002315    | DD-F750   | 750               | 750                  | 400                    | 50         | 10             | 0.048                     | 7kg    |
| 002317    | DD-F1000  | 1000              | 1000                 | 550                    | 60         | 12             | 0.06                      | 12kg   |
| 002319    | DD-F1500  | ※1500             | 1500                 | 750                    | 80         | 12             | 0.085                     | 19kg   |

## SECOND GRADE (Non-Hardened)

**FEATURES**

- Dimensions/accuracy accordance to JIS B 7526 (※ exceeds JIS)
- Non-hardened • Ground finish

$$\text{Squareness} \pm \left(20 + \frac{L}{10}\right) \mu\text{m} \text{ (L: Nominal Size)}$$

| Order No. | Model No. | Nominal Size (mm) | Vertical Length (mm) | Horizontal Length (mm) | Width (mm) | Thickness (mm) | Squareness Accuracy (±mm) | Weight |
|-----------|-----------|-------------------|----------------------|------------------------|------------|----------------|---------------------------|--------|
| 002401    | DD-S50    | ※50               | 50                   | 38                     | 16         | 3              | 0.025                     | 40g    |
| 002402    | DD-S75    | 75                | 75                   | 50                     | 18         | 3              | 0.027                     | 60g    |
| 002403    | DD-S100   | 100               | 100                  | 70                     | 20         | 4              | 0.03                      | 120g   |
| 002404    | DD-S125   | ※125              | 125                  | 80                     | 20         | 4              | 0.032                     | 150g   |
| 002405    | DD-S150   | 150               | 150                  | 100                    | 25         | 5              | 0.035                     | 220g   |
| 002407    | DD-S200   | 200               | 200                  | 130                    | 25         | 6              | 0.04                      | 380g   |
| 002408    | DD-S250   | ※250              | 250                  | 165                    | 30         | 6              | 0.045                     | 600g   |
| 002409    | DD-S300   | 300               | 300                  | 200                    | 30         | 6              | 0.05                      | 900g   |
| 002411    | DD-S400   | ※400              | 400                  | 200                    | 40         | 8              | 0.06                      | 1.8kg  |
| 002413    | DD-S500   | 500               | 500                  | 300                    | 40         | 8              | 0.07                      | 3kg    |
| 002414    | DD-S600   | ※600              | 600                  | 325                    | 50         | 10             | 0.08                      | 4kg    |
| 002415    | DD-S750   | 750               | 750                  | 400                    | 50         | 10             | 0.095                     | 7kg    |
| 002417    | DD-S1000  | 1000              | 1000                 | 550                    | 60         | 12             | 0.12                      | 12kg   |
| 002419    | DD-S1500  | ※1500             | 1500                 | 750                    | 80         | 12             | 0.17                      | 19kg   |

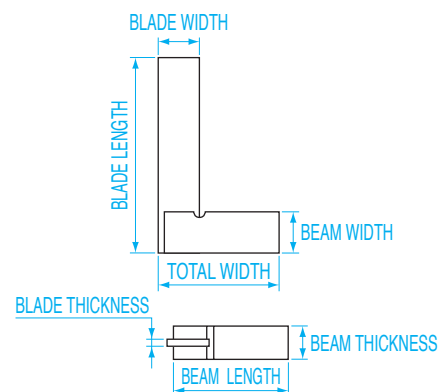


## PRECISION SQUARE WITH METRIC GRADUATED BLADE (C TYPE)



C-150

## DIMENSIONS



$$\text{Squareness} \pm (20 + \frac{L}{10}) \mu\text{m} \quad (L: \text{Nominal Size})$$

**USE** • Measurement of squareness

**MATERIAL**

- Machine grade carbon steel

**FEATURES**

- Graduated with 1mm division
- JIS Grade 2 equivalent

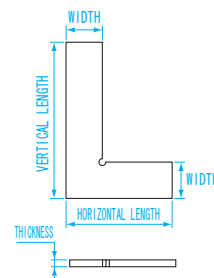
| Order No. | Model No. | Nominal Size (mm) | Blade Length (mm) | Blade Width (mm) | Blade Thickness (mm) | Base Length (mm) | Base Width (mm) | Base Thickness (mm) | Graduation Accuracy (±mm) | Squareness (±mm) | Weight |
|-----------|-----------|-------------------|-------------------|------------------|----------------------|------------------|-----------------|---------------------|---------------------------|------------------|--------|
| 002503    | C-100     | 100               | 100               | 20               | 2.5                  | 70               | 19              | 12                  | 0.4                       | 0.03             | 180g   |
| 002505    | C-150     | 150               | 150               | 24               | 3                    | 100              | 22              | 18                  | 0.4                       | 0.035            | 410g   |
| 002507    | C-200     | 200               | 200               | 29               | 3.5                  | 130              | 26              | 22                  | 0.4                       | 0.04             | 780g   |
| 002508    | C-250     | 250               | 250               | 29               | 3.5                  | 165              | 26              | 22                  | 0.4                       | 0.045            | 1.2kg  |
| 002509    | C-300     | 300               | 300               | 35               | 4                    | 200              | 32              | 27                  | 0.4                       | 0.05             | 1.9kg  |
| 002511    | C-400     | 400               | 400               | 40               | 5                    | 200              | 40              | 27                  | 0.4                       | 0.06             | 2.4kg  |
| 002513    | C-500     | 500               | 500               | 46               | 5                    | 300              | 45              | 35                  | 0.4                       | 0.07             | 6kg    |
| 002515    | C-600     | 600               | 600               | 50               | 5                    | 320              | 55              | 35                  | 0.4                       | 0.08             | 6.5kg  |
| 002523    | C-1000    | 1000              | 1000              | 65               | 10                   | 550              | 80              | 65                  | 0.4                       | 0.12             | 35kg   |

## PRECISION SQUARE WITH METRIC GRADUATED BLADE (E TYPE)



E-150

## DIMENSIONS



$$\text{Squareness} \pm (20 + \frac{L}{10}) \mu\text{m} \quad (L: \text{Nominal Size})$$

| Order No. | Model No. | Nominal Size (mm) | Vertical Length (mm) | Horizontal Length (mm) | Width (mm) | Thickness (mm) | Graduation Accuracy (±mm) | Squareness (±mm) | Weight |
|-----------|-----------|-------------------|----------------------|------------------------|------------|----------------|---------------------------|------------------|--------|
| 002603    | E-100     | 100               | 100                  | 70                     | 20         | 4              | 0.4                       | 0.03             | 120g   |
| 002605    | E-150     | 150               | 150                  | 100                    | 25         | 5              | 0.4                       | 0.035            | 280g   |
| 002607    | E-200     | 200               | 200                  | 130                    | 25         | 6              | 0.4                       | 0.04             | 430g   |
| 002608    | E-250     | 250               | 250                  | 165                    | 30         | 6              | 0.4                       | 0.045            | 600g   |
| 002609    | E-300     | 300               | 300                  | 200                    | 40         | 8              | 0.4                       | 0.05             | 750g   |
| 002611    | E-400     | 400               | 400                  | 200                    | 40         | 8              | 0.4                       | 0.06             | 1.8kg  |
| 002613    | E-500     | 500               | 500                  | 300                    | 40         | 8              | 0.4                       | 0.07             | 3kg    |
| 002615    | E-600     | 600               | 600                  | 325                    | 50         | 10             | 0.4                       | 0.08             | 4kg    |
| 002623    | E-1000    | 1000              | 1000                 | 550                    | 60         | 12             | 0.4                       | 0.12             | 12kg   |



**USE** • Measurement of squareness

**MATERIAL**

- Machine grade carbon steel

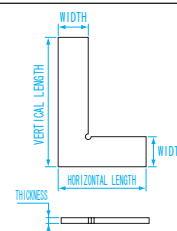
**FEATURES**

- The heavy duty 'DD' type is engineered for ultimate stability



**HDD-150**

## DIMENSIONS



$$\text{Squareness} \pm \left(10 + \frac{L}{20}\right) \mu\text{m} \quad (L: \text{Nominal Size})$$

| Order No. | Model No. | Nominal Size (mm) | Vertical Length (mm) | Base Length (mm) | Width (mm) | Thickness (mm) | Squareness ( $\pm$ mm) | Weight |
|-----------|-----------|-------------------|----------------------|------------------|------------|----------------|------------------------|--------|
| 003501    | HDD-50    | 50                | 50                   | 35               | 15         | 10             | 0.013                  | 170g   |
| 003502    | HDD-75    | 75                | 75                   | 50               | 18         | 12             | 0.014                  | 320g   |
| 003503    | HDD-100   | 100               | 100                  | 70               | 20         | 15             | 0.015                  | 530g   |
| 003505    | HDD-150   | 150               | 150                  | 100              | 25         | 20             | 0.018                  | 1.34kg |
| 003507    | HDD-200   | 200               | 200                  | 130              | 30         | 20             | 0.02                   | 2kg    |
| 003508    | HDD-250   | 250               | 250                  | 165              | 30         | 25             | 0.022                  | 3kg    |
| 003509    | HDD-300   | 300               | 300                  | 200              | 35         | 25             | 0.025                  | 4kg    |

# STEEL SQUARE WITH FLUSH MOUNTED BEAM

**USE**

- Measurement of squareness

**MATERIAL**

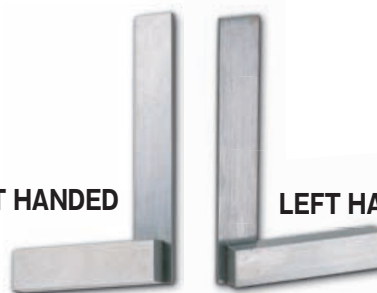
- Machine grade carbon steel

**FEATURES**

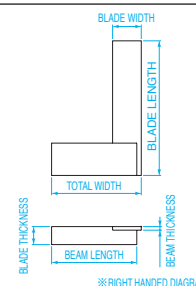
- Available in "right handed" and "left handed" versions
- Dimension/ accuracy accordance to JIS Grade 2
- JIS Grade 1 equivalent ( $\text{Squareness} \pm \left(10 + \frac{L}{20}\right) \mu\text{m}$ ) is made to order

**RIGHT HANDED**

**LEFT HANDED**



## DIMENSIONS



※ RIGHT HANDED DIAGRAM

$$\text{Squareness} \pm \left(20 + \frac{L}{10}\right) \mu\text{m} \quad (L: \text{Nominal Size})$$

### RIGHT HANDED

| Order No. | Model No. | Nominal Size (mm) | Blade Length (mm) | Blade Width (mm) | Blade Thickness (mm) | Beam Length (mm) | Beam Thickness (mm) | Squareness ( $\pm$ mm) | Weight |
|-----------|-----------|-------------------|-------------------|------------------|----------------------|------------------|---------------------|------------------------|--------|
| 003002    | TRS-R75   | 75                | 75                | 16               | 2                    | 50               | 10                  | 0.027                  | 90g    |
| 003003    | TRS-R100  | 100               | 100               | 20               | 2.5                  | 70               | 12                  | 0.03                   | 230g   |
| 003005    | TRS-R150  | 150               | 150               | 24               | 3                    | 100              | 18                  | 0.035                  | 420g   |
| 003007    | TRS-R200  | 200               | 200               | 29               | 3.5                  | 130              | 22                  | 0.04                   | 780g   |
| 003009    | TRS-R300  | 300               | 300               | 35               | 4                    | 200              | 27                  | 0.05                   | 1.8kg  |
| 003011    | TRS-R400  | 400               | 400               | 40               | 5                    | 200              | 27                  | 0.06                   | 2.4kg  |
| 003013    | TRS-R500  | 500               | 500               | 46               | 5                    | 300              | 35                  | 0.07                   | 5kg    |
| 003015    | TRS-R600  | 600               | 600               | 50               | 5                    | 320              | 35                  | 0.08                   | 6.5kg  |
| 003018    | TRS-R750  | 750               | 750               | 58               | 6                    | 400              | 50                  | 0.095                  | 16kg   |
| 003023    | TRS-R1000 | 1000              | 1000              | 65               | 10                   | 550              | 65                  | 0.12                   | 35kg   |
| 003025    | TRS-R1500 | 1500              | 1500              | 90               | 10                   | 600              | 80                  | 0.17                   | 38kg   |
| 003027    | TRS-R2000 | 2000              | 2000              | 100              | 10                   | 800              | 90                  | 0.22                   | 67kg   |

### LEFT HANDED

| Order No. | Model No. | Nominal Size (mm) | Blade Length (mm) | Blade Width (mm) | Blade Thickness (mm) | Beam Length (mm) | Beam Thickness (mm) | Straightness ( $\pm$ mm) | Weight |
|-----------|-----------|-------------------|-------------------|------------------|----------------------|------------------|---------------------|--------------------------|--------|
| 003102    | TRS-L75   | 75                | 75                | 16               | 2                    | 50               | 10                  | 0.027                    | 90g    |
| 003103    | TRS-L100  | 100               | 100               | 20               | 2.5                  | 70               | 12                  | 0.03                     | 230g   |
| 003105    | TRS-L150  | 150               | 150               | 24               | 3                    | 100              | 18                  | 0.035                    | 420g   |
| 003107    | TRS-L200  | 200               | 200               | 29               | 3.5                  | 130              | 22                  | 0.04                     | 780g   |
| 003109    | TRS-L300  | 300               | 300               | 35               | 4                    | 200              | 27                  | 0.05                     | 1.8kg  |
| 003111    | TRS-L400  | 400               | 400               | 40               | 5                    | 200              | 27                  | 0.06                     | 2.4kg  |
| 003113    | TRS-L500  | 500               | 500               | 46               | 5                    | 300              | 35                  | 0.07                     | 5kg    |
| 003115    | TRS-L600  | 600               | 600               | 50               | 5                    | 320              | 35                  | 0.08                     | 6.5kg  |
| 003118    | TRS-L750  | 750               | 750               | 58               | 6                    | 400              | 50                  | 0.095                    | 16kg   |
| 003123    | TRS-L1000 | 1000              | 1000              | 65               | 10                   | 550              | 65                  | 0.12                     | 35kg   |
| 003125    | TRS-L1500 | 1500              | 1500              | 90               | 10                   | 600              | 80                  | 0.17                     | 38kg   |
| 003127    | TRS-L2000 | 2000              | 2000              | 100              | 10                   | 800              | 90                  | 0.22                     | 67kg   |

STANDARDS

GRANITE

CAST IRON  
SURFACE  
PLATE

PARALLEL  
BLOCK

V BLOCK

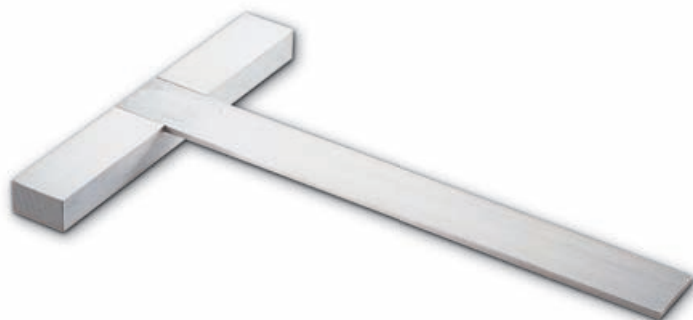
SQUARE

STRAIGHT  
EDGE

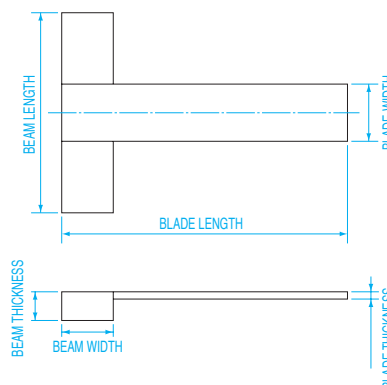
PARALLEL  
CLAMPS



## T- SQUARE



## DIMENSIONS



## FEATURES

- The blade and beam are permanently secured by rivets. The T-square is useful for general engineering work.

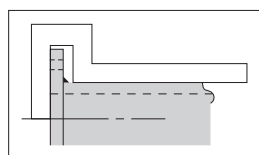
## MATERIAL

- Machine grade carbon steel

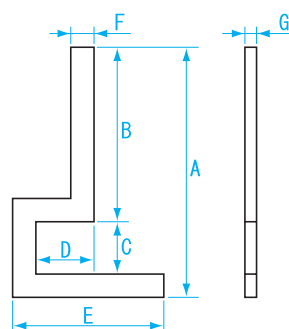
Straightness  $\pm (20 + \frac{L}{10}) \mu m$  (L: Nominal Size)

| Model No. | Nominal Size (mm) | Blade Length (mm) | Blade Width (mm) | Blade Thickness (mm) | Beam Length (mm) | Beam Width (mm) | Beam Thickness (mm) | Straightness ( $\pm mm$ ) | Weight |
|-----------|-------------------|-------------------|------------------|----------------------|------------------|-----------------|---------------------|---------------------------|--------|
| TS-100    | 100               | 100               | 20               | 2.5                  | 70               | 18              | 10                  | 0.03                      | 150g   |
| TS-150    | 150               | 150               | 24               | 3                    | 100              | 20              | 12                  | 0.035                     | 300g   |
| TS-200    | 200               | 200               | 29               | 3.5                  | 140              | 24              | 14                  | 0.04                      | 500g   |
| TS-250    | 250               | 250               | 29               | 3.5                  | 175              | 26              | 16                  | 0.045                     | 800g   |
| TS-300    | 300               | 300               | 35               | 4                    | 200              | 30              | 18                  | 0.05                      | 1.2kg  |
| TS-400    | 400               | 400               | 40               | 5                    | 260              | 34              | 20                  | 0.06                      | 2kg    |
| TS-500    | 500               | 500               | 46               | 5                    | 330              | 36              | 22                  | 0.07                      | 2.9kg  |
| TS-600    | 600               | 600               | 50               | 5                    | 360              | 38              | 24                  | 0.08                      | 3.7kg  |
| TS-1000   | 1000              | 1000              | 65               | 8                    | 640              | 45              | 30                  | 0.12                      | 11kg   |

## FLANGE SQUARE



## DIMENSIONS



Units : mm

| Model No. | A   | B   | C   | D   | E   | F  | G |
|-----------|-----|-----|-----|-----|-----|----|---|
| FS-1      | 300 | 200 | 70  | 80  | 200 | 30 | 4 |
| FS-2      | 400 | 280 | 90  | 120 | 300 | 30 | 4 |
| FS-3      | 750 | 500 | 200 | 250 | 680 | 50 | 6 |

## USE

- Inspection of surfaces with flange, and piping connections

## MATERIALS

- Rolled steel for general structure

| Order No. | Model No. | Nominal Size (mm) | Straightness ( $\pm mm$ ) | Weight |
|-----------|-----------|-------------------|---------------------------|--------|
| 003320    | FS-1      | 200×300           | 0.037                     | 800g   |
| 003330    | FS-2      | 300×400           | 0.045                     | 1kg    |
| 003368    | FS-3      | 680×750           | 0.071                     | 4kg    |

## I-BEAM TYPE PRECISION STRAIGHT EDGE



STANDARDS

05

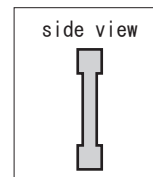
**USE** • Measurement of flatness, parallelism and straightness

**MATERIAL**

- Machine grade carbon steel

**FEATURES**

- Inspection certificate attached



Grade A / Hardened ● Hardness:HV490 ~ 620

| Order No. | Model No.  | Nominal Size (mm) | Straightness (μm) | Length (mm) | Height (mm) | Width (mm) | Weight |
|-----------|------------|-------------------|-------------------|-------------|-------------|------------|--------|
| 004113    | IBM-A500H  | 500               | 7                 | 500         | 50          | 10         | 1.5kg  |
| 004115    | IBM-A750H  | 750               | 9.5               | 750         | 50          | 10         | 3.2kg  |
| 004117    | IBM-A1000H | 1000              | 12                | 1000        | 60          | 12         | 5kg    |
| 004119    | IBM-A1500H | 1500              | 17                | 1500        | 70          | 15         | 8.5kg  |
| 004121    | IBM-A2000H | 2000              | 22                | 2000        | 90          | 20         | 19kg   |
| 004122    | IBM-A2500H | 2500              | 27                | 2500        | 100         | 20         | 27kg   |
| 004123    | IBM-A3000H | 3000              | 32                | 3000        | 120         | 20         | 44kg   |

Grade A / Non-hardened

Straightness  $(2 + \frac{L}{100}) \mu m$  (L: Nominal Size)

| Order No. | Model No. | Nominal Size (mm) | Straightness (μm) | Length (mm) | Height (mm) | Width (mm) | Weight |
|-----------|-----------|-------------------|-------------------|-------------|-------------|------------|--------|
| 004013    | IBM-A500  | 500               | 7                 | 500         | 50          | 10         | 1.5kg  |
| 004015    | IBM-A750  | 750               | 9.5               | 750         | 50          | 10         | 3.2kg  |
| 004017    | IBM-A1000 | 1000              | 12                | 1000        | 60          | 12         | 5kg    |
| 004019    | IBM-A1500 | 1500              | 17                | 1500        | 70          | 15         | 8.5kg  |
| 004021    | IBM-A2000 | 2000              | 22                | 2000        | 90          | 20         | 19kg   |
| 004022    | IBM-A2500 | 2500              | 27                | 2500        | 90          | 20         | 27kg   |
| 004023    | IBM-A3000 | 3000              | 32                | 3000        | 120         | 20         | 44kg   |

## RAIL TYPE PRECISION STRAIGHT EDGE



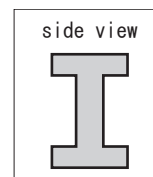
**USE** • Measurement of flatness, parallelism and straightness

**MATERIAL**

- Machine grade carbon steel

**FEATURES**

- Usable for precision machine installation, flatness inspection of surface plate etc
- Ground finish
- Inspection certificate attached



Grade A / Hardened ● Hardness: HV490 ~ 620

Straightness  $(2 + \frac{L}{250}) \mu m$  (L: Nominal Size)

| Order No. | Model No. | Nominal Size (mm) | Straightness (μm) | Length (mm) | Height (mm) | Width (mm) | Weight |
|-----------|-----------|-------------------|-------------------|-------------|-------------|------------|--------|
| 004417    | R-A1000H  | 1000              | 6                 | 1000        | 75          | 50         | 18.5kg |
| 004419    | R-A1500H  | 1500              | 8                 | 1500        | 90          | 50         | 33kg   |
| 004421    | R-A2000H  | 2000              | 10                | 2000        | 120         | 50         | 56kg   |
| 004422    | R-A2500H  | 2500              | 12                | 2500        | 140         | 50         | 76.5kg |
| 004423    | R-A3000H  | 3000              | 14                | 3000        | 150         | 50         | 103kg  |

Grade A / Non-hardened

Straightness  $(2 + \frac{L}{250}) \mu m$  (L: Nominal Size)

| Order No. | Model No. | Nominal Size (mm) | Straightness (μm) | Length (mm) | Height (mm) | Width (mm) | Weight |
|-----------|-----------|-------------------|-------------------|-------------|-------------|------------|--------|
| 004317    | R-A1000   | 1000              | 6                 | 1000        | 75          | 50         | 18.5kg |
| 004319    | R-A1500   | 1500              | 8                 | 1500        | 90          | 50         | 33kg   |
| 004321    | R-A2000   | 2000              | 10                | 2000        | 120         | 50         | 56kg   |
| 004322    | R-A2500   | 2500              | 12                | 2500        | 140         | 50         | 76.5kg |
| 004323    | R-A3000   | 3000              | 14                | 3000        | 150         | 50         | 103kg  |

Grade B / Hardened ● Hardness: HV490 ~ 620

Straightness  $(4 + \frac{L}{50}) \mu m$  (L: Nominal Size)

| Order No. | Model No. | Nominal Size (mm) | Straightness (μm) | Length (mm) | Height (mm) | Width (mm) | Weight |
|-----------|-----------|-------------------|-------------------|-------------|-------------|------------|--------|
| 004617    | R-B1000H  | 1000              | 22                | 1000        | 75          | 50         | 18.5kg |
| 004619    | R-B1500H  | 1500              | 34                | 1500        | 90          | 50         | 33kg   |
| 004621    | R-B2000H  | 2000              | 44                | 2000        | 120         | 50         | 56kg   |
| 004622    | R-B2500H  | 2500              | 54                | 2500        | 140         | 50         | 76.5kg |
| 004623    | R-B3000H  | 3000              | 64                | 3000        | 150         | 50         | 103kg  |

Grade B / Non-hardened

Straightness  $(4 + \frac{L}{50}) \mu m$  (L: Nominal Size)

| Order No. | Model No. | Nominal Size (mm) | Straightness (μm) | Length (mm) | Height (mm) | Width (mm) | Weight |
|-----------|-----------|-------------------|-------------------|-------------|-------------|------------|--------|
| 004517    | R-B1000   | 1000              | 24                | 1000        | 75          | 50         | 18.5kg |
| 004519    | R-B1500   | 1500              | 34                | 1500        | 90          | 50         | 33kg   |
| 004521    | R-B2000   | 2000              | 44                | 2000        | 120         | 50         | 56kg   |
| 004522    | R-B2500   | 2500              | 54                | 2500        | 140         | 50         | 76.5kg |
| 004523    | R-B3000   | 3000              | 64                | 3000        | 150         | 50         | 103kg  |

STANDARDS

GRANITE

CAST IRON  
SURFACE  
PLATE

PARALLEL  
BLOCK

V BLOCK

SQUARE

STRAIGHT  
EDGE

PARALLEL  
CLAMPS



## STEEL STANDARD STRAIGHT EDGE



**USE** • Measurement of flatness, parallelism, straightness

**FEATURES**

- Measuring surface : Ground finish
- Inspection certificate attached

**MATERIAL**

- Machine grade carbon steel



side view



Grade A/ Hardened (Hardness: HV490-620)

Straightness:  $(2 + \frac{L}{100}) \mu\text{m}$  ( L : Nominal Size)

| Order No. | Model No. | Nominal Size (mm) | Length (mm) | Width (mm) | Thickness (mm) | Weight |
|-----------|-----------|-------------------|-------------|------------|----------------|--------|
| 004913    | ST-A500H  | 500               | 500         | 50         | 10             | 2kg    |
| 004915    | ST-A750H  | 750               | 750         | 50         | 10             | 3kg    |
| 004917    | ST-A1000H | 1000              | 1000        | 60         | 12             | 5.7kg  |
| 004919    | ST-A1500H | 1500              | 1500        | 70         | 15             | 12.5kg |
| 004921    | ST-A2000H | 2000              | 2000        | 80         | 18             | 23kg   |
| 004922    | ST-A2500H | 2500              | 2500        | 100        | 18             | 35kg   |
| 004923    | ST-A3000H | 3000              | 3000        | 140        | 25             | 82kg   |

Grade A/ Non-hardened

| Order No. | Model No. | Nominal Size (mm) | Length (mm) | Width (mm) | Thickness (mm) | Weight |
|-----------|-----------|-------------------|-------------|------------|----------------|--------|
| 004813    | ST-A500   | 500               | 500         | 50         | 10             | 2kg    |
| 004815    | ST-A750   | 750               | 750         | 50         | 10             | 3kg    |
| 004817    | ST-A1000  | 1000              | 1000        | 60         | 12             | 5.7kg  |
| 004819    | ST-A1500  | 1500              | 1500        | 70         | 15             | 12.5kg |
| 004821    | ST-A2000  | 2000              | 2000        | 80         | 18             | 23kg   |
| 004822    | ST-A2500  | 2500              | 2500        | 100        | 18             | 35kg   |
| 004823    | ST-A3000  | 3000              | 3000        | 140        | 25             | 82kg   |

## STEEL STANDARD STRAIGHT EDGE WITH GRADUATIONS



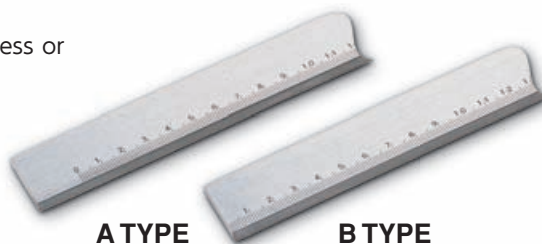
**USE** • Measurement of flatness, parallelism, straightness or use for precision marking

**FEATURES**

- Measuring face: Ground finish
- A type: Scale interval of 1 mm, graduated on single side (20mm blank space on both edges)
- B type: 0 point graduated start from left edge

**MATERIAL**

- Machine grade carbon steel



A TYPE

B TYPE

side view



A type

A type: Straightness  $(10 + \frac{L}{50}) \mu\text{m}$  ( L : Nominal Size)

| Order No | Model No. | Nominal Size (mm) | Length (mm) | Width (mm) | Thickness (mm) | Weight |
|----------|-----------|-------------------|-------------|------------|----------------|--------|
| 005013   | STG-A500  | 500               | 500         | 25         | 6              | 0.6kg  |
| 005015   | STG-A750  | 750               | 750         | 30         | 6              | 1.1kg  |
| 005017   | STG-A1000 | 1000              | 1000        | 30         | 6              | 1.4kg  |
| 005019   | STG-A1500 | 1500              | 1500        | 32         | 6              | 2.3kg  |
| 005021   | STG-A2000 | 2000              | 2000        | 40         | 8              | 5kg    |
| 005023   | STG-A3000 | 3000              | 3000        | 50         | 10             | 11.7kg |

B type

B type : Straightness  $(10 + \frac{L}{25}) \mu\text{m}$  ( L : Nominal Size)

| Order No. | Model No. | Nominal Size (mm) | Length (mm) | Width (mm) | Thickness (mm) | Weight |
|-----------|-----------|-------------------|-------------|------------|----------------|--------|
| 005113    | STG-B500  | 500               | 500         | 25         | 6              | 0.6kg  |
| 005115    | STG-B750  | 750               | 750         | 25         | 6              | 1.1kg  |
| 005117    | STG-B1000 | 1000              | 1000        | 30         | 6              | 1.4kg  |
| 005119    | STG-B1500 | 1500              | 1500        | 32         | 6              | 2.3kg  |
| 005121    | STG-B2000 | 2000              | 2000        | 40         | 8              | 5kg    |
| 005123    | STG-B3000 | 3000              | 3000        | 50         | 10             | 11.7kg |

## STRAIGHT EDGE STANDARD TYPE



STANDARDS

05



side view



- FEATURES**
- Standard type straight edges are popular for executing more accurate lines
  - Measuring face: Ground finish

- MATERIAL** • Carbon tool steel for machine use

Grade A /Hardened

- Hardness: HV490 ~ 620 • Grade A: Straightness  $(10 + \frac{L}{50}) \mu\text{m}$  • Grade B: Straightness  $(20 + \frac{L}{25}) \mu\text{m}$  ※ Grade B is made to order  
※ L : Nominal Size

| Order No. | Model No. | Nominal Size (mm) | Length (mm) | Width (mm) | Thickness (mm) | Weight |
|-----------|-----------|-------------------|-------------|------------|----------------|--------|
| 005305    | S-A150H   | 150               | 150         | 24         | 3              | 80g    |
| 005307    | S-A200H   | 200               | 200         | 24         | 3              | 110g   |
| 005308    | S-A250H   | 250               | 250         | 30         | 4              | 340g   |
| 005309    | S-A300H   | 300               | 300         | 35         | 5              | 410g   |
| 005312    | S-A450H   | 450               | 450         | 40         | 5              | 710g   |
| 005313    | S-A500H   | 500               | 500         | 40         | 5              | 800g   |
| 005314    | S-A600H   | 600               | 600         | 40         | 5              | 900g   |
| 005315    | S-A750H   | 750               | 750         | 50         | 6              | 2kg    |
| 005317    | S-A1000H  | 1000              | 1000        | 50         | 6              | 2.6kg  |
| 005319    | S-A1500H  | 1500              | 1500        | 75         | 6              | 5.7kg  |
| 005321    | S-A2000H  | 2000              | 2000        | 85         | 8              | 10.7kg |
| 005322    | S-A2500H  | 2500              | 2500        | 95         | 10             | 19kg   |
| 005323    | S-A3000H  | 3000              | 3000        | 100        | 10             | 24kg   |

- Grade A / Non-hardened • Grade A: Straightness  $(10 + \frac{L}{50}) \mu\text{m}$  • Grade B: Straightness  $(20 + \frac{L}{25}) \mu\text{m}$  ※ Grade B is made to order  
※ L : Nominal Size

| Order No. | Model No. | Nominal Size (mm) | Length (mm) | Width (mm) | Thickness (mm) | Weight |
|-----------|-----------|-------------------|-------------|------------|----------------|--------|
| 005205    | S-A150    | 150               | 150         | 24         | 3              | 80g    |
| 005207    | S-A200    | 200               | 200         | 24         | 3              | 110g   |
| 005208    | S-A250    | 250               | 250         | 30         | 4              | 340g   |
| 005209    | S-A300    | 300               | 300         | 35         | 5              | 410g   |
| 005212    | S-A450    | 450               | 450         | 40         | 5              | 710g   |
| 005213    | S-A500    | 500               | 500         | 40         | 5              | 800g   |
| 005214    | S-A600    | 600               | 600         | 40         | 5              | 900g   |
| 005215    | S-A750    | 750               | 750         | 50         | 6              | 2kg    |
| 005217    | S-A1000   | 1000              | 1000        | 50         | 6              | 2.6kg  |
| 005219    | S-A1500   | 1500              | 1500        | 75         | 6              | 5.7kg  |
| 005221    | S-A2000   | 2000              | 2000        | 85         | 8              | 10.7kg |
| 005222    | S-A2500   | 2500              | 2500        | 95         | 10             | 19kg   |
| 005223    | S-A3000   | 3000              | 3000        | 100        | 10             | 24kg   |

## STRAIGHT EDGE BEVELED TYPE



STANDARDS



side view



- FEATURES**
- Beveled type straight edges are popular for executing more accurate lines
  - Measuring face: Ground finish

- MATERIAL** • Machine grade carbon steel

Grade A / Non-hardened

- Hardness: HV490 ~ 620 • Grade A: Straightness:  $(10 + \frac{L}{50}) \mu\text{m}$  • Grade B: Straightness  $(20 + \frac{L}{25}) \mu\text{m}$  ※ Grade B is made to order  
※ L : Nominal Size

| Order No. | Model No. | Nominal Size (mm) | Length (mm) | Width (mm) | Thickness (mm) | Taper (mm) | Blade Thickness (mm) | Weight |
|-----------|-----------|-------------------|-------------|------------|----------------|------------|----------------------|--------|
| 005505    | B-A150H   | 150               | 150         | 24         | 3              | 5.5        | 0.5                  | 80g    |
| 005507    | B-A200H   | 200               | 200         | 24         | 3              | 5.5        | 0.5                  | 100g   |
| 005508    | B-A250H   | 250               | 250         | 30         | 4              | 8.0        | 0.5                  | 300g   |
| 005509    | B-A300H   | 300               | 300         | 35         | 5              | 10.0       | 0.5                  | 400g   |
| 005512    | B-A450H   | 450               | 450         | 40         | 5              | 10.0       | 0.5                  | 650g   |
| 005513    | B-A500H   | 500               | 500         | 40         | 5              | 10.0       | 0.5                  | 700g   |
| 005514    | B-A600H   | 600               | 600         | 40         | 5              | 12.0       | 0.5                  | 850g   |
| 005515    | B-A750H   | 750               | 750         | 50         | 6              | 12.6       | 0.8                  | 1.75kg |
| 005517    | B-A1000H  | 1000              | 1000        | 50         | 6              | 12.6       | 0.8                  | 2.3kg  |
| 005519    | B-A1500H  | 1500              | 1500        | 75         | 6              | 12.6       | 0.8                  | 5.2kg  |
| 005521    | B-A2000H  | 2000              | 2000        | 85         | 8              | 14.6       | 1.5                  | 10kg   |
| 005522    | B-A2500H  | 2500              | 2500        | 95         | 10             | 19.0       | 1.5                  | 17kg   |
| 005523    | B-A3000H  | 3000              | 3000        | 100        | 10             | 19.0       | 2.0                  | 21kg   |

- Grade A / Non-hardened • Grade A: Straightness  $(10 + \frac{L}{50}) \mu\text{m}$  • Grade B: Straightness  $(20 + \frac{L}{25}) \mu\text{m}$  ※ Grade B is made to order  
※ L : Nominal Size

| Order No. | Model No. | Nominal Size (mm) | Length (mm) | Width (mm) | Thickness (mm) | Taper (mm) | Blade Thickness (mm) | Weight |
|-----------|-----------|-------------------|-------------|------------|----------------|------------|----------------------|--------|
| 005405    | B-A150    | 150               | 150         | 24         | 3              | 5.5        | 0.5                  | 80g    |
| 005407    | B-A200    | 200               | 200         | 24         | 3              | 5.5        | 0.5                  | 100g   |
| 005408    | B-A250    | 250               | 250         | 30         | 4              | 8.0        | 0.5                  | 300g   |
| 005409    | B-A300    | 300               | 300         | 35         | 5              | 10.0       | 0.5                  | 400g   |
| 005412    | B-A450    | 450               | 450         | 40         | 5              | 10.0       | 0.5                  | 650g   |
| 005413    | B-A500    | 500               | 500         | 40         | 5              | 10.0       | 0.5                  | 700g   |
| 005414    | B-A600    | 600               | 600         | 40         | 5              | 12.0       | 0.5                  | 850g   |
| 005415    | B-A750    | 750               | 750         | 50         | 6              | 12.6       | 0.8                  | 1.75kg |
| 005417    | B-A1000   | 1000              | 1000        | 50         | 6              | 12.6       | 0.8                  | 2.3kg  |
| 005419    | B-A1500   | 1500              | 1500        | 75         | 6              | 12.6       | 0.8                  | 5.2kg  |
| 005421    | B-A2000   | 2000              | 2000        | 85         | 8              | 14.6       | 1.5                  | 10kg   |
| 005422    | B-A2500   | 2500              | 2500        | 95         | 10             | 19.0       | 1.5                  | 17kg   |
| 005423    | B-A3000   | 3000              | 3000        | 100        | 10             | 19.0       | 2.0                  | 21kg   |

GRANITE

CAST IRON  
SURFACE  
PLATE

PARALLEL  
BLOCK

V BLOCK

SQUARE

STRAIGHT  
EDGE

PARALLEL  
CLAMPS



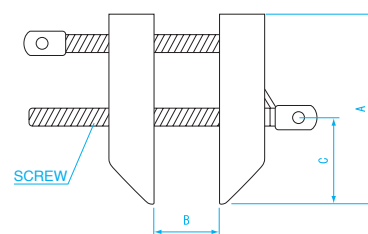


## HARDENED PARALLEL CLAMP



PC-100

## DIMENSIONS



## FEATURES

- These parallel clamps are designed to maximize clamping leverage. All major parts are made of hardened steel with a smart black finish
- 2 piece body and screws are hardened
- 2 pcs / set

## MATERIAL

- Carbon steel for machine use
- Hardness : HV390 ~ 450

| Order No. | Model No. | Nominal Size (mm) | A (mm) | B(Max) (mm) | C (mm) | Thread size | Weight |
|-----------|-----------|-------------------|--------|-------------|--------|-------------|--------|
| 006501    | PC-38     | 38                | 40     | 20          | 18     | M5×P0.9     | 150g   |
| 006502    | PC-50     | 50                | 50     | 30          | 20     | M5×P0.9     | 200g   |
| 006503    | PC-65     | 65                | 65     | 40          | 25     | M6×P1.0     | 350g   |
| 006504    | PC-75     | 75                | 75     | 60          | 30     | M6×P1.0     | 400g   |
| 006505    | PC-100    | 100               | 100    | 60          | 38     | M7×P1.0     | 700g   |
| 006506    | PC-125    | 125               | 125    | 80          | 50     | M8×P1.25    | 1.2kg  |
| 006507    | PC-150    | 150               | 150    | 100         | 58     | M10×P1.5    | 2kg    |
| 006508    | PC-200    | 200               | 200    | 120         | 65     | W1/2-12     | 4.6kg  |
| 006509    | PC-250    | 250               | 250    | 180         | 100    | M16×P2.0    | 9kg    |
| 006510    | PC-300    | 300               | 300    | 230         | 120    | M20×P2.5    | 15kg   |



114p



115p



116p



117p



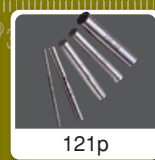
118p



119p



120p



121p



122p



122p



123p



124p



125p



126p



127p



127p



127p



127p



128p

# GAUGES



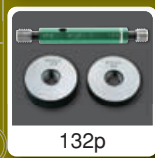
129p



130p



131p



132p



133p



134p



135p



135p



136p



137p



138p



138p



139p



140p



140p



141p



141p



142p



142p



142p



142p



143p



144p



144p



145p



146p



147p



147p



148p



149p



149p



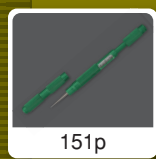
150p



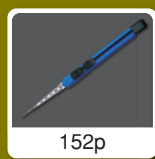
150p



151p



151p



152p



152p



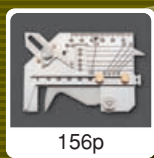
153p



154p



155p



156p



157p



158p



159p



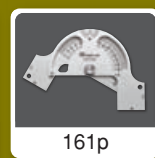
160p



160p



161p



161p



163p



164p



164p



165p



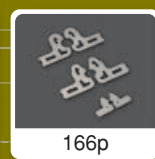
165p



165p



166p



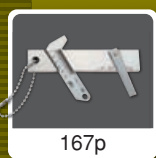
166p



167p



167p



167p



167p



168p



168p



168p

BLOCK  
GAUGESPIN  
GAUGESPIN  
VISEPIN  
GAUGE  
ACCESSORIESTHREAD  
GAUGESPLUG  
GAUGESRING  
GAUGESTHICKNESS  
GAUGESTAPER  
GAUGESWELDING  
GAUGESOTHER  
GAUGES



## BLOCK GAUGE SET



GBS1-32

## SPECIFICATIONS

| Size (mm) |       | Grade 1                     |                                         |
|-----------|-------|-----------------------------|-----------------------------------------|
| Over      | Below | Tolerance ( $\mu\text{m}$ ) | Dimensional deviation ( $\mu\text{m}$ ) |
| —         | 10    | $\pm 0.20$                  | 0.16                                    |
| 10        | 25    | $\pm 0.30$                  | 0.16                                    |
| 25        | 50    | $\pm 0.40$                  | 0.18                                    |
| 50        | 75    | $\pm 0.50$                  | 0.18                                    |
| 75        | 100   | $\pm 0.60$                  | 0.20                                    |

**USE** • For general measurement and reference standard in workshop

**MATERIAL**  
• High carbon high chromium steel

**FEATURES**  
• Conforms to JIS (Grade 1) Standard

BLOCK GAUGES

PIN GAUGES

PIN VISE

PIN GAUGE ACCESSORIES

GAUGES

THREAD GAUGES

PLUG GAUGES

RING GAUGES

THICKNESS GAUGES

TAPER GAUGES

WELDING GAUGES

OTHER GAUGES

| Order No. | Model No. | Pieces per set | Step (mm) | Nominal Size (mm) | Number of pieces | Weight |
|-----------|-----------|----------------|-----------|-------------------|------------------|--------|
| 150801    | GBS1-103  | 103            |           | 1.005             | 1                | 3.48kg |
|           |           |                | 0.01      | 1.01·1.02···1.49  | 49               |        |
|           |           |                | 0.5       | 0.5·1.0···24.5    | 49               |        |
|           |           |                | 25        | 25·50·75·100      | 4                |        |
| 150802    | GBS1-76   | 76             |           | 1.005             | 1                | 2.1kg  |
|           |           |                | 0.01      | 1.01·1.02···1.49  | 49               |        |
|           |           |                | 0.5       | 0.5·1.0···9.5     | 19               |        |
|           |           |                | 10        | 10·20·30·40       | 4                |        |
| 150804    | GBS1-47   | 47             |           | 1.005             | 1                | 2.1kg  |
|           |           |                | 0.01      | 1.01·1.02···1.09  | 9                |        |
|           |           |                | 0.1       | 1.1·1.2···1.9     | 9                |        |
|           |           |                | 1.0       | 1·2·3···24        | 24               |        |
| 150806    | GBS1-32   | 32             |           | 1.005             | 1                | 1kg    |
|           |           |                | 0.01      | 1.01·1.02···1.09  | 9                |        |
|           |           |                | 0.1       | 1.1·1.2···1.9     | 9                |        |
|           |           |                | 1         | 1·2·3···9         | 9                |        |
|           |           |                | 10        | 10·20·30          | 3                |        |
|           |           |                | 60        |                   | 1                |        |



**USE** • For general measurement and reference standard in workshop

**MATERIAL**  
• High carbon high chromium steel

**FEATURES**  
• Conforms to JIS (Grade 1) standard

## SPECIFICATIONS

| Size (mm) |       | Grade1                      |                                         |
|-----------|-------|-----------------------------|-----------------------------------------|
| Over      | Below | Tolerance ( $\mu\text{m}$ ) | Dimensional Deviation ( $\mu\text{m}$ ) |
| —         | 10    | $\pm 0.20$                  | 0.16                                    |
| 10        | 25    | $\pm 0.30$                  | 0.16                                    |
| 25        | 50    | $\pm 0.40$                  | 0.18                                    |
| 50        | 75    | $\pm 0.50$                  | 0.18                                    |
| 75        | 100   | $\pm 0.60$                  | 0.20                                    |
| 100       | 150   | $\pm 0.80$                  | 0.20                                    |
| 150       | 200   | $\pm 1.00$                  | 0.25                                    |
| 200       | 250   | $\pm 1.20$                  | 0.25                                    |
| 250       | 300   | $\pm 1.40$                  | 0.25                                    |
| 300       | 400   | $\pm 1.80$                  | 0.30                                    |
| 400       | 500   | $\pm 2.20$                  | 0.35                                    |
| 500       | 600   | $\pm 2.60$                  | 0.40                                    |

| Order No. | Model No. | Size    |
|-----------|-----------|---------|
| 150810    | GB1-05    | 0.5mm   |
| 150820    | GB1-10    | 1.0mm   |
| 150822    | GB1-1-001 | 1.001mm |
| 150823    | GB1-1-002 | 1.002mm |
| 150824    | GB1-1-003 | 1.003mm |
| 150825    | GB1-1-004 | 1.004mm |
| 150826    | GB1-1-005 | 1.005mm |
| 150827    | GB1-1-006 | 1.006mm |
| 150828    | GB1-1-007 | 1.007mm |
| 150829    | GB1-1-008 | 1.008mm |
| 150830    | GB1-1-009 | 1.009mm |
| 150831    | GB1-101   | 1.01mm  |
| 150832    | GB1-102   | 1.02mm  |
| 150833    | GB1-103   | 1.03mm  |
| 150834    | GB1-104   | 1.04mm  |
| 150835    | GB1-105   | 1.05mm  |
| 150836    | GB1-106   | 1.06mm  |
| 150837    | GB1-107   | 1.07mm  |
| 150838    | GB1-108   | 1.08mm  |
| 150839    | GB1-109   | 1.09mm  |
| 150840    | GB1-110   | 1.10mm  |
| 150841    | GB1-111   | 1.11mm  |
| 150842    | GB1-112   | 1.12mm  |
| 150843    | GB1-113   | 1.13mm  |
| 150844    | GB1-114   | 1.14mm  |
| 150845    | GB1-115   | 1.15mm  |
| 150846    | GB1-116   | 1.16mm  |
| 150847    | GB1-117   | 1.17mm  |
| 150848    | GB1-118   | 1.18mm  |
| 150849    | GB1-119   | 1.19mm  |
| 150850    | GB1-120   | 1.20mm  |
| 150851    | GB1-121   | 1.21mm  |
| 150852    | GB1-122   | 1.22mm  |
| 150853    | GB1-123   | 1.23mm  |
| 150854    | GB1-124   | 1.24mm  |
| 150855    | GB1-125   | 1.25mm  |
| 150856    | GB1-126   | 1.26mm  |
| 150857    | GB1-127   | 1.27mm  |
| 150858    | GB1-128   | 1.28mm  |
| 150859    | GB1-129   | 1.29mm  |
| 150860    | GB1-130   | 1.30mm  |
| 150861    | GB1-131   | 1.31mm  |

| Order No. | Model No. | Size    |
|-----------|-----------|---------|
| 150862    | GB1-132   | 1.32mm  |
| 150863    | GB1-133   | 1.33mm  |
| 150864    | GB1-134   | 1.34mm  |
| 150865    | GB1-135   | 1.35mm  |
| 150866    | GB1-136   | 1.36mm  |
| 150867    | GB1-137   | 1.37mm  |
| 150868    | GB1-138   | 1.38mm  |
| 150869    | GB1-139   | 1.39mm  |
| 150870    | GB1-140   | 1.40mm  |
| 150871    | GB1-141   | 1.41mm  |
| 150872    | GB1-142   | 1.42mm  |
| 150873    | GB1-143   | 1.43mm  |
| 150874    | GB1-144   | 1.44mm  |
| 150875    | GB1-145   | 1.45mm  |
| 150876    | GB1-146   | 1.46mm  |
| 150877    | GB1-147   | 1.47mm  |
| 150878    | GB1-148   | 1.48mm  |
| 150879    | GB1-149   | 1.49mm  |
| 150880    | GB1-150   | 1.50mm  |
| 150885    | GB1-200   | 2.00mm  |
| 150886    | GB1-250   | 2.50mm  |
| 150887    | GB1-300   | 3.00mm  |
| 150888    | GB1-350   | 3.50mm  |
| 150889    | GB1-400   | 4.00mm  |
| 150890    | GB1-450   | 4.50mm  |
| 150891    | GB1-500   | 5.00mm  |
| 150893    | GB1-550   | 5.50mm  |
| 150894    | GB1-600   | 6.00mm  |
| 150895    | GB1-650   | 6.50mm  |
| 150896    | GB1-700   | 7.00mm  |
| 150897    | GB1-750   | 7.50mm  |
| 150899    | GB1-800   | 8.00mm  |
| 150900    | GB1-850   | 8.50mm  |
| 150901    | GB1-900   | 9.00mm  |
| 150902    | GB1-950   | 9.50mm  |
| 150903    | GB1-1000  | 10.00mm |
| 150905    | GB1-1050  | 10.50mm |
| 150906    | GB1-1100  | 11.00mm |
| 150907    | GB1-1150  | 11.50mm |
| 150908    | GB1-1200  | 12.00mm |
| 150909    | GB1-1250  | 12.50mm |
| 150911    | GB1-1300  | 13.00mm |

| Order No. | Model No. | Size     |
|-----------|-----------|----------|
| 150912    | GB1-1350  | 13.50mm  |
| 150913    | GB1-1400  | 14.00mm  |
| 150914    | GB1-1450  | 14.50mm  |
| 150915    | GB1-1500  | 15.00mm  |
| 150916    | GB1-1550  | 15.50mm  |
| 150917    | GB1-1660  | 16.00mm  |
| 150918    | GB1-1650  | 16.50mm  |
| 150919    | GB1-1700  | 17.00mm  |
| 150920    | GB1-1750  | 17.50mm  |
| 150921    | GB1-1800  | 18.00mm  |
| 150922    | GB1-1850  | 18.50mm  |
| 150923    | GB1-1900  | 19.00mm  |
| 150924    | GB1-1950  | 19.50mm  |
| 150925    | GB1-2000  | 20.00mm  |
| 150927    | GB1-2050  | 20.50mm  |
| 150928    | GB1-2100  | 21.00mm  |
| 150929    | GB1-2150  | 21.50mm  |
| 150930    | GB1-2200  | 22.00mm  |
| 150931    | GB1-2250  | 22.50mm  |
| 150933    | GB1-2300  | 23.00mm  |
| 150934    | GB1-2350  | 23.50mm  |
| 150935    | GB1-2400  | 24.00mm  |
| 150936    | GB1-2450  | 24.50mm  |
| 150937    | GB1-2500  | 25.00mm  |
| 150939    | GB1-3000  | 30.00mm  |
| 150940    | GB1-4000  | 40.00mm  |
| 150941    | GB1-5000  | 50.00mm  |
| 150942    | GB1-6000  | 60.00mm  |
| 150944    | GB1-7000  | 70.00mm  |
| 150945    | GB1-7500  | 75.00mm  |
| 150946    | GB1-8000  | 80.00mm  |
| 150947    | GB1-9000  | 90.00mm  |
| 150948    | GB1-10000 | 100.00mm |
| 150949    | GB1-12500 | 125mm    |
| 150950    | GB1-15000 | 150mm    |
| 150794    | GB1-17500 | 175mm    |
| 150795    | GB1-20000 | 200mm    |
| 150796    | GB1-25000 | 250mm    |
| 150797    | GB1-30000 | 300mm    |
| 150798    | GB1-40000 | 400mm    |
| 150799    | GB1-50000 | 500mm    |
| 150800    | GB1-60000 | 600mm    |

BLOCK  
GAUGESPIN  
GAUGESPIN  
VISEPIN  
GAUGE  
ACCESSORIES

GAUGES

THREAD  
GAUGESPLUG  
GAUGESRING  
GAUGESTHICKNESS  
GAUGESTAPER  
GAUGESWELDING  
GAUGESOTHER  
GAUGES





## CERAMIC BLOCK GAUGE SET



BC-032

## SPECIFICATIONS

| Size (mm) |       | Grade0                      |                                         |
|-----------|-------|-----------------------------|-----------------------------------------|
| Over      | Below | Tolerance ( $\mu\text{m}$ ) | Dimensional Deviation ( $\mu\text{m}$ ) |
| —         | 10    | $\pm 0.12$                  | 0.10                                    |
| 10        | 25    | $\pm 0.14$                  | 0.10                                    |
| 25        | 50    | $\pm 0.20$                  | 0.10                                    |
| 50        | 75    | $\pm 0.25$                  | 0.12                                    |
| 75        | 100   | $\pm 0.30$                  | 0.12                                    |

**USE** • For general measurement and reference standard in workshop

**MATERIAL**

- Ceramic (Zircon)

**FEATURES**

- Abrasion resistant
- Free from rust and corrosion, and easy maintenance
- Ceramic material is less susceptible to abrasion and age deterioration than steel
- Non-magnetic
- Conforms to JIS (Grade 0) Standard

**SPECIFICATIONS**

- Section size: less than 10mm $\cdots$ 30 (0 $\sim$ 0.3)  $\times$  9 (0.05 $\sim$ 0.2) mm  
10mm to less than 100mm: 35 (0 $\sim$ 0.3)  $\times$  9 (0.05 $\sim$ 0.2) mm
- Coefficient of thermal expansion:  $(9.5 \pm 1) \times 10^{-6}/\text{K}$

## Comparison between steel and ceramic materials

| Item                             | Materials |                    | Ceramic | Steel |
|----------------------------------|-----------|--------------------|---------|-------|
|                                  | Hardness  | HV                 |         |       |
| Coefficient of thermal expansion |           | $10^{-6}/\text{K}$ | 9.5     | 11.5  |
| Specific Gravity                 |           |                    | 6       | 7.8   |
| Heat conductivity                |           | W/m $\cdot$ K      | 2.5     | 76    |

## SET Item

| Order No. | Model No. | Pieces per set | Step (mm) | Nominal Size (mm)                    | Number of piece | Weight |
|-----------|-----------|----------------|-----------|--------------------------------------|-----------------|--------|
| 150770    | BC-032    | 32             | —         | 1.005                                | 1               | 950g   |
|           |           |                | 0.01      | 1.01 $\cdot$ 1.02 $\cdots$ 1.09      | 9               |        |
|           |           |                | 0.1       | 1.1 $\cdot$ 1.2 $\cdots$ 1.9         | 9               |        |
|           |           |                | 1         | 1 $\cdot$ 2 $\cdot$ 3 $\cdots$ 9     | 9               |        |
|           |           |                | 10        | 10 $\cdot$ 20 $\cdot$ 30             | 3               |        |
| 150771    | BC-047    | 47             | —         | 50                                   | 1               | 2.25kg |
|           |           |                | —         | 1.005                                | 1               |        |
|           |           |                | 0.01      | 1.01 $\cdot$ 1.02 $\cdots$ 1.09      | 9               |        |
|           |           |                | 0.1       | 1.1 $\cdot$ 1.2 $\cdots$ 1.9         | 9               |        |
|           |           |                | 1         | 1 $\cdot$ 2 $\cdot$ 3 $\cdots$ 24    | 24              |        |
|           |           |                | 25        | 25 $\cdot$ 50 $\cdot$ 75 $\cdot$ 100 | 4               |        |

## SINGLE Item

| Order No. | Model No. | Size (mm) |
|-----------|-----------|-----------|
| 150720    | BC0-100   | 1         |
| 150721    | BC0-1-005 | 1.005     |
| 150722    | BC0-101   | 1.01      |
| 150723    | BC0-102   | 1.02      |
| 150724    | BC0-103   | 1.03      |
| 150725    | BC0-104   | 1.04      |
| 150726    | BC0-105   | 1.05      |
| 150727    | BC0-106   | 1.06      |
| 150728    | BC0-107   | 1.07      |
| 150729    | BC0-108   | 1.08      |
| 150730    | BC0-109   | 1.09      |
| 150731    | BC0-110   | 1.1       |
| 150732    | BC0-120   | 1.2       |
| 150733    | BC0-130   | 1.3       |
| 150734    | BC0-140   | 1.4       |
| 150735    | BC0-150   | 1.5       |
| 150736    | BC0-160   | 1.6       |
| 150737    | BC0-170   | 1.7       |
| 150738    | BC0-180   | 1.8       |
| 150739    | BC0-190   | 1.9       |
| 150740    | BC0-200   | 2         |
| 150741    | BC0-300   | 3         |
| 150742    | BC0-400   | 4         |
| 150743    | BC0-500   | 5         |
| 150744    | BC0-600   | 6         |

| Order No. | Model No. | Size (mm) |
|-----------|-----------|-----------|
| 150745    | BC0-700   | 7         |
| 150746    | BC0-800   | 8         |
| 150747    | BC0-900   | 9         |
| 150748    | BC0-1000  | 10        |
| 150749    | BC0-1100  | 11        |
| 150750    | BC0-1200  | 12        |
| 150751    | BC0-1300  | 13        |
| 150752    | BC0-1400  | 14        |
| 150753    | BC0-1500  | 15        |
| 150754    | BC0-1600  | 16        |
| 150755    | BC0-1700  | 17        |
| 150756    | BC0-1800  | 18        |
| 150757    | BC0-1900  | 19        |
| 150758    | BC0-2000  | 20        |
| 150759    | BC0-2100  | 21        |
| 150760    | BC0-2200  | 22        |
| 150761    | BC0-2300  | 23        |
| 150762    | BC0-2400  | 24        |
| 150763    | BC0-2500  | 25        |
| 150764    | BC0-3000  | 30        |
| 150765    | BC0-5000  | 50        |
| 150766    | BC0-6000  | 60        |
| 150767    | BC0-7500  | 75        |
| 150768    | BC0-10000 | 100       |

BLOCK  
GAUGESPIN  
GAUGESPIN  
VISEPIN  
GAUGE  
ACCESSORIES

GAUGES

THREAD  
GAUGESPLUG  
GAUGESRING  
GAUGESTHICKNESS  
GAUGESTAPER  
GAUGESWELDING  
GAUGESOTHER  
GAUGES



## SUB-ZERO Treatment (Cryogenic hardened)

## FEATURES

- The most popular type.
- Long life use / Sub zero treatment
- Individual Pin Gauges are also available
- Custom made Pin Gauges are available on request
- Aluminum Pin Vise is included with AA-0A to AA-9B
- Pin Vise is included with AA-0E to AA-6F
- For above 1.000mm, the nominal size is marked on gauge

## SPECIFICATIONS

| Nominal Size (mm) | Step (mm)  | Length (mm) | Tolerance ( $\mu\text{m}$ ) | Out of Roundness/<br>Cylindricity ( $\mu\text{m}$ ) | Hardness (HV) |
|-------------------|------------|-------------|-----------------------------|-----------------------------------------------------|---------------|
| 0.05 ... 0.09     | 0.01 Step  | 5~10        | $\pm 0.5$                   | 0.5                                                 | More than 650 |
| 0.10 ... 0.19     |            | 40          | $\pm 0.8$                   |                                                     |               |
| 0.200 ... 0.999   | 0.001 Step | 50          | $\pm 1.5$                   | 0.8                                                 |               |
| 1.000 ... 10.000  |            |             | $\pm 2$                     | 1.6                                                 |               |
| 10.01 ... 20.00   | 0.01 Step  | 50          | $\pm 1.5$                   | 0.8                                                 | More than 650 |
| 20.01 ... 30.00   |            |             | $\pm 2$                     | 1.6                                                 |               |
| 30.01 ... 41.00   | —          |             | $\pm 3$                     | 3.0                                                 |               |

※ 30.01 ~ 41.00 are custom made



## AA series

(0.010mm step)

| Model No. | Nominal Size (mm)                  | Pins per set | Aluminum Pin Vise |
|-----------|------------------------------------|--------------|-------------------|
| AA-00     | 0.06 • 0.07 • 0.08 ..... 0.290     | 24           | APV-0A            |
| AA-0A     | 0.200 • 0.210 • 0.220 ..... 0.500  | 31           |                   |
| AA-0B     | 0.500 • 0.510 • 0.520 ..... 1.000  | 51           | APV-0B            |
| AA-1A     | 1.000 • 1.010 • 1.020 ..... 1.500  | 51           | APV-1A            |
| AA-1B     | 1.500 • 1.510 • 1.520 ..... 2.000  | 51           | APV-1B            |
| AA-2A     | 2.000 • 2.010 • 2.020 ..... 2.500  | 51           | APV-2A            |
| AA-2B     | 2.500 • 2.510 • 2.520 ..... 3.000  | 51           | APV-2B            |
| AA-3A     | 3.000 • 3.010 • 3.020 ..... 3.500  | 51           | APV-3A            |
| AA-3B     | 3.500 • 3.510 • 3.520 ..... 4.000  | 51           | APV-3B            |
| AA-4A     | 4.000 • 4.010 • 4.020 ..... 4.500  | 51           | APV-4A            |
| AA-4B     | 4.500 • 4.510 • 4.520 ..... 5.000  | 51           | APV-4B            |
| AA-5A     | 5.000 • 5.010 • 5.020 ..... 5.500  | 51           | APV-5A            |
| AA-5B     | 5.500 • 5.510 • 5.520 ..... 6.000  | 51           | APV-5B            |
| AA-6A     | 6.000 • 6.010 • 6.020 ..... 6.500  | 51           | APV-6A            |
| AA-6B     | 6.500 • 6.510 • 6.520 ..... 7.000  | 51           | APV-6B            |
| AA-7A     | 7.000 • 7.010 • 7.020 ..... 7.500  | 51           | APV-7A            |
| AA-7B     | 7.500 • 7.510 • 7.520 ..... 8.000  | 51           | APV-7B            |
| AA-8A     | 8.000 • 8.010 • 8.020 ..... 8.500  | 51           | APV-8A            |
| AA-8B     | 8.500 • 8.510 • 8.520 ..... 9.000  | 51           | APV-8B            |
| AA-9A     | 9.000 • 9.010 • 9.020 ..... 9.500  | 51           | APV-9A            |
| AA-9B     | 9.500 • 9.510 • 9.520 ..... 10.000 | 51           | APV-9B            |
| AA-10A    | 10.000 • 10.01 • 10.02 ..... 10.50 | 51           |                   |
| AA-10B    | 10.50 • 10.51 • 10.52 ..... 11.00  | 51           |                   |
| AA-11A    | 11.00 • 11.01 • 11.02 ..... 11.50  | 51           |                   |
| AA-11B    | 11.50 • 11.51 • 11.52 ..... 12.00  | 51           |                   |
| AA-12A    | 12.00 • 12.01 • 12.02 ..... 12.50  | 51           |                   |
| AA-12B    | 12.50 • 12.51 • 12.52 ..... 13.00  | 51           |                   |
| AA-13A    | 13.00 • 13.01 • 13.02 ..... 13.50  | 51           |                   |
| AA-13B    | 13.50 • 13.51 • 13.52 ..... 14.00  | 51           |                   |
| AA-14A    | 14.00 • 14.01 • 14.02 ..... 14.50  | 51           |                   |
| AA-14B    | 14.50 • 14.51 • 14.52 ..... 15.00  | 51           |                   |
| AA-15A    | 15.00 • 15.01 • 15.02 ..... 15.50  | 51           |                   |
| AA-15B    | 15.50 • 15.51 • 15.52 ..... 16.00  | 51           |                   |
| AA-16A    | 16.00 • 16.01 • 16.02 ..... 16.50  | 51           |                   |
| AA-16B    | 16.50 • 16.51 • 16.52 ..... 17.00  | 51           |                   |
| AA-17A    | 17.00 • 17.01 • 17.02 ..... 17.50  | 51           |                   |
| AA-17B    | 17.50 • 17.51 • 17.52 ..... 18.00  | 51           |                   |
| AA-18A    | 18.00 • 18.01 • 18.02 ..... 18.50  | 51           |                   |
| AA-18B    | 18.50 • 18.51 • 18.52 ..... 19.00  | 51           |                   |
| AA-19A    | 19.00 • 19.01 • 19.02 ..... 19.50  | 51           |                   |
| AA-19B    | 19.50 • 19.51 • 19.52 ..... 20.00  | 51           |                   |

## AA series

(0.005mm step)

| Model No. | Nominal Size (mm)                  | Pins per set | Pin Vise |
|-----------|------------------------------------|--------------|----------|
| AA-0E     | 0.500 • 0.505 • 0.510 ..... 0.750  | 51           | PV-0B    |
| AA-0F     | 0.750 • 0.755 • 0.760 ..... 1.000  | 51           | PV-0B    |
| AA-1C     | 1.000 • 1.005 • 1.010 ..... 1.250  | 51           | PV-1A    |
| AA-1D     | 1.250 • 1.255 • 1.260 ..... 1.500  | 51           | PV-1A    |
| AA-1E     | 1.500 • 1.505 • 1.510 ..... 1.750  | 51           | PV-1B    |
| AA-1F     | 1.750 • 1.755 • 1.760 ..... 2.000  | 51           | PV-1B    |
| AA-2C     | 2.000 • 2.005 • 2.010 ..... 2.250  | 51           | PV-2A    |
| AA-2D     | 2.250 • 2.255 • 2.260 ..... 2.500  | 51           | PV-2A    |
| AA-2E     | 2.500 • 2.505 • 2.510 ..... 2.750  | 51           | PV-2B    |
| AA-2F     | 2.750 • 2.755 • 2.760 ..... 3.000  | 51           | PV-2B    |
| AA-3C     | 3.000 • 3.005 • 3.010 ..... 3.250  | 51           | PV-3A    |
| AA-3D     | 3.250 • 3.255 • 3.260 ..... 3.500  | 51           | PV-3A    |
| AA-3E     | 3.500 • 3.505 • 3.510 ..... 3.750  | 51           | PV-3B    |
| AA-3F     | 3.750 • 3.755 • 3.760 ..... 4.000  | 51           | PV-3B    |
| AA-4C     | 4.000 • 4.005 • 4.010 ..... 4.250  | 51           | PV-4A    |
| AA-4D     | 4.250 • 4.255 • 4.260 ..... 4.500  | 51           | PV-4A    |
| AA-4E     | 4.500 • 4.505 • 4.510 ..... 4.750  | 51           | PV-4B    |
| AA-4F     | 4.750 • 4.755 • 4.760 ..... 5.000  | 51           | PV-4B    |
| AA-5C     | 5.000 • 5.005 • 5.010 ..... 5.250  | 51           | PV-5A    |
| AA-5D     | 5.250 • 5.255 • 5.260 ..... 5.500  | 51           | PV-5A    |
| AA-5E     | 5.500 • 5.505 • 5.510 ..... 5.750  | 51           | PV-5B    |
| AA-5F     | 5.750 • 5.755 • 5.760 ..... 6.000  | 51           | PV-5B    |
| AA-6C     | 6.000 • 6.005 • 6.010 ..... 6.250  | 51           | PV-6A    |
| AA-6D     | 6.250 • 6.255 • 6.260 ..... 6.500  | 51           | PV-6A    |
| AA-6E     | 6.500 • 6.505 • 6.510 ..... 6.750  | 51           | PV-6B    |
| AA-6F     | 6.750 • 6.755 • 6.760 ..... 7.000  | 51           | PV-6B    |
| AA-7C     | 7.000 • 7.005 • 7.010 ..... 7.250  | 51           |          |
| AA-7D     | 7.250 • 7.255 • 7.260 ..... 7.500  | 51           |          |
| AA-7E     | 7.500 • 7.505 • 7.510 ..... 7.750  | 51           |          |
| AA-7F     | 7.750 • 7.755 • 7.760 ..... 8.000  | 51           |          |
| AA-8C     | 8.000 • 8.005 • 8.010 ..... 8.250  | 51           |          |
| AA-8D     | 8.250 • 8.255 • 8.260 ..... 8.500  | 51           |          |
| AA-8E     | 8.500 • 8.505 • 8.510 ..... 8.750  | 51           |          |
| AA-8F     | 8.750 • 8.755 • 8.760 ..... 9.000  | 51           |          |
| AA-9C     | 9.000 • 9.005 • 9.010 ..... 9.250  | 51           |          |
| AA-9D     | 9.250 • 9.255 • 9.260 ..... 9.500  | 51           |          |
| AA-9E     | 9.500 • 9.505 • 9.510 ..... 9.750  | 51           |          |
| AA-9F     | 9.750 • 9.755 • 9.760 ..... 10.000 | 51           |          |

BLOCK  
GAUGESPIN  
GAUGESPIN  
VISEPIN  
GAUGE  
ACCESSORIES

GAUGES

THREAD  
GAUGESPLUG  
GAUGESRING  
GAUGESTHICKNESS  
GAUGESTAPER  
GAUGESWELDING  
GAUGESOTHER  
GAUGES



## STEEL PIN GAUGE SET SA series

JCSS Calibration  
available

TRACEABILITY

STEEL PIN GAUGES SET

High precision quality pin gauge

SUB-ZERO TREATMENT (Cryogenic hardened)



## SPECIFICATIONS

| Nominal Size<br>(mm) | Step<br>(mm) | Length<br>(mm) | Tolerance<br>( $\mu\text{m}$ ) | Out of<br>Roundness<br>( $\mu\text{m}$ ) | Out of<br>Cylindricity<br>( $\mu\text{m}$ ) | Hardness<br>(HV) |
|----------------------|--------------|----------------|--------------------------------|------------------------------------------|---------------------------------------------|------------------|
| 0.100... 0.199       | 0.001 step   | 40             | $\pm 0.3$                      | 0.3                                      | 0.3                                         | More than<br>650 |
| 0.200... 0.999       |              | 50             |                                |                                          |                                             |                  |
| 1.000... 7.000       |              |                |                                |                                          |                                             |                  |
| 7.001... 7.010       |              |                |                                |                                          |                                             |                  |
| 7.011...10.000       |              | $\pm 0.5$      | 0.5                            | 0.5                                      |                                             |                  |

(0.001mm step)

## FEATURES

- High precision quality pin gauge

| Model No. | Nominal size (mm) | Pins per set |
|-----------|-------------------|--------------|
| SA-03     | 0.297 ..... 0.310 | 14           |
| SA-04     | 0.397 ..... 0.410 | 14           |
| SA-05     | 0.497 ..... 0.510 | 14           |
| SA-06     | 0.597 ..... 0.610 | 14           |
| SA-07     | 0.697 ..... 0.710 | 14           |
| SA-08     | 0.797 ..... 0.810 | 14           |
| SA-09     | 0.897 ..... 0.910 | 14           |
| SA-10     | 0.997 ..... 1.010 | 14           |
| SA-11     | 1.097 ..... 1.110 | 14           |
| SA-12     | 1.197 ..... 1.210 | 14           |
| SA-13     | 1.297 ..... 1.310 | 14           |
| SA-14     | 1.397 ..... 1.410 | 14           |
| SA-15     | 1.497 ..... 1.510 | 14           |
| SA-16     | 1.597 ..... 1.610 | 14           |
| SA-17     | 1.697 ..... 1.710 | 14           |
| SA-18     | 1.797 ..... 1.810 | 14           |
| SA-19     | 1.897 ..... 1.910 | 14           |
| SA-20     | 1.997 ..... 2.010 | 14           |
| SA-21     | 2.097 ..... 2.110 | 14           |
| SA-22     | 2.197 ..... 2.210 | 14           |
| SA-23     | 2.297 ..... 2.310 | 14           |
| SA-24     | 2.397 ..... 2.410 | 14           |
| SA-25     | 2.497 ..... 2.510 | 14           |
| SA-26     | 2.597 ..... 2.610 | 14           |
| SA-27     | 2.697 ..... 2.710 | 14           |
| SA-28     | 2.797 ..... 2.810 | 14           |
| SA-29     | 2.897 ..... 2.910 | 14           |
| SA-30     | 2.997 ..... 3.010 | 14           |
| SA-31     | 3.097 ..... 3.110 | 14           |
| SA-32     | 3.197 ..... 3.210 | 14           |
| SA-33     | 3.297 ..... 3.310 | 14           |
| SA-34     | 3.397 ..... 3.410 | 14           |
| SA-35     | 3.497 ..... 3.510 | 14           |
| SA-36     | 3.597 ..... 3.610 | 14           |

| Model No. | Nominal size (mm) | Pins per set |
|-----------|-------------------|--------------|
| SA-37     | 3.697 ..... 3.710 | 14           |
| SA-38     | 3.797 ..... 3.810 | 14           |
| SA-39     | 3.897 ..... 3.910 | 14           |
| SA-40     | 3.997 ..... 4.010 | 14           |
| SA-41     | 4.097 ..... 4.110 | 14           |
| SA-42     | 4.197 ..... 4.210 | 14           |
| SA-43     | 4.297 ..... 4.310 | 14           |
| SA-44     | 4.397 ..... 4.410 | 14           |
| SA-45     | 4.497 ..... 4.510 | 14           |
| SA-46     | 4.597 ..... 4.610 | 14           |
| SA-47     | 4.697 ..... 4.710 | 14           |
| SA-48     | 4.797 ..... 4.810 | 14           |
| SA-49     | 4.897 ..... 4.910 | 14           |
| SA-50     | 4.997 ..... 5.010 | 14           |
| SA-51     | 5.097 ..... 5.110 | 14           |
| SA-52     | 5.197 ..... 5.210 | 14           |
| SA-53     | 5.297 ..... 5.310 | 14           |
| SA-54     | 5.397 ..... 5.410 | 14           |
| SA-55     | 5.497 ..... 5.510 | 14           |
| SA-56     | 5.597 ..... 5.610 | 14           |
| SA-57     | 5.697 ..... 5.710 | 14           |
| SA-58     | 5.797 ..... 5.810 | 14           |
| SA-59     | 5.897 ..... 5.910 | 14           |
| SA-60     | 5.997 ..... 6.010 | 14           |
| SA-61     | 6.097 ..... 6.110 | 14           |
| SA-62     | 6.197 ..... 6.210 | 14           |
| SA-63     | 6.297 ..... 6.310 | 14           |
| SA-64     | 6.397 ..... 6.410 | 14           |
| SA-65     | 6.497 ..... 6.510 | 14           |
| SA-66     | 6.597 ..... 6.610 | 14           |
| SA-67     | 6.697 ..... 6.710 | 14           |
| SA-68     | 6.797 ..... 6.810 | 14           |
| SA-69     | 6.897 ..... 6.910 | 14           |
| SA-70     | 6.997 ..... 7.010 | 14           |

BLOCK  
GAUGESPIN  
GAUGESPIN  
VISEPIN  
GAUGE  
ACCESSORIES

GAUGES

THREAD  
GAUGESPLUG  
GAUGESRING  
GAUGESTHICKNESS  
GAUGESTAPER  
GAUGESWELDING  
GAUGESOTHER  
GAUGES

**New Product! For checking of shallow holes, for those concerned about gauge wear**  
**SUB-ZERO TREATMENT (Cryogenic hardened)**



## FEATURES

- Wear-line on both ends of pin gauge, able to see gauge wear.
- When line disappears, wear is more than about 1µm
- Individual pin gauges are also available

Set No.

| Set No. | Nominal Size (mm)                  | Step (mm)  | Pins per Set | Aluminum Pin vise |
|---------|------------------------------------|------------|--------------|-------------------|
| AML-3A  | 3.000 • 3.010 • 3.020 ..... 3.500  | 0.010 step | 51           | APV-3A            |
| AML-3B  | 3.500 • 3.510 • 3.520 ..... 4.000  |            | 51           | APV-3B            |
| AML-4A  | 4.000 • 4.010 • 4.020 ..... 4.500  |            | 51           | APV-4A            |
| AML-4B  | 4.500 • 4.510 • 4.520 ..... 5.000  |            | 51           | APV-4B            |
| AML-5A  | 5.000 • 5.010 • 5.020 ..... 5.500  |            | 51           | APV-5A            |
| AML-5B  | 5.500 • 5.510 • 5.520 ..... 6.000  |            | 51           | APV-5B            |
| AML-6A  | 6.000 • 6.010 • 6.020 ..... 6.500  |            | 51           | APV-6A            |
| AML-6B  | 6.500 • 6.510 • 6.520 ..... 7.000  |            | 51           | APV-6B            |
| AML-7A  | 7.000 • 7.010 • 7.020 ..... 7.500  |            | 51           | APV-7A            |
| AML-7B  | 7.500 • 7.510 • 7.520 ..... 8.000  |            | 51           | APV-7B            |
| AML-8A  | 8.000 • 8.010 • 8.020 ..... 8.500  |            | 51           | APV-8A            |
| AML-8B  | 8.500 • 8.510 • 8.520 ..... 9.000  |            | 51           | APV-8B            |
| AML-9A  | 9.000 • 9.010 • 9.020 ..... 9.500  |            | 51           | APV-9A            |
| AML-9B  | 9.500 • 9.510 • 9.520 ..... 10.000 |            | 51           | APV-9B            |

## SPECIFICATIONS

| Size (mm)      | Step (mm)  | Length (mm) | Tolerance (µm) | Roundness (µm) | Cylindricity (µm) | Hardness (HV) |
|----------------|------------|-------------|----------------|----------------|-------------------|---------------|
| 3.00 ... 3.99  | 0.010 step | 50          | ±0.8           | 0.5            | 0.5               | More than 650 |
| 4.00 ... 4.99  |            |             |                |                |                   |               |
| 5.00 ... 6.00  |            |             |                |                |                   |               |
| 6.01 ... 6.99  |            |             |                |                |                   |               |
| 7.00 ... 7.99  |            |             |                |                |                   |               |
| 8.00 ... 8.99  |            |             |                |                |                   |               |
| 9.00 ... 10.00 |            |             |                |                |                   |               |

0.001 step pin gauges are also available on request. (Please contact us with request)

BLOCK GAUGES

PIN GAUGES

PIN VISE

PIN GAUGE ACCESSORIES

GAUGES

THREAD GAUGES

PLUG GAUGES

RING GAUGES

THICKNESS GAUGES

TAPER GAUGES

WELDING GAUGES

OTHER GAUGES



## STEEL PIN GAUGE SET AH • AP • AAP • AS series

JCSS Calibration  
available  
(10.000mm or less)

T RACEABILITY

## SUB-ZERO TREATMENT (Cryogenic hardened)



## FEATURES

- For high use applications
  - Same specifications as AA series
  - Custom made Pin Gauge sets are available on request
- ※ Pin Vise is not included

## AP series

(0.100mm step)

| Model No. | Nominal size (mm)                  | Pin per set |
|-----------|------------------------------------|-------------|
| AP-1      | 1.000 • 1.100 • 1.200 ..... 5.000  | 41          |
| AP-2      | 5.000 • 5.100 • 5.200 ..... 10.000 | 51          |
| AP-3      | 10.000 • 10.10 • 10.20 ..... 15.00 | 51          |
| AP-4      | 15.00 • 15.10 • 15.20 ..... 20.00  | 51          |

## AS series

(0.010mm step)

Consist of Pin Gauge in the range of  $\pm 0.05\text{mm}$  based on integer number size.

| Model No. | Nominal size (mm)                              | Pin per set |
|-----------|------------------------------------------------|-------------|
| AS-1      | 0.950 • 0.960 ..... 1.000 ..... 1.040 • 1.050  | 55          |
|           | 1.950 • 1.960 ..... 2.000 ..... 2.040 • 2.050  |             |
|           | 2.950 • 2.960 ..... 3.000 ..... 3.040 • 3.050  |             |
|           | 3.950 • 3.960 ..... 4.000 ..... 4.040 • 4.050  |             |
|           | 4.950 • 4.960 ..... 5.000 ..... 5.040 • 5.050  |             |
| AS-2      | 5.950 • 5.960 ..... 6.000 ..... 6.040 • 6.050  | 55          |
|           | 6.950 • 6.960 ..... 7.000 ..... 7.040 • 7.050  |             |
|           | 7.950 • 7.960 ..... 8.000 ..... 8.040 • 8.050  |             |
|           | 8.950 • 8.960 ..... 9.000 ..... 9.040 • 9.050  |             |
|           | 9.950 • 9.960 ..... 10.000 ..... 10.04 • 10.05 |             |
| AS-3      | 10.95 • 10.96 ..... 11.00 ..... 11.04 • 11.05  | 55          |
|           | 11.95 • 11.96 ..... 12.00 ..... 12.04 • 12.05  |             |
|           | 12.95 • 12.96 ..... 13.00 ..... 13.04 • 13.05  |             |
|           | 13.95 • 13.96 ..... 14.00 ..... 14.04 • 14.05  |             |
|           | 14.95 • 14.96 ..... 15.00 ..... 15.04 • 15.05  |             |
| AS-4      | 15.95 • 15.96 ..... 16.00 ..... 16.04 • 16.05  | 55          |
|           | 16.95 • 16.96 ..... 17.00 ..... 17.04 • 17.05  |             |
|           | 17.95 • 17.96 ..... 18.00 ..... 18.04 • 18.05  |             |
|           | 18.95 • 18.96 ..... 19.00 ..... 19.04 • 19.05  |             |
|           | 19.95 • 19.96 ..... 20.00 ..... 20.04 • 20.05  |             |
| ASP-1     | 0.450 • 0.460 ..... 0.500 ..... 0.540 • 0.550  | 55          |
|           | 1.450 • 1.460 ..... 1.500 ..... 1.540 • 1.550  |             |
|           | 2.450 • 2.460 ..... 2.500 ..... 2.540 • 2.550  |             |
|           | 3.450 • 3.460 ..... 3.500 ..... 3.540 • 3.550  |             |
|           | 4.450 • 4.460 ..... 4.500 ..... 4.540 • 4.550  |             |
| ASP-2     | 5.450 • 5.460 ..... 5.500 ..... 5.540 • 5.550  | 55          |
|           | 6.450 • 6.460 ..... 6.500 ..... 6.540 • 6.550  |             |
|           | 7.450 • 7.460 ..... 7.500 ..... 7.540 • 7.550  |             |
|           | 8.450 • 8.460 ..... 8.500 ..... 8.540 • 8.550  |             |
|           | 9.450 • 9.460 ..... 9.500 ..... 9.540 • 9.550  |             |
| ASP-3     | 10.45 • 10.46 ..... 10.50 ..... 10.54 • 10.55  | 55          |
|           | 11.45 • 11.46 ..... 11.50 ..... 11.54 • 11.55  |             |
|           | 12.45 • 12.46 ..... 12.50 ..... 12.54 • 12.55  |             |
|           | 13.45 • 13.46 ..... 13.50 ..... 13.54 • 13.55  |             |
|           | 14.45 • 14.46 ..... 14.50 ..... 14.54 • 14.55  |             |
| ASP-4     | 15.45 • 15.46 ..... 15.50 ..... 15.54 • 15.55  | 55          |
|           | 16.45 • 16.46 ..... 16.50 ..... 16.54 • 16.55  |             |
|           | 17.45 • 17.46 ..... 17.50 ..... 17.54 • 17.55  |             |
|           | 18.45 • 18.46 ..... 18.50 ..... 18.54 • 18.55  |             |
|           | 19.45 • 19.46 ..... 19.50 ..... 19.54 • 19.55  |             |

## AH series

(0.050mm step)

| Model No. | Nominal size (mm)               | Pin per set |
|-----------|---------------------------------|-------------|
| AH-0      | 0.200 • 0.250 • 0.300 ... 1.000 | 17          |
| AH-1      | 1.000 • 1.050 • 1.100 ... 3.500 | 51          |
| AH-2      | 3.500 • 3.550 • 3.600 ... 6.000 | 51          |
| AH-3      | 6.000 • 6.050 • 6.100 ... 8.500 | 51          |
| AH-4      | 8.500 • 8.550 • 8.600 ... 11.00 | 51          |
| AH-5      | 11.00 • 11.05 • 11.10 ... 13.50 | 51          |
| AH-6      | 13.50 • 13.55 • 13.60 ... 16.00 | 51          |
| AH-7      | 16.00 • 16.05 • 16.10 ... 18.50 | 51          |
| AH-8      | 18.50 • 18.55 • 18.60 ... 20.00 | 31          |

## AAP Series

(0.010mm step)

Consist of intermediate nominal size Pin Gauges of AA Series.

| Model No. | Nominal size (mm)               | Pin per set |
|-----------|---------------------------------|-------------|
| AAP-0B    | 0.505 • 0.515 • 0.525... 1.005  | 51          |
| AAP-1A    | 1.005 • 1.015 • 1.025... 1.505  | 51          |
| AAP-1B    | 1.505 • 1.515 • 1.525... 2.005  | 51          |
| AAP-2A    | 2.005 • 2.015 • 2.025... 2.505  | 51          |
| AAP-2B    | 2.505 • 2.515 • 2.525... 3.005  | 51          |
| AAP-3A    | 3.005 • 3.015 • 3.025... 3.505  | 51          |
| AAP-3B    | 3.505 • 3.515 • 3.525... 4.005  | 51          |
| AAP-4A    | 4.005 • 4.015 • 4.025... 4.505  | 51          |
| AAP-4B    | 4.505 • 4.515 • 4.525... 5.005  | 51          |
| AAP-5A    | 5.005 • 5.015 • 5.025... 5.505  | 51          |
| AAP-5B    | 5.505 • 5.515 • 5.525... 6.005  | 51          |
| AAP-6A    | 6.005 • 6.015 • 6.025... 6.505  | 51          |
| AAP-6B    | 6.505 • 6.515 • 6.525... 7.005  | 51          |
| AAP-7A    | 7.005 • 7.015 • 7.025... 7.505  | 51          |
| AAP-7B    | 7.505 • 7.515 • 7.525... 8.005  | 51          |
| AAP-8A    | 8.005 • 8.015 • 8.025... 8.505  | 51          |
| AAP-8B    | 8.505 • 8.515 • 8.525... 9.005  | 51          |
| AAP-9A    | 9.005 • 9.015 • 9.025... 9.505  | 51          |
| AAP-9B    | 9.505 • 9.515 • 9.525... 10.005 | 51          |

BLOCK  
GAUGESPIN  
GAUGESPIN  
VISEPIN  
GAUGE  
ACCESSORIES

GAUGES

THREAD  
GAUGESPLUG  
GAUGESRING  
GAUGESTHICKNESS  
GAUGESTAPER  
GAUGESWELDING  
GAUGESOTHER  
GAUGES



## SUB-ZERO TREATMENT (Cryogenic hardened)

### PM series ⊕ ⊖

#### FEATURES

- Pin Gauges with tolerance of 0 to plus 2μm or 0 to minus 2μm based on nominal size
- For over 1.000mm, nominal size and P(for Plus) or M(for Minus) is marked on gauges
- Please indicate "plus" or "minus" when ordering
- Individual Pin Gauges are also available



#### SPECIFICATIONS

| Size (mm)    | Step (mm) | Length (mm) | Tolerance (μm)       | Out of Roundness/<br>Cylindricity (μm) | Hardness (HV) |
|--------------|-----------|-------------|----------------------|----------------------------------------|---------------|
| 0.20... 0.99 | 0.01 step | 40          | Plus or Minus<br>0~2 | 1.0                                    | Over 650      |
| 1.00...10.00 |           | 50          |                      |                                        |               |

(0.01mm step)

| Model No. | Nominal size (mm)            | Pins per set | Pin Vise |
|-----------|------------------------------|--------------|----------|
| PM-0A     | 0.20 • 0.21 • 0.22.....0.50  | 31           | —        |
| PM-0B     | 0.50 • 0.51 • 0.52.....1.00  | 51           | PV-0B    |
| PM-1A     | 1.00 • 1.01 • 1.02..... 1.50 | 51           | PV-1A    |
| PM-1B     | 1.50 • 1.51 • 1.52..... 2.00 | 51           | PV-1B    |
| PM-2A     | 2.00 • 2.01 • 2.02.....2.50  | 51           | PV-2A    |
| PM-2B     | 2.50 • 2.51 • 2.52.....3.00  | 51           | PV-2B    |
| PM-3A     | 3.00 • 3.01 • 3.02.....3.50  | 51           | PV-3A    |
| PM-3B     | 3.50 • 3.51 • 3.52.....4.00  | 51           | PV-3B    |
| PM-4A     | 4.00 • 4.01 • 4.02.....4.50  | 51           | PV-4A    |
| PM-4B     | 4.50 • 4.51 • 4.52.....5.00  | 51           | PV-4B    |
| PM-5A     | 5.00 • 5.01 • 5.02.....5.50  | 51           | PV-5A    |
| PM-5B     | 5.50 • 5.51 • 5.52.....6.00  | 51           | PV-5B    |
| PM-6A     | 6.00 • 6.01 • 6.02.....6.50  | 51           | PV-6A    |
| PM-6B     | 6.50 • 6.51 • 6.52.....7.00  | 51           | PV-6B    |
| PM-7A     | 7.00 • 7.01 • 7.02.....7.50  | 51           | —        |
| PM-7B     | 7.50 • 7.51 • 7.52.....8.00  | 51           |          |
| PM-8A     | 8.00 • 8.01 • 8.02.....8.50  | 51           |          |
| PM-8B     | 8.50 • 8.51 • 8.52.....9.00  | 51           | —        |
| PM-9A     | 9.00 • 9.01 • 9.02.....9.50  | 51           |          |
| PM-9B     | 9.50 • 9.51 • 9.52.....10.00 | 51           |          |

### PG series ⊕ ⊖

#### FEATURES

- Pin Gauges with tolerance of +2 to +5μm (or -2 to -5μm) based on nominal size
- Please indicate "plus" or "minus" when ordering
- Individual Pin Gauges are also available



※ Pin Vise is not included  
※ PG-00 and PG-3 differ in size step

#### SPECIFICATIONS

| Nominal size (mm) | Step (mm)  | Length (mm) | Tolerance (μm)             | Out of Roundness/<br>Cylindricity (μm) | Hardness (HV) |
|-------------------|------------|-------------|----------------------------|----------------------------------------|---------------|
| 0.100 ... 0.190   | 0.01 step  | 20          | ⊕2~5 based on nominal size | 1.5                                    | Over 650      |
| 0.200 ... 0.290   |            | 40          | ⊖2~5 based on nominal size |                                        |               |
| 0.300 ... 0.975   | 0.025 step | 50          | ※                          |                                        |               |
| 1.000 ...12.975   |            |             |                            |                                        |               |
| 13.000 ...19.000  | 0.1 step   |             |                            |                                        |               |

※The tolerance of 13.000~19.000 Pin Gauges is with Plus (or Minus) 1~5μm

| Model No. | Nominal size                   | Step       | Pins per set |
|-----------|--------------------------------|------------|--------------|
| PG-00     | 0.100• 0.110• 0.120 ... 0.290  | 0.01 step  | 20           |
| PG-0      | 0.300• 0.325• 0.350 ... 1.525  | 0.025 step | 50           |
| PG-1      | 1.550• 1.575• 1.600 ... 6.275  |            | 190          |
| PG-2A     | 6.300• 6.325• 6.350 ... 9.775  |            | 140          |
| PG-2B     | 9.800• 9.825• 9.850 ...12.525  |            | 110          |
| PG-2C     | 12.550•12.575•12.600 ...12.975 | 0.1 step   | 18           |
| PG-3      | 13.000•13.100•13.200 ...19.000 |            | 61           |

BLOCK GAUGES

PIN GAUGES

PIN VISE

PIN GAUGE ACCESSORIES

GAUGES

THREAD GAUGES

PLUG GAUGES

RING GAUGES

THICKNESS GAUGES

TAPER GAUGES

WELDING GAUGES

OTHER GAUGES





## STEEL PIN GAUGE with CENTER HOLE AC series



### SUB-ZERO TREATMENT (Cryogenic hardened)



#### FEATURES

- Use for measuring gear runout and eccentricity of gear wheels or pulleys  
can also measure squareness between the hole and side face
- For above 2.00 mm, the Nominal size is marked on gauge

#### SPECIFICATIONS

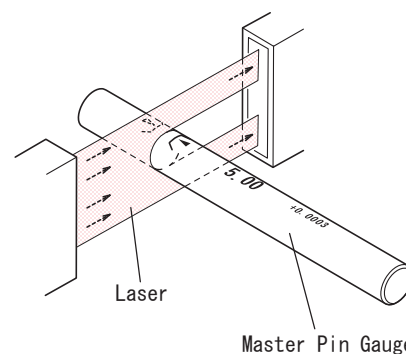
| Nominal size (mm) | Step (mm) | Length (mm) | Tolerance (μm) | Out of Roundness (μm) | Out of Cylindricity (μm) | Runout Tolerance (μm) | Center hole Angle | Center hole Diameter (mm) | Hardness (HV) |
|-------------------|-----------|-------------|----------------|-----------------------|--------------------------|-----------------------|-------------------|---------------------------|---------------|
| 2.00… 2.99        | 0.01 step | 50          | ±2.0           | 1.0                   | 1.0                      | Within 2.0            | 60°               | 1.3                       | More then 650 |
| 3.00… 3.99        |           |             |                |                       |                          |                       |                   | 1.8                       |               |
| 4.00… 4.99        |           |             |                |                       |                          |                       |                   | 2.4                       |               |
| 5.00… 5.99        |           |             |                |                       |                          |                       |                   |                           |               |
| 6.00… 6.99        |           |             |                |                       |                          |                       |                   | 4.0                       |               |
| 7.00… 7.99        |           |             |                |                       |                          |                       |                   |                           |               |
| 8.00… 8.99        |           |             |                |                       |                          |                       |                   |                           |               |
| 9.00…10.00        |           |             |                |                       |                          |                       |                   |                           |               |

## MASTER PIN GAUGE



### SUB-ZERO TREATMENT (Cryogenic hardened)

#### Example use



Calibrating a laser thickness gauge using the marked area of the master pin gauge

#### FEATURES

- Actual value of the specific area is marked on pin gauge

#### SPECIFICATIONS

| Nominal size (mm) | Step (mm) | Length (mm) | Uncertainty ( $\mu\text{m}$ ) | Out of Roundness ( $\mu\text{m}$ ) | Hardness (HV) |
|-------------------|-----------|-------------|-------------------------------|------------------------------------|---------------|
| 1.00... 4.00      | 0.01      | 50          | 0.4                           | 0.5                                | More than 650 |
| 4.01... 6.00      |           |             |                               |                                    |               |

## SUB-ZERO TREATMENT (Cryogenic hardened)



### FEATURES

- AA series Pin Gauge with Plastic handle
- Easy to handle for measuring
- Less affected by temperature
- The handle protects Pin Gauges from skin oil and salts
- Size is marked on each plastic handle
- Individual pin gauges are also available

### SPECIFICATIONS

| Nominal size (mm) | Step (mm) | Length (mm)  |                | Tolerance (μm) | Out of Roundness (μm) | Out of Cylindricity (μm) | Hardness (HV) |
|-------------------|-----------|--------------|----------------|----------------|-----------------------|--------------------------|---------------|
|                   |           | Gauge Length | Overall Length |                |                       |                          |               |
| 0.07… 0.09        | 0.01 step | 3            | 41             | ± 0.5          | 0.5                   | 0.5                      | More than 650 |
| 0.10… 0.19        |           |              |                |                |                       |                          |               |
| 0.20… 0.29        |           |              |                |                |                       |                          |               |
| 0.30… 0.49        |           | 10           | 48             | ± 1.0          |                       |                          |               |
| 0.50… 0.99        |           | 20           | 58             |                |                       |                          |               |
| 1.00… 5.00        |           | 30           | 71             |                |                       |                          |               |
| 5.01…10.00        |           |              | 76             |                |                       |                          |               |

※ Exceptionally, for 1.00mm Pin Gauge in Set No. AG-0B – Gauge Length: 20mm/ Overall Length: 58mm

(0.01mm step)

| Model No. | Nominal size (mm)       | Pins per set |
|-----------|-------------------------|--------------|
| AG-0A     | 0.20•0.21•0.22... 0.50  | 31           |
| AG-0B     | 0.50•0.51•0.52... 1.00  | 51           |
| AG-1A     | 1.00•1.01•1.02... 1.50  | 51           |
| AG-1B     | 1.50•1.51•1.52... 2.00  | 51           |
| AG-2A     | 2.00•2.01•2.02... 2.50  | 51           |
| AG-2B     | 2.50•2.51•2.52... 3.00  | 51           |
| AG-3A     | 3.00•3.01•3.02... 3.50  | 51           |
| AG-3B     | 3.50•3.51•3.52... 4.00  | 51           |
| AG-4A     | 4.00•4.01•4.02... 4.50  | 51           |
| AG-4B     | 4.50•4.51•4.52... 5.00  | 51           |
| AG-5A     | 5.00•5.01•5.02... 5.50  | 51           |
| AG-5B     | 5.50•5.51•5.52... 6.00  | 51           |
| AG-6A     | 6.00•6.01•6.02... 6.50  | 51           |
| AG-6B     | 6.50•6.51•6.52... 7.00  | 51           |
| AG-7A     | 7.00•7.01•7.02... 7.50  | 51           |
| AG-7B     | 7.50•7.51•7.52... 8.00  | 51           |
| AG-8A     | 8.00•8.01•8.02... 8.50  | 51           |
| AG-8B     | 8.50•8.51•8.52... 9.00  | 51           |
| AG-9A     | 9.00•9.01•9.02... 9.50  | 51           |
| AG-9B     | 9.50•9.51•9.52... 10.00 | 51           |

BLOCK GAUGES

PIN GAUGES

PIN VISE

PIN GAUGE ACCESSORIES

GAUGES

THREAD GAUGES

PLUG GAUGES

RING GAUGES

THICKNESS GAUGES

TAPER GAUGES

WELDING GAUGES

OTHER GAUGES



## STEEL PIN GAUGE for GEAR MEASUREMENT OP series

JCSS Calibration  
available

T RACEABILITY

## SUB-ZERO TREATMENT (Cryogenic hardened)

## FEATURES

- For quick and accurate over-pin diameter measurement of internal and external gears.  
(magnetize the pin for easy handling)
- OP series gauge is for measuring over pin diameter of gears and involute splines. Each module is a set of 2 pins each for measuring external gear over-pin-diameter, and internal gear over-pin-diameter.
- Individual pin gauges are also available
- Custom made pin gauges are available upon request.

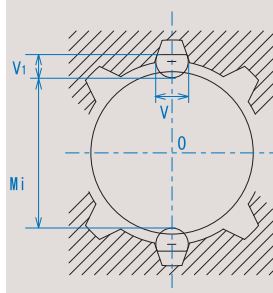
To determine proper pin gauge, please note the following.

- 1) For inside diameter or outside diameter
- 2) Module or diametrical pitch
- 3) Number of teeth
- 4) Pressure angle
- 5) Profile shift coefficient
- 6) Torsion angle

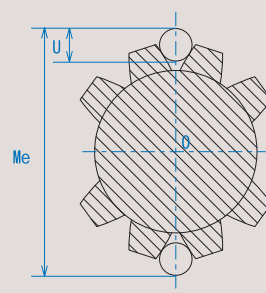


## How To Measure

■ For inside diameter



■ For outside diameter



Over-pin diameter is measured by measuring the diameter after placing two pin gauges in opposite grooves of the gear as shown above.

## OP-1

| Module (mm) | Inner dia. (hole) pin diameter (V) × groove height (V <sub>1</sub> ) (mm) | Outer (axis) pin diameter (U) (mm) |
|-------------|---------------------------------------------------------------------------|------------------------------------|
| 0.5         | 1.00 × 0.84                                                               | 0.90                               |
| 1.0         | 2.00 × 1.68                                                               | 1.80                               |
| 1.25        | 2.50 × 2.10<br>2.40 × 2.00 ※ 1                                            | 2.25<br>—                          |
| 1.667       | 3.333 × 2.80                                                              | 3.00                               |
| 2.5         | 5.00 × 4.26                                                               | 4.50                               |
| 5.0         | 10.00 × 8.40                                                              | 9.00                               |
| 10.0        | 20.00 × 16.80                                                             | 18.00                              |

※ 1 Module 1.25 is used for tooth 8 · 12

## OP-2

| Module (mm) | Inner dia(hole) pin diameter (V) × groove height (V <sub>1</sub> ) (mm) | Outer(axis) pin diameter (U) (mm) |
|-------------|-------------------------------------------------------------------------|-----------------------------------|
| 0.75        | 1.50 × 1.20<br>—                                                        | 1.35<br>1.40 ※ 2                  |
| 1.5         | 3.00 × 2.52                                                             | 2.70                              |
| 2.0         | 4.00 × 3.36                                                             | 3.60                              |
| 3.0         | 6.00 × 5.04 ※ 1                                                         | 5.40                              |
| 3.75        | 7.50 × 6.30<br>—                                                        | 6.75<br>7.00 ※ 3                  |
| 4.5         | 9.00 × 7.56                                                             | 8.10                              |
| 6.0         | 12.00 × 10.08                                                           | 10.80                             |
| 7.5         | 15.00 × 12.60                                                           | 13.50                             |

※ 2 )Module 0.75 is used for tooth 6 · 7 · 8 · 9 · 10 · 11

※ 3 )Module 3.75 is used for tooth 6 · 7 · 8 · 9 · 10 · 11

## OP-3

This is combination set of OP-1 and OP-2

## SPECIFICATIONS

|                                   |                                                    |
|-----------------------------------|----------------------------------------------------|
| Dimensional deviation (V and U)   | 0.90mm~10.00mm : ±1 μm<br>10.01mm~20.00mm : ±1.5μm |
| Out of Roundness/<br>Cylindricity | 0.90mm~10.00mm : ±1 μm<br>10.01mm~20.00mm : ±1.5μm |
| Length                            | 50mm                                               |
| Hardness                          | Over HV650                                         |

## LAPPED FINISH (except for custom made item)

### FEATURES

- About 20-30 times more durable than Steel Pin Gauge
- The coefficient of thermal expansion is small ( $1/2$  of steel,  $5 \times 10^{-6} \text{K}^{-1}$ ) so the changes due to temperature are small
- Less likely to be damaged due to high hardness
- Even if broken, dimension does not change (no burrs on broken edges)
- Economical--Periodic calibration is not required

### TAAseries



### TAG series (with Handle)



### SPECIFICATIONS

| Nominal size (mm) | Step (mm) | Length (mm) | Tolerance ( $\mu\text{m}$ ) | Out of Roundness/ Cylindricity ( $\mu\text{m}$ ) |
|-------------------|-----------|-------------|-----------------------------|--------------------------------------------------|
| 0.50... 0.99      | 0.01 step | 30          | $\pm 1$                     | 0.8                                              |
| 1.00... 2.99      |           | 38          |                             |                                                  |
| 3.00... 10.00     |           | 50          |                             |                                                  |
| 10.01... 14.00    |           |             | $\pm 1.5$                   | 1.3                                              |

(0.01mm step)

| Model No. | Nominal size (mm)       | Pins per set |
|-----------|-------------------------|--------------|
| TAA-0B    | 0.50•0.51•0.52... 1.00  | 51           |
| TAA-1A    | 1.00•1.01•1.02... 1.50  | 51           |
| TAA-1B    | 1.50•1.51•1.52... 2.00  | 51           |
| TAA-2A    | 2.00•2.01•2.02... 2.50  | 51           |
| TAA-2B    | 2.50•2.51•2.52... 3.00  | 51           |
| TAA-3A    | 3.00•3.01•3.02... 3.50  | 51           |
| TAA-3B    | 3.50•3.51•3.52... 4.00  | 51           |
| TAA-4A    | 4.00•4.01•4.02... 4.50  | 51           |
| TAA-4B    | 4.50•4.51•4.52... 5.00  | 51           |
| TAA-5A    | 5.00•5.01•5.02... 5.50  | 51           |
| TAA-5B    | 5.50•5.51•5.52... 6.00  | 51           |
| TAA-6A    | 6.00•6.01•6.02... 6.50  | 51           |
| TAA-6B    | 6.50•6.51•6.52... 7.00  | 51           |
| TAA-7A    | 7.00•7.01•7.02... 7.50  | 51           |
| TAA-7B    | 7.50•7.51•7.52... 8.00  | 51           |
| TAA-8A    | 8.00•8.01•8.02... 8.50  | 51           |
| TAA-8B    | 8.50•8.51•8.52... 9.00  | 51           |
| TAA-9A    | 9.00•9.01•9.02... 9.50  | 51           |
| TAA-9B    | 9.50•9.51•9.52... 10.00 | 51           |

### SPECIFICATIONS

| Nominal size (mm) | Step (mm) | Length (mm)  |                | Tolerance ( $\mu\text{m}$ ) | Out of Roundness/ Cylindricity ( $\mu\text{m}$ ) |
|-------------------|-----------|--------------|----------------|-----------------------------|--------------------------------------------------|
|                   |           | Gauge Length | Overall Length |                             |                                                  |
| 0.50... 0.99      | 0.01 step | 25           | 63             | $\pm 1$                     | 0.8                                              |
| 1.00... 2.99      |           | 28           | 69             |                             |                                                  |
| 3.00... 4.99      |           | 30           | 71             |                             |                                                  |
| 5.00... 10.00     |           |              | 76             |                             |                                                  |

(0.01mm step)

| Model No. | Nominal size (mm)       | Pins per set |
|-----------|-------------------------|--------------|
| TAG-0B    | 0.50•0.51•0.52... 1.00  | 51           |
| TAG-1A    | 1.00•1.01•1.02... 1.50  | 51           |
| TAG-1B    | 1.50•1.51•1.52... 2.00  | 51           |
| TAG-2A    | 2.00•2.01•2.02... 2.50  | 51           |
| TAG-2B    | 2.50•2.51•2.52... 3.00  | 51           |
| TAG-3A    | 3.00•3.01•3.02... 3.50  | 51           |
| TAG-3B    | 3.50•3.51•3.52... 4.00  | 51           |
| TAG-4A    | 4.00•4.01•4.02... 4.50  | 51           |
| TAG-4B    | 4.50•4.51•4.52... 5.00  | 51           |
| TAG-5A    | 5.00•5.01•5.02... 5.50  | 51           |
| TAG-5B    | 5.50•5.51•5.52... 6.00  | 51           |
| TAG-6A    | 6.00•6.01•6.02... 6.50  | 51           |
| TAG-6B    | 6.50•6.51•6.52... 7.00  | 51           |
| TAG-7A    | 7.00•7.01•7.02... 7.50  | 51           |
| TAG-7B    | 7.50•7.51•7.52... 8.00  | 51           |
| TAG-8A    | 8.00•8.01•8.02... 8.50  | 51           |
| TAG-8B    | 8.50•8.51•8.52... 9.00  | 51           |
| TAG-9A    | 9.00•9.01•9.02... 9.50  | 51           |
| TAG-9B    | 9.50•9.51•9.52... 10.00 | 51           |

BLOCK GAUGES

PIN GAUGES

PIN VISE

PIN GAUGE ACCESSORIES

GAUGES

THREAD GAUGES

PLUG GAUGES

RING GAUGES

THICKNESS GAUGES

TAPER GAUGES

WELDING GAUGES

OTHER GAUGES



# CERAMIC PIN GAUGE SET CAA • CAG series

JCSS Calibration  
available  
(CAA series)

T RACEABILITY

LAPPED FINISH (except for custom made item)

## FEATURES

- Strong against abrasion
- Free from rust and corrosion, and easy maintenance
- Ceramic material is less susceptible to abrasion and age deterioration than steel
- Non-magnetic
- For above 1.50mm, Nominal size is laser marked on gauge

Comparison between carbide and steel materials

| Item                             | Material                         | Ceramics    |              | Cemented Carbide (G2) | Steel (SKH) |
|----------------------------------|----------------------------------|-------------|--------------|-----------------------|-------------|
|                                  |                                  | φ0.50~φ2.49 | φ2.50~φ10.00 |                       |             |
| Specific Gravity                 |                                  | 5.5~6.0     | 3.6~3.9      | 14.8                  | 7.8         |
| Hardness                         | HV                               | 1,200       | 1,800        | 1,200                 | 730(Harden) |
| Bending strength                 | GPa                              | 2.4~7.9     | 3.1~3.5      | 22                    | 110~180     |
| Young's Modulus                  | GPa                              | 180~240     | 310~370      | 610                   | 205         |
| Coefficient of thermal expansion | 10 <sup>-6</sup> K <sup>-1</sup> | 10.5        | 8            | 5                     | 11          |
| Heat conductivity                | W/m·K                            | 2           | 20~30        | 80                    | 76          |

## CAA series



## CAG Series (with Handle)



※CAA series Pin Gauge with plastic handle.

## SPECIFICATIONS

| Nominal size<br>(mm) | Step<br>(mm) | Length<br>(mm) | Tolerance<br>(μ m) | Out of Roundness/<br>Cylindricity<br>(μ m) |
|----------------------|--------------|----------------|--------------------|--------------------------------------------|
| 0.50...2.49          | 0.01 step    | 38             | ±1                 | 0.8                                        |
| 2.50...2.99          |              |                |                    |                                            |
| 3.00...3.49          |              |                |                    |                                            |
| 3.50...9.99          |              |                |                    |                                            |
| 10.00                | —            | 50             |                    |                                            |

※ Length can be changed without any prior notice due to improvement of product.  
(0.01mm step)

| Model No. | Nominal size (mm)      | Pins per set |
|-----------|------------------------|--------------|
| CAA-0B    | 0.50•0.51•0.52... 1.00 | 51           |
| CAA-1A    | 1.00•1.01•1.02... 1.50 | 51           |
| CAA-1B    | 1.50•1.51•1.52... 2.00 | 51           |
| CAA-2A    | 2.00•2.01•2.02... 2.50 | 51           |
| CAA-2B    | 2.50•2.51•2.52... 3.00 | 51           |
| CAA-3A    | 3.00•3.01•3.02... 3.50 | 51           |
| CAA-3B    | 3.50•3.51•3.52... 4.00 | 51           |
| CAA-4A    | 4.00•4.01•4.02... 4.50 | 51           |
| CAA-4B    | 4.50•4.51•4.52... 5.00 | 51           |
| CAA-5A    | 5.00•5.01•5.02... 5.50 | 51           |
| CAA-5B    | 5.50•5.51•5.52... 6.00 | 51           |
| CAA-6A    | 6.00•6.01•6.02... 6.50 | 51           |
| CAA-6B    | 6.50•6.51•6.52... 7.00 | 51           |
| CAA-7A    | 7.00•7.01•7.02... 7.50 | 51           |
| CAA-7B    | 7.50•7.51•7.52... 8.00 | 51           |
| CAA-8A    | 8.00•8.01•8.02... 8.50 | 51           |
| CAA-8B    | 8.50•8.51•8.52... 9.00 | 51           |
| CAA-9A    | 9.00•9.01•9.02... 9.50 | 51           |
| CAA-9B    | 9.50•9.51•9.52...10.00 | 51           |

## SPECIFICATIONS

| Nominal size (mm) | Step (mm) | Length (mm)  |                | Tolerance (μm) | Out of Roundness/Cylindricity (μm) |
|-------------------|-----------|--------------|----------------|----------------|------------------------------------|
|                   |           | Gauge Length | Overall Length |                |                                    |
| 0.50... 0.99      | 0.01 step | 28           | 66             | ±1             | 0.8                                |
| 1.00... 3.49      |           | 28           | 69             |                |                                    |
| 3.50... 4.99      |           | 30           | 71             |                |                                    |
| 5.00...10.00      |           | 30           | 76             |                |                                    |
|                   |           |              |                |                |                                    |

※ Length can be changed without any prior notice due to improvement of product.

| Model No. | Nominal size (mm)      | Pins per set |
|-----------|------------------------|--------------|
| CAG-0B    | 0.50•0.51•0.52... 1.00 | 51           |
| CAG-1A    | 1.00•1.01•1.02... 1.50 | 51           |
| CAG-1B    | 1.50•1.51•1.52... 2.00 | 51           |
| CAG-2A    | 2.00•2.01•2.02... 2.50 | 51           |
| CAG-2B    | 2.50•2.51•2.52... 3.00 | 51           |
| CAG-3A    | 3.00•3.01•3.02... 3.50 | 51           |
| CAG-3B    | 3.50•3.51•3.52... 4.00 | 51           |
| CAG-4A    | 4.00•4.01•4.02... 4.50 | 51           |
| CAG-4B    | 4.50•4.51•4.52... 5.00 | 51           |
| CAG-5A    | 5.00•5.01•5.02... 5.50 | 51           |
| CAG-5B    | 5.50•5.51•5.52... 6.00 | 51           |
| CAG-6A    | 6.00•6.01•6.02... 6.50 | 51           |
| CAG-6B    | 6.50•6.51•6.52... 7.00 | 51           |
| CAG-7A    | 7.00•7.01•7.02... 7.50 | 51           |
| CAG-7B    | 7.50•7.51•7.52... 8.00 | 51           |
| CAG-8A    | 8.00•8.01•8.02... 8.50 | 51           |
| CAG-8B    | 8.50•8.51•8.52... 9.00 | 51           |
| CAG-9A    | 9.00•9.01•9.02... 9.50 | 51           |
| CAG-9B    | 9.50•9.51•9.52...10.00 | 51           |



## PIN GAUGE ACCESSORIES

### PLASTIC CASE



Removable lid for use as tray

Stands

Stacks

| PCS-1                           |
|---------------------------------|
| ■ AA series<br>AA-00 ~ AA-6B    |
| ■ TAA series<br>TAA-0B ~ TAA-6B |
| ■ CAA series<br>CAA-0B ~ CAA-6B |

| PCS-2                           |
|---------------------------------|
| ■ AA series<br>AA-7A ~ AA-15B   |
| ■ TAA series<br>AA-7A ~ TAA-9B  |
| ■ CAA series<br>CAA-7A ~ CAA-9B |

### WOODEN CASE



| W-1                                        |
|--------------------------------------------|
| ■ STEEL PIN GAUGE SET<br>PG-00⊕⊖<br>PG-0⊕⊖ |

| W-2                              |
|----------------------------------|
| ■ STEEL PIN GAUGE SET<br>PG-2C⊕⊖ |

| W-3                                                        |
|------------------------------------------------------------|
| W-3A ■ STEEL PIN GAUGE SET<br>PG-1⊕⊖<br>PG-2A⊕⊖<br>PG-2B⊕⊖ |
| W-3B ■ STEEL PIN GAUGE SET<br>PG-3⊕⊖                       |

| W-4                                                    |
|--------------------------------------------------------|
| ■ STEEL PIN GAUGE SET with handle<br>AG-0A ~ AG-4B     |
| ■ CARBIDE PIN GAUGE SET with handle<br>TAG-0A ~ TAG-4B |
| ■ CERAMIC PIN GAUGE SET with handle<br>CAG-0A ~ CAG-4B |

| W-5                                        |
|--------------------------------------------|
| ■ STEEL PIN GAUGE SET<br>AG-5A ~ AG-9B     |
| ■ CARBIDE PIN GAUGE SET<br>TAG-5A ~ TAG-9B |
| ■ CERAMIC PIN GAUGE<br>CAG-5A ~ CAG-9B     |

## PIN GAUGE CABINET P-5C

Pin gauge storage cabinet can store up to 10 pin gauge sets

All drawers can be locked at once

Lock

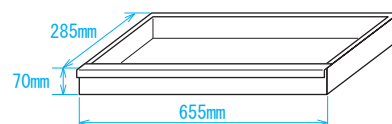
Applicable case : PCS-1, PCS-2



Handle can be mounted either right side or left side

Handle

[Drawer dimensions (removed)]



※ Pin gauges are not included

Caster

| Order No. | Model No. | Product Dimensions(mm) | Weight |
|-----------|-----------|------------------------|--------|
| 217930    | P-5C      | W655×D350×H630         | 36kg   |

## MAINTENANCE KIT



USE • For pin gauge maintenance

FEATURES • Plastic case for easy to carry

## PLASTIC CASE for individual pin gauge



| For Steel Pin Gauge |               |               |               |
|---------------------|---------------|---------------|---------------|
| 22.00 ~ 30.00       | 16.00 ~ 22.00 | 7.000 ~ 16.00 | 0.060 ~ 7.000 |



| For Carbide Pin Gauge |             | For Ceramic Pin Gauge |             | For Maintenance Line Pin Gauge |             |
|-----------------------|-------------|-----------------------|-------------|--------------------------------|-------------|
| 7.00 ~ 14.00          | 0.50 ~ 7.00 | 7.00 ~ 10.00          | 0.50 ~ 7.00 | 7.00 ~ 10.00                   | 3.00 ~ 7.00 |



## ALUMINUM PIN VISE

**USE** • For holding pin gauge

**FEATURES**

- Body : Aluminum
- With special made resin collet, Aluminum Pin Vise is strong for deformation, but soft for Pin Gauge
- Aluminum Pin Vise can be used as Limit Plug Gauge, holding Pin Gauges in both GO (green) and NO GO (red) side.
- Size is marked on the handle.
- With Plastic Case

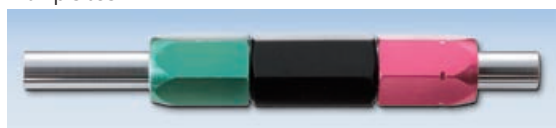


APV-17A

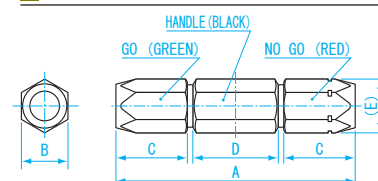


APV-6A

Example use



**DIMENSIONS**



Units : mm

| Size          | A   | B  | C  | D  | E    |
|---------------|-----|----|----|----|------|
| APV-0A ~ 6B   | 91  | 14 | 23 | 40 | 16   |
| APV-7A ~ 9B   | 90  | 17 | 26 | 34 | 19.5 |
| APV-10A ~ 12B | 105 | 21 | 31 | 39 | 24   |
| APV-13A ~ 15B | 111 | 24 | 31 | 45 | 27.5 |
| APV-16A ~ 19B | 117 | 28 | 32 | 48 | 32   |

| Order No. | Model No. | Pin Gauge size | Weight |
|-----------|-----------|----------------|--------|
| 216001    | APV-0A    | 0.200~ 0.500   | 30g    |
| 216002    | APV-0B    | 0.500~ 1.000   | 30g    |
| 216011    | APV-1A    | 1.000~ 1.500   | 30g    |
| 216012    | APV-1B    | 1.500~ 2.000   | 30g    |
| 216021    | APV-2A    | 2.000~ 2.500   | 30g    |
| 216022    | APV-2B    | 2.500~ 3.000   | 30g    |
| 216031    | APV-3A    | 3.000~ 3.500   | 30g    |
| 216032    | APV-3B    | 3.500~ 4.000   | 30g    |
| 216041    | APV-4A    | 4.000~ 4.500   | 30g    |
| 216042    | APV-4B    | 4.500~ 5.000   | 30g    |
| 216051    | APV-5A    | 5.000~ 5.500   | 30g    |
| 216052    | APV-5B    | 5.500~ 6.000   | 30g    |
| 216061    | APV-6A    | 6.000~ 6.500   | 30g    |
| 216062    | APV-6B    | 6.500~ 7.000   | 30g    |
| 216071    | APV-7A    | 7.000~ 7.500   | 40g    |
| 216072    | APV-7B    | 7.500~ 8.000   | 40g    |
| 216081    | APV-8A    | 8.000~ 8.500   | 40g    |
| 216082    | APV-8B    | 8.500~ 9.000   | 40g    |
| 216091    | APV-9A    | 9.000~ 9.500   | 40g    |
| 216092    | APV-9B    | 9.500~10.000   | 40g    |
| 216101    | APV-10A   | 10.000~10.50   | 65g    |
| 216102    | APV-10B   | 10.50 ~11.00   | 65g    |
| 216111    | APV-11A   | 11.00 ~11.50   | 65g    |
| 216112    | APV-11B   | 11.50 ~12.00   | 65g    |
| 216121    | APV-12A   | 12.00 ~12.50   | 65g    |
| 216122    | APV-12B   | 12.50 ~13.00   | 65g    |
| 216131    | APV-13A   | 13.00 ~13.50   | 80g    |
| 216132    | APV-13B   | 13.50 ~14.00   | 80g    |
| 216141    | APV-14A   | 14.00 ~14.50   | 80g    |
| 216142    | APV-14B   | 14.50 ~15.00   | 80g    |
| 216151    | APV-15A   | 15.00 ~15.50   | 80g    |
| 216152    | APV-15B   | 15.50 ~16.00   | 80g    |
| 216161    | APV-16A   | 16.00 ~16.50   | 110g   |
| 216162    | APV-16B   | 16.50 ~17.00   | 110g   |
| 216171    | APV-17A   | 17.00 ~17.50   | 110g   |
| 216172    | APV-17B   | 17.50 ~18.00   | 110g   |
| 216181    | APV-18A   | 18.00 ~18.50   | 110g   |
| 216182    | APV-18B   | 18.50 ~19.00   | 110g   |
| 216191    | APV-19A   | 19.00 ~19.50   | 110g   |
| 216192    | APV-19B   | 19.50 ~20.00   | 110g   |

BLOCK GAUGES

PIN GAUGES

PIN VISE

PIN GAUGE ACCESSORIES

GAUGES

THREAD GAUGES

PLUG GAUGES

RING GAUGES

THICKNESS GAUGES

TAPER GAUGES

WELDING GAUGES

OTHER GAUGES



## USE

- For holding Pin Gauges

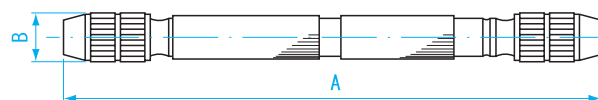
## FEATURES

- Chrome plated brass
- Pin Vise can be used as Limit Plug Gauge by holding Pin Gauges in both GO (no line) and NO GO (red line) side

## SPECIFICATIONS

- Holding range: 0.5mm

## DIMENSIONS



Units : mm

| Pin Vise No. | A   | B  |
|--------------|-----|----|
| PV-0A ~ 2B   | 98  | 9  |
| PV-3A ~ 4B   | 104 | 11 |
| PV-5A ~ 6B   | 114 | 14 |
| PV-7A ~ 9B   | 135 | 17 |

BLOCK  
GAUGES

PIN  
GAUGES

PIN  
VISE

PIN  
GAUGE  
ACCESSORIES

| Order No. | Model No. | Pin Gauge Size | Part No. |      |        | Weight |
|-----------|-----------|----------------|----------|------|--------|--------|
|           |           |                | Ring     | Grip | Collet |        |
| 219001    | PV-0A     | 0.200 ~ 0.500  | B1       | B2   | B00    | 30g    |
| 219002    | PV-0B     | 0.500 ~ 1.000  | B1       | B2   | B01    | 30g    |
| 219011    | PV-1A     | 1.000 ~ 1.500  | B1       | B2   | B3     | 30g    |
| 219012    | PV-1B     | 1.500 ~ 2.000  | B1       | B2   | B4     | 30g    |
| 219021    | PV-2A     | 2.000 ~ 2.500  | B1       | B2   | B5     | 30g    |
| 219022    | PV-2B     | 2.500 ~ 3.000  | B1       | B2   | B6     | 30g    |
| 219031    | PV-3A     | 3.000 ~ 3.500  | B7       | B8   | B9     | 40g    |
| 219032    | PV-3B     | 3.500 ~ 4.000  | B7       | B8   | B10    | 40g    |
| 219041    | PV-4A     | 4.000 ~ 4.500  | B7       | B8   | B11    | 40g    |
| 219042    | PV-4B     | 4.500 ~ 5.000  | B7       | B8   | B12    | 40g    |
| 219051    | PV-5A     | 5.000 ~ 5.500  | B13      | B14  | B15    | 70g    |
| 219052    | PV-5B     | 5.500 ~ 6.000  | B13      | B14  | B16    | 80g    |
| 219061    | PV-6A     | 6.000 ~ 6.500  | B13      | B14  | B17    | 80g    |
| 219062    | PV-6B     | 6.500 ~ 7.000  | B13      | B14  | B18    | 80g    |
| 219071    | PV-7A     | 7.000 ~ 7.500  | B19      | B20  | B21    | 110g   |
| 219072    | PV-7B     | 7.500 ~ 8.000  | B19      | B20  | B22    | 110g   |
| 219081    | PV-8A     | 8.000 ~ 8.500  | B19      | B20  | B23    | 110g   |
| 219082    | PV-8B     | 8.500 ~ 9.000  | B19      | B20  | B24    | 110g   |
| 219091    | PV-9A     | 9.000 ~ 9.500  | B19      | B20  | B25    | 110g   |
| 219092    | PV-9B     | 9.500 ~ 10.000 | B19      | B20  | B26    | 110g   |

GAUGES

THREAD  
GAUGES

PLUG  
GAUGES

RING  
GAUGES

THICKNESS  
GAUGES

TAPER  
GAUGES

WELDING  
GAUGES

OTHER  
GAUGES

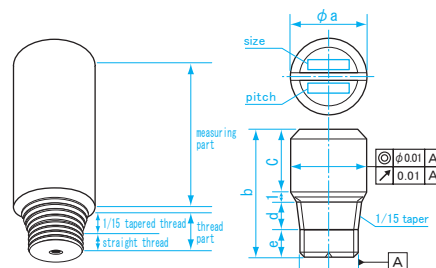
# THREAD PIN GAUGE RA

Suitable when screw holes on workpiece is not chamfered



## DIMENSIONS

Units : mm



## FEATURES

- Threaded portion has 1/15 taper starting at half way point to secure gauge to workpiece.
- Gauge will hold secure to workpiece for holes that are not chamfered to allow measurement of hole angle, etc. which can not be measured with traditional pin gauges.
- Also suitable for deburring Process

|          |                                                                                                                                                                                                                                                                                                                       |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Accuracy | Runout between measurement part and thread part : Model No. RA○○-1...within 0.01mm<br>Runout between measurement part and thread part : Model No. RA○○-2...within 0.015mm<br>Runout between measurement part and thread part : Model No. RA○○-3...within 0.02mm<br>Accuracy of $\phi a$ : within $\pm 0.005\text{mm}$ |
| MATERIAL | Stainless Steel (SUS303)                                                                                                                                                                                                                                                                                              |

&lt;Size List&gt;

| Order No. | Model No. | Size               | a (mm) | b (mm) | c (mm) | d (mm) | e (mm) |
|-----------|-----------|--------------------|--------|--------|--------|--------|--------|
| 250011    | RA125-1   | M1 $\times$ P0.25  | 2      | 8.0    | 4.5    | 1.50   | 1.00   |
| 250012    | RA125-2   | M1 $\times$ P0.25  |        | 13.5   | 10.0   |        |        |
| 250013    | RA125-3   | M1 $\times$ P0.25  |        | 23.5   | 20.0   |        |        |
| 250014    | RA204-1   | M2 $\times$ P0.4   | 3      | 10.0   | 4.5    | 2.50   | 2.00   |
| 250015    | RA204-2   | M2 $\times$ P0.4   |        | 25.5   | 20.0   |        |        |
| 250016    | RA204-3   | M2 $\times$ P0.4   |        | 35.5   | 30.0   |        |        |
| 250017    | RA305-1   | M3 $\times$ P0.5   | 4      | 12.0   | 5.0    | 3.50   | 2.50   |
| 250018    | RA305-2   | M3 $\times$ P0.5   |        | 27.0   | 20.0   |        |        |
| 250019    | RA305-3   | M3 $\times$ P0.5   |        | 37.0   | 30.0   |        |        |
| 250020    | RA407-1   | M4 $\times$ P0.7   | 5      | 14.0   | 6.0    | 3.50   | 3.50   |
| 250021    | RA407-2   | M4 $\times$ P0.7   |        | 28.0   | 20.0   |        |        |
| 250022    | RA407-3   | M4 $\times$ P0.7   |        | 38.0   | 30.0   |        |        |
| 250023    | RA508-1   | M5 $\times$ P0.8   | 6      | 16.0   | 7.0    | 4.00   | 4.00   |
| 250024    | RA508-2   | M5 $\times$ P0.8   |        | 29.0   | 20.0   |        |        |
| 250025    | RA508-3   | M5 $\times$ P0.8   |        | 39.0   | 30.0   |        |        |
| 250026    | RA610-1   | M6 $\times$ P1.0   | 7      | 18.0   | 8.0    | 4.00   | 5.00   |
| 250027    | RA610-2   | M6 $\times$ P1.0   |        | 30.0   | 20.0   |        |        |
| 250028    | RA610-3   | M6 $\times$ P1.0   |        | 40.0   | 30.0   |        |        |
| 250029    | RA8125-1  | M8 $\times$ P1.25  | 9      | 19.0   | 8.5    | 4.50   | 5.00   |
| 250030    | RA8125-2  | M8 $\times$ P1.25  |        | 30.5   | 20.0   |        |        |
| 250031    | RA8125-3  | M8 $\times$ P1.25  |        | 40.5   | 30.0   |        |        |
| 250032    | RA1015-1  | M10 $\times$ P1.5  | 11     | 21.0   | 8.5    | 5.50   | 6.00   |
| 250033    | RA1015-2  | M10 $\times$ P1.5  |        | 32.5   | 20.0   |        |        |
| 250034    | RA1015-3  | M10 $\times$ P1.5  |        | 42.5   | 30.0   |        |        |
| 250035    | RA1215-1  | M12 $\times$ P1.5  | 13     | 23.0   | 8.5    | 6.50   | 7.00   |
| 250036    | RA1215-2  | M12 $\times$ P1.5  |        | 34.5   | 20.0   |        |        |
| 250037    | RA1215-3  | M12 $\times$ P1.5  |        | 44.5   | 30.0   |        |        |
| 250038    | RA12175-1 | M12 $\times$ P1.75 | 15     | 23.0   | 8.5    | 6.50   | 7.00   |
| 250039    | RA12175-2 | M12 $\times$ P1.75 |        | 34.5   | 20.0   |        |        |
| 250040    | RA12175-3 | M12 $\times$ P1.75 |        | 44.5   | 30.0   |        |        |
| 250041    | RA1415-1  | M14 $\times$ P1.5  | 17     | 23.5   | 8.5    | 6.50   | 7.50   |
| 250042    | RA1415-2  | M14 $\times$ P1.5  |        | 35.0   | 20.0   |        |        |
| 250043    | RA1415-3  | M14 $\times$ P1.5  |        | 45.0   | 30.0   |        |        |
| 250044    | RA1615-1  | M16 $\times$ P1.5  | 19     | 23.5   | 8.5    | 7.00   | 8.00   |
| 250045    | RA1615-2  | M16 $\times$ P1.5  |        | 35.0   | 20.0   |        |        |
| 250046    | RA1615-3  | M16 $\times$ P1.5  |        | 45.0   | 30.0   |        |        |
| 250047    | RA1815-1  | M18 $\times$ P1.5  | 19     | 24.5   | 8.5    | 7.00   | 8.00   |
| 250048    | RA1815-2  | M18 $\times$ P1.5  |        | 36.0   | 20.0   |        |        |
| 250049    | RA1815-3  | M18 $\times$ P1.5  |        | 46.0   | 30.0   |        |        |

BLOCK GAUGES

PIN GAUGES

PIN VISE

PIN GAUGE ACCESSORIES

GAUGES

THREAD GAUGES

PLUG GAUGES

RING GAUGES

THICKNESS GAUGES

TAPER GAUGES

WELDING GAUGES

OTHER GAUGES

# THREAD PIN GAUGE

## FEATURES

- Easy handling with simple tool
- Possible to measure easily, economically, accurately compared to other Gauges
- With support of threaded portion, accurate measurement is possible

|          |                                                                                                                                                                             |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Accuracy | Runout between Measuring Head and Screw: Below 0.01mm<br>Accuracy of Measuring Head (size: a): Below $\pm 0.005\text{mm}$<br>Screw: equivalent for JIS for the second grade |
| Material | Stainless steel (SUS303)                                                                                                                                                    |



## (Size List)

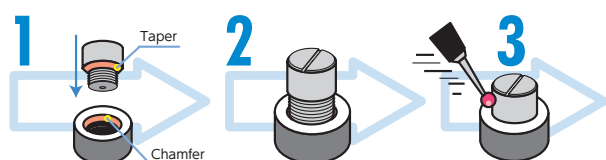
SIZE LIST

| Order No. | Model No. | Size        | a (mm) | b (mm) | c (mm) | d (mm) | e (mm) | f (mm) |     |  |  |
|-----------|-----------|-------------|--------|--------|--------|--------|--------|--------|-----|--|--|
| 360204    | THP-0204  | M 2 × P0.4  | 4      | 9.5    | 6      | 3      | 0.5    | 1.4    |     |  |  |
| 360305    | THP-0305  | M 3 × P0.5  | 5      |        |        |        |        | 2.2    |     |  |  |
| 360407    | THP-0407  | M 4 × P0.7  | 6      | 11     |        | 4.3    | 0.7    | 3      |     |  |  |
| 360508    | THP-0508  | M 5 × P0.8  | 7      |        | 4      | 1      | 3.9    |        |     |  |  |
| 360607    | THP-06075 | M 6 × P0.75 | 8      | 14     | 8      |        | 5      | 4.5    |     |  |  |
| 360610    | THP-0610  | M 6 × P1.0  |        |        |        |        |        |        |     |  |  |
| 360810    | THP-0810  | M 8 × P1.0  | 10     | 17     | 10     | 5.5    | 1.5    | 6      |     |  |  |
| 360812    | THP-08125 | M 8 × P1.25 |        |        |        |        |        |        |     |  |  |
| 361010    | THP-1010  | M10 × P1.0  | 12     | 18     |        | 6.5    |        |        | 7.5 |  |  |
| 361012    | THP-10125 | M10 × P1.25 |        |        |        |        |        |        |     |  |  |
| 361015    | THP-1015  | M10 × P1.5  | 14     | 19     | 7.5    | 8.5    | 1.5    | 9.5    |     |  |  |
| 361210    | THP-1210  | M12 × P1.0  |        |        |        |        |        |        |     |  |  |
| 361212    | THP-12125 | M12 × P1.25 |        |        |        |        |        |        |     |  |  |
| 361215    | THP-1215  | M12 × P1.5  |        |        |        |        |        |        |     |  |  |
| 361217    | THP-12175 | M12 × P1.75 |        |        |        |        |        |        |     |  |  |
| 361415    | THP-1415  | M14 × P1.5  | 16     | 20     | 10     | 8.5    | 1.5    | 11.3   |     |  |  |
| 361420    | THP-1420  | M14 × P2.0  |        |        |        |        |        |        |     |  |  |
| 361615    | THP-1615  | M16 × P1.5  | 18     |        |        |        |        |        |     |  |  |
| 361620    | THP-1620  | M16 × P2.0  |        |        |        |        |        |        |     |  |  |
| 361825    | THP-1825  | M18 × P2.5  | 20     |        |        |        |        | 14.5   |     |  |  |
| 362025    | THP-2025  | M20 × P2.5  | 22     |        |        |        |        | 16     |     |  |  |

※ Custom made Pin Gauge is also available

## How to use Thread Pin Gauge

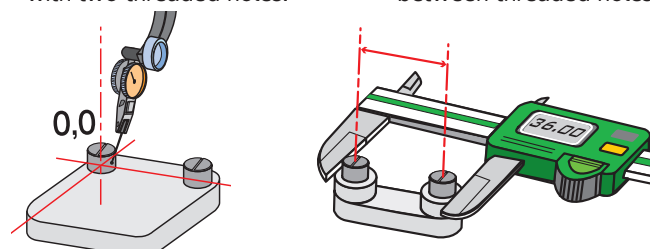
- Easily locate threaded hole position with thread pin gauge  
CMM can Easily attain the hole center using thread pin gauge



1. Prepare a thread pin gauge the same size as the threaded hole
2. Hand screw the thread pin gauge into the threaded hole
3. Measure!

## Example of use

- Reference position established with two threaded holes.
- Pitch measurement between threaded holes







## THREAD LIMIT GAUGE

Check accuracy of threads easily using GO/NOGO thread gauges

| Category                   | for Inspection |
|----------------------------|----------------|
| Thread Plug Gauge, Class 2 | GPIP           |
| Thread Ring Gauge, Class 2 | GRIR           |

※ Thread Gauge for Machine Work (WPWP, GRWR) are also available.  
※ ISO type are available on request.

**USE** • For screw thread inspection

### FEATURES

- Checks upper and lower limit dimensional precision

### THREAD PLUG GAUGE



### MATERIAL

- Gauge part : Alloy tool steel
- Handle part : Aluminum

### THREAD RING GAUGE



### MATERIAL

- Alloy tool steel

| Size       | Size       |
|------------|------------|
| M1.4×P0.3  | M8 ×P1.25  |
| M1.6×P0.35 | M10 ×P1.0  |
| M1.7×P0.35 | M10 ×P1.25 |
| M2 ×P0.4   | M10 ×P1.5  |
| M2.3×P0.4  | M12 ×P1.0  |
| M2.5×P0.45 | M12 ×P1.25 |
| M2.6×P0.45 | M12 ×P1.5  |
| M3 ×P0.5   | M12 ×P1.75 |
| M3.5×P0.6  | M14 ×P1.5  |
| M4 ×P0.5   | M14 ×P2.0  |
| M4 ×P0.7   | M16 ×P1.5  |
| M5 ×P0.8   | M16 ×P2.0  |
| M6 ×P0.75  | M18 ×P1.5  |
| M6 ×P1.0   | M18 ×P2.5  |
| M7 ×P1.0   | M20 ×P1.5  |
| M8 ×P1.0   | M20 ×P2.5  |

| Size       | Size       |
|------------|------------|
| M2 ×P0.4   | M12 ×P1.5  |
| M2.3×P0.4  | M12 ×P1.75 |
| M2.5×P0.45 | M14 ×P1.5  |
| M2.6×P0.45 | M14 ×P2.0  |
| M3 ×P0.5   | M16 ×P1.5  |
| M4 ×P0.7   | M16 ×P2.0  |
| M5 ×P0.8   | M18 ×P1.5  |
| M6 ×P1.0   | M18 ×P2.5  |
| M7 ×P1.0   | M20 ×P1.5  |
| M8 ×P1.0   | M20 ×P2.5  |
| M8 ×P1.25  |            |
| M10 ×P1.0  |            |
| M10 ×P1.25 |            |
| M10 ×P1.5  |            |
| M12 ×P1.0  |            |
| M12 ×P1.25 |            |

Other size above the list also available on request

BLOCK GAUGES

PIN GAUGES

PIN VISE

PIN GAUGE ACCESSORIES

GAUGES

THREAD GAUGES

PLUG GAUGES

RING GAUGES

THICKNESS GAUGES

TAPER GAUGES

WELDING GAUGES

OTHER GAUGES

## STEEL LIMIT PLUG GAUGE H7 (for manufacturing)

Pair of gauges with maximum and minimum limit size to test the compatibility of holes and widths

**USE** • For inspecting hole diameter

**MATERIAL** • Body : Aluminum • Gauge : Steel



| Order No. | Model No. | Standard | Tolerance class | Tolerance (μm) |
|-----------|-----------|----------|-----------------|----------------|
| 393030    | SPG3-H7   | φ 3      | H7              | +10<br>0       |
| 393040    | SPG4-H7   | φ 4      |                 | +12<br>0       |
| 393050    | SPG5-H7   | φ 5      |                 |                |
| 393060    | SPG6-H7   | φ 6      |                 |                |
| 393070    | SPG7-H7   | φ 7      |                 | +15<br>0       |
| 393080    | SPG8-H7   | φ 8      |                 |                |
| 393090    | SPG9-H7   | φ 9      |                 |                |
| 393100    | SPG10-H7  | φ 10     |                 |                |
| 393110    | SPG11-H7  | φ 11     |                 | +18<br>0       |
| 393120    | SPG12-H7  | φ 12     |                 |                |
| 393130    | SPG13-H7  | φ 13     |                 |                |
| 393140    | SPG14-H7  | φ 14     |                 |                |
| 393150    | SPG15-H7  | φ 15     |                 |                |
| 393160    | SPG16-H7  | φ 16     |                 |                |
| 393170    | SPG17-H7  | φ 17     |                 |                |
| 393180    | SPG18-H7  | φ 18     |                 | +21<br>0       |
| 393190    | SPG19-H7  | φ 19     |                 |                |
| 393200    | SPG20-H7  | φ 20     |                 |                |

## CARBIDE LIMIT PLUG GAUGE H7 (for manufacturing)

Excellent in abrasion resistance, made of durable carbide

**USE** • For inspecting hole diameter

**MATERIAL** • Body : Aluminum • Gauge : Carbide



| Order No. | Model No. | Standard | Tolerance class | Tolerance (μm) |
|-----------|-----------|----------|-----------------|----------------|
| 393230    | TPG3-H7   | φ 3      | H7              | +10<br>0       |
| 393240    | TPG4-H7   | φ 4      |                 | +12<br>0       |
| 393250    | TPG5-H7   | φ 5      |                 |                |
| 393260    | TPG6-H7   | φ 6      |                 |                |
| 393270    | TPG7-H7   | φ 7      |                 | +15<br>0       |
| 393280    | TPG8-H7   | φ 8      |                 |                |
| 393290    | TPG9-H7   | φ 9      |                 |                |
| 393300    | TPG10-H7  | φ 10     |                 |                |
| 393310    | TPG11-H7  | φ 11     |                 | +18<br>0       |
| 393320    | TPG12-H7  | φ 12     |                 |                |
| 393330    | TPG13-H7  | φ 13     |                 |                |
| 393340    | TPG14-H7  | φ 14     |                 |                |
| 393350    | TPG15-H7  | φ 15     |                 |                |
| 393360    | TPG16-H7  | φ 16     |                 |                |
| 393370    | TPG17-H7  | φ 17     |                 |                |
| 393380    | TPG18-H7  | φ 18     |                 | +21<br>0       |
| 393390    | TPG19-H7  | φ 19     |                 |                |
| 393400    | TPG20-H7  | φ 20     |                 |                |

## CERAMIC LIMIT PLUG GAUGE H7 (for manufacturing)

Excellent stability over time, Ceramic requires low maintenance

**USE** • For inspecting hole diameter

**MATERIAL** • Body : Aluminum • Gauge : Ceramic



| Order No. | Model No. | Standard | Tolerance Class | Tolerance (μm) |
|-----------|-----------|----------|-----------------|----------------|
| 393430    | CPG3-H7   | φ 3      | H7              | +10<br>0       |
| 393440    | CPG4-H7   | φ 4      |                 | +12<br>0       |
| 393450    | CPG5-H7   | φ 5      |                 |                |
| 393460    | CPG6-H7   | φ 6      |                 |                |
| 393470    | CPG7-H7   | φ 7      |                 | +15<br>0       |
| 393480    | CPG8-H7   | φ 8      |                 |                |
| 393490    | CPG9-H7   | φ 9      |                 |                |
| 393500    | CPG10-H7  | φ 10     |                 |                |

BLOCK  
GAUGES

PIN  
GAUGES

PIN  
VISE

PIN  
GAUGE  
ACCESSORIES

GAUGES

THREAD  
GAUGES

PLUG  
GAUGES

RING  
GAUGES

THICKNESS  
GAUGES

TAPER  
GAUGES

WELDING  
GAUGES

OTHER  
GAUGES



## LIMIT PLUG GAUGE H7 (for manufacturing)



LP10-H7



## USE

- Limit Plug Gauges are used for measurement tests of holes and shafts

## MATERIAL

- Gauge part : Alloy tool steel
- Handle part : Aluminum

## FEATURES

- To determine the fit of a shaft in a hole the gauge has Go/ No. Go sides for testing minimum allowable dimensions
- Class H7 • Hardness HV660 ~ 780

BLOCK  
GAUGESPIN  
GAUGESPIN  
VISEPIN  
GAUGE  
ACCESSORIES

GAUGES

THREAD  
GAUGESPLUG  
GAUGESRING  
GAUGESTHICKNESS  
GAUGESTAPER  
GAUGESWELDING  
GAUGESOTHER  
GAUGES

| Order No. | Model No. | Size | Weight |
|-----------|-----------|------|--------|
| 397003    | LP3-H7    | φ 3  | 10g    |
| 397004    | LP4-H7    | φ 4  | 10g    |
| 397005    | LP5-H7    | φ 5  | 10g    |
| 397006    | LP6-H7    | φ 6  | 10g    |
| 397007    | LP7-H7    | φ 7  | 20g    |
| 397008    | LP8-H7    | φ 8  | 20g    |
| 397009    | LP9-H7    | φ 9  | 20g    |
| 397010    | LP10-H7   | φ10  | 30g    |
| 397011    | LP11-H7   | φ11  | 50g    |
| 397012    | LP12-H7   | φ12  | 50g    |
| 397013    | LP13-H7   | φ13  | 60g    |
| 397014    | LP14-H7   | φ14  | 60g    |
| 397015    | LP15-H7   | φ15  | 100g   |
| 397016    | LP16-H7   | φ16  | 100g   |
| 397017    | LP17-H7   | φ17  | 120g   |
| 397018    | LP18-H7   | φ18  | 130g   |
| 397019    | LP19-H7   | φ19  | 180g   |
| 397020    | LP20-H7   | φ20  | 190g   |
| 397021    | LP21-H7   | φ21  | 200g   |
| 397022    | LP22-H7   | φ22  | 200g   |
| 397023    | LP23-H7   | φ23  | 210g   |
| 397024    | LP24-H7   | φ24  | 210g   |
| 397025    | LP25-H7   | φ25  | 250g   |
| 397026    | LP26-H7   | φ26  | 260g   |
| 397027    | LP27-H7   | φ27  | 280g   |
| 397028    | LP28-H7   | φ28  | 290g   |
| 397029    | LP29-H7   | φ29  | 290g   |
| 397030    | LP30-H7   | φ30  | 300g   |

Other size above the list also available on request

## LIMIT PLUG GAUGE with thin handle H7 (for manufacturing)



GAUGES

Narrow shaft allows examining diameter deep into a hole



SHLP10-H7



- USE** • For inspecting hole diameter
- MATERIAL** • Gauge part : Alloy tool steel  
• Handle part : Stainless
- FEATURES** • The shaft does not interfere and enables inspection of diameter deep into a hole

| Order No. | Model No. | Standard | Weight |
|-----------|-----------|----------|--------|
| 393503    | SHLP3-H7  | φ 3      | 4g     |
| 393504    | SHLP4-H7  | φ 4      | 8g     |
| 393505    | SHLP5-H7  | φ 5      | 10g    |
| 393506    | SHLP6-H7  | φ 6      | 20g    |
| 393507    | SHLP7-H7  | φ 7      | 24g    |
| 393508    | SHLP8-H7  | φ 8      | 27g    |
| 393509    | SHLP9-H7  | φ 9      | 32g    |
| 393510    | SHLP10-H7 | φ10      | 58g    |
| 393511    | SHLP11-H7 | φ11      | 63g    |
| 393512    | SHLP12-H7 | φ12      | 69g    |
| 393513    | SHLP13-H7 | φ13      | 69g    |
| 393514    | SHLP14-H7 | φ14      | 82g    |
| 393515    | SHLP15-H7 | φ15      | 89g    |
| 393516    | SHLP16-H7 | φ16      | 136g   |
| 393517    | SHLP17-H7 | φ17      | 146g   |
| 393518    | SHLP18-H7 | φ18      | 157g   |
| 393519    | SHLP19-H7 | φ19      | 169g   |
| 393520    | SHLP20-H7 | φ20      | 181g   |

Other size above the list also available on request

BLOCK  
GAUGES

PIN  
GAUGES

PIN  
VISE

PIN  
GAUGE  
ACCESSORIES

GAUGES

THREAD  
GAUGES

PLUG  
GAUGES

RING  
GAUGES

THICKNESS  
GAUGES

TAPER  
GAUGES

WELDING  
GAUGES

OTHER  
GAUGES

## LIMIT PLUG GAUGE with MAINTENANCE LINE



New product! Maintenance line series plug gauge now available



Custom Size with Fast  
Delivery!

Please contact us  
with request

- USE** • For inspecting hole diameter
- MATERIAL** • Alloy tool steel
- FEATURES** • Maintenance line on Plug Gage allows easy checking for gauge wear-out  
• When line disappears, wear is more than 1μm



## STEEL RING GAUGE

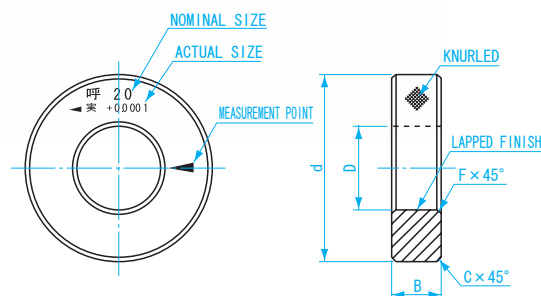
## SUB-ZERO Treatment (Cryogenic hardened) for improved durability

Use Ring Gauge as master gauge for "0" adjustment of measuring tools such as bore gauge, inside micrometer, dial caliper, etc.



## DIMENSIONS

Units : mm



## Size List

| Size<br>D (mm)       | Outside<br>Diameter<br>d (mm) | Thickness<br>B (mm) | Chamfering<br>for outside<br>diameter<br>C (mm) | Chamfering<br>for inside<br>diameter<br>F (mm) | Remarks | Weight    |
|----------------------|-------------------------------|---------------------|-------------------------------------------------|------------------------------------------------|---------|-----------|
| 1 to less than 2.5   | 22                            | 4                   | 0.4                                             | 0.3                                            | Knurled | 10g       |
| 2.5 to less than 5   |                               | 5                   |                                                 |                                                |         | 10g       |
| 5 to less than 10    | 32                            | 8                   | 0.8                                             | 0.5                                            |         | 50g       |
| 10 to less than 15   | 38                            | 10                  | 80g                                             |                                                |         |           |
| 15 to less than 20   | 45                            | 12                  | 1.2                                             | 1.0                                            |         | 100g      |
| 20 to less than 25   | 53                            | 14                  |                                                 |                                                |         | 200g      |
| 25 to less than 32   | 63                            | 16                  | 1.5                                             | 1.0                                            |         | 300g      |
| 32 to less than 40   | 71                            | 18                  |                                                 |                                                |         | 400g      |
| 40 to less than 50   | 85                            | 20                  | 2.0                                             | 1.5                                            |         | 600~700g  |
| 50 to less than 60   | 100                           | 24                  |                                                 |                                                |         | 1.5       |
| 60 to less than 70   | 112                           |                     | 2.4                                             | 1.5                                            |         |           |
| 70 to less than 80   | 125                           | 2.0                 |                                                 |                                                |         | 1.5       |
| 80 to less than 90   | 140                           |                     | 2.0                                             | 1.5                                            |         |           |
| 90 to less than 100  | 160                           | 2.4                 |                                                 |                                                |         | 1.5       |
| 100 to less than 110 | 180                           |                     | 30                                              | 2.4                                            |         |           |
| 110 to less than 120 | 190                           | 35                  | 2.0                                             |                                                |         | 4.7~5.1kg |
| 120 to less than 130 | 200                           |                     |                                                 | 38                                             |         | 2.0       |
| 130 to less than 140 | 210                           | 40                  | 2.0                                             |                                                |         |           |
| 140 to less than 160 | 230                           |                     |                                                 | 40                                             |         | 2.0       |
| 160 to less than 180 | 260                           | 40                  | 2.0                                             |                                                |         |           |
| 180 to less than 200 | 280                           |                     |                                                 | 40                                             |         | 2.0       |

**MATERIAL** • Alloy tool steel

## SPECIFICATIONS

| Size (mm)            | Step (mm) | Out of Roundness (μm) | Out of Cylindricity (μm) | Tolerance (μm) | Hardness (HV) |
|----------------------|-----------|-----------------------|--------------------------|----------------|---------------|
| 1 to less than 30    | 0.1 step  | 0.5                   | 0.5                      | ± 1.0          | 653<br>} 772  |
| 30 to less than 50   |           | 0.8                   | 0.8                      | ± 1.5          |               |
| 50 to less than 60   | 0.5 step  | 1.0                   | 1.0                      | ± 2.0          |               |
| 60 to less than 80   |           |                       |                          |                |               |
| 80 to less than 100  |           |                       |                          |                |               |
| 100 to less than 200 | 5.0 step  | 2.0                   | 2.0                      | ± 5.0          |               |

〈Stock available size〉

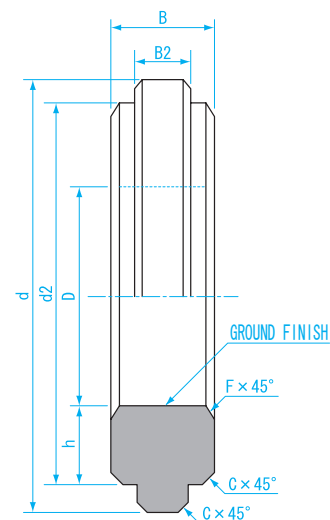
| Size (mm)            | Step (mm) | Step (mm)                                                                               |
|----------------------|-----------|-----------------------------------------------------------------------------------------|
| 1 to less than 50    | 0.1 step  | 1.0•1.1•1.2•1.3•1.4•1.5•1.6•1.7•1.8•1.9•2.0•2.1•2.2•2.3•2.4•2.5•2.6•2.7.....50.0        |
| 50 to less than 100  | 0.5step   | 50.5•51.0•51.5•52.0•52.5•53.0•53.5•54.0•54.5•55.0•55.5•56.0•56.5•57.0•57.5.....100.0    |
| 100 to less than 200 | 5.0 step  | 105.0•110.0•115.0•120.0•125.0•130.0•135.0•140.0•145.0•150.0•155.0•160.0•165.0.....200.0 |



SUB-ZERO TREATMENT (Cryogenic hardened) for improved durability

## DIMENSIONS

Units : mm



MATERIALS • Alloy tool steel

## SPECIFICATIONS

| Size<br>(mm)    | Step<br>(mm) | Out of Roundness<br>( $\mu$ m) | Out of Cylindricity<br>( $\mu$ m) | Tolerance<br>( $\mu$ m) | Hardness<br>(HV) |
|-----------------|--------------|--------------------------------|-----------------------------------|-------------------------|------------------|
| 200 to less 230 | 5.0 step     | 5.0                            | 5.0                               | $\pm$ 7.0               | 653<br>}<br>772  |
| 230 to less 300 | 10.0 step    |                                |                                   | $\pm$ 8.0               |                  |
| 300 to less 400 |              |                                |                                   | $\pm$ 9.0               |                  |
| 400 to less 500 |              |                                |                                   | $\pm$ 10.0              |                  |
| 500 to less 520 |              |                                |                                   |                         |                  |

BLOCK  
GAUGESPIN  
GAUGESPIN  
VISEPIN  
GAUGE  
ACCESSORIES

## Size List

※ Make- to- order manufacturing

| Size D (mm)          | Outside Diameter (mm) |         | Thickness (mm) |    | h (mm) | Chamfering for outside diameter C (mm) | Chamfering for inside diameter F (mm) | Remarks     | Weight (kg) |
|----------------------|-----------------------|---------|----------------|----|--------|----------------------------------------|---------------------------------------|-------------|-------------|
|                      | d                     | d2      | B              | B2 |        |                                        |                                       |             |             |
| 200 to less than 230 | 310                   | 250~270 | 45             | 25 | 20     | 2.0                                    | 2.5                                   | NOT Knurled | 9~10        |
| 230 to less than 260 | 340                   | 280~300 |                |    |        |                                        |                                       |             | 11~14       |
| 260 to less than 290 | 370                   | 310~330 |                |    |        |                                        |                                       |             | 11~13       |
| 290 to less than 320 | 400                   | 340~360 |                |    |        |                                        |                                       |             | 12~14       |
| 320 to less than 360 | 440                   | 380~410 |                |    |        |                                        |                                       |             | 14~16       |
| 360 to less than 400 | 480                   | 420~450 | 50             | 25 | 25     | 2.0                                    | 2.5                                   | NOT Knurled | 15~18       |
| 400 to less than 450 | 540                   | 460~500 |                |    |        |                                        |                                       |             | 19~24       |
| 450 to less than 500 | 600                   | 510~550 |                |    |        |                                        |                                       |             | 23~29       |
| 500 to less than 520 | 660                   | 560~600 |                |    |        |                                        |                                       |             | 27~33       |

GAUGES

THREAD  
GAUGESPLUG  
GAUGESRING  
GAUGESTHICKNESS  
GAUGESTAPER  
GAUGESWELDING  
GAUGESOTHER  
GAUGES

| Order No. | Size (mm) |
|-----------|-----------|
| 420500    | 205.0     |
| 421000    | 210.0     |
| 421500    | 215.0     |
| 422000    | 220.0     |
| 422500    | 225.0     |
| 423000    | 230.0     |
| 424000    | 240.0     |
| 425000    | 250.0     |
| 426000    | 260.0     |
| 427000    | 270.0     |
| 428000    | 280.0     |
| 429000    | 290.0     |

| Order No. | Size (mm) |
|-----------|-----------|
| 430000    | 300.0     |
| 431000    | 310.0     |
| 432000    | 320.0     |
| 433000    | 330.0     |
| 434000    | 340.0     |
| 435000    | 350.0     |
| 436000    | 360.0     |
| 437000    | 370.0     |
| 438000    | 380.0     |
| 439000    | 390.0     |
| 440000    | 400.0     |



## STEEL RING GAUGE SET



## SUB-ZERO TREATMENT (Cryogenic hardened)



## Set List

| Set No. | Nominal Size                                                                      | Pieces per set |
|---------|-----------------------------------------------------------------------------------|----------------|
| RG-1    | 1.0 • 1.5 • 2.0 • 2.5 • 3.0 • 4.0 • 5.0 • 6.0 • 7.0 • 8.0 • 9.0 • 10.0            | 12             |
| RG-2    | 11.0 • 12.0 • 13.0 • 14.0 • 15.0 • 16.0 • 17.0 • 18.0 • 19.0 • 20.0 • 22.0 • 24.0 | 12             |
| RG-3    | 25.0 • 26.0 • 27.0 • 28.0 • 30.0 • 32.0 • 34.0 • 35.0 • 36.0 • 37.0 • 38.0 • 40.0 | 12             |
| RG-4    | 42.0 • 44.0 • 45.0 • 46.0 • 47.0 • 48.0 • 50.0                                    | 7              |
| RG-5    | 52.0 • 54.0 • 55.0 • 56.0 • 58.0 • 60.0 • 65.0                                    | 7              |
| RG-6    | 68.0 • 70.0 • 75.0 • 80.0                                                         | 4              |
| RG-7    | 85.0 • 90.0 • 95.0 • 100.0                                                        | 4              |

## STEEL RING GAUGE with MAINTENANCE LINE



New product! Maintenance line series ring gauge now available



## MATERIAL

- Alloy tool steel

## FEATURES

- Maintenance line on steel ring gauge allows easy checking for gauge wear-out.
- When line disappears, wear is more than 1μm
- Available for sizes : 15 ~ 50mm (1mm step)

BLOCK  
GAUGESPIN  
GAUGESPIN  
VISEPIN  
GAUGE  
ACCESSORIES

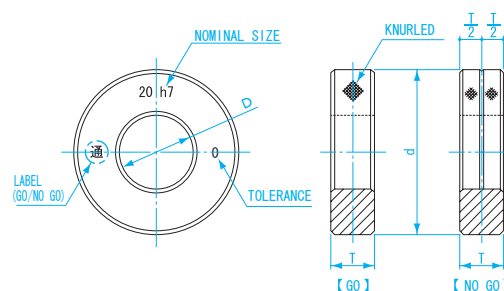
GAUGES

THREAD  
GAUGESPLUG  
GAUGESRING  
GAUGESTHICKNESS  
GAUGESTAPER  
GAUGESWELDING  
GAUGESOTHER  
GAUGES



## DIMENSIONS

Units : mm



BLOCK  
GAUGES

PIN  
GAUGES

PIN  
VISE

PIN  
GAUGE  
ACCESSORIES

- USE** • For shaft diameter inspection
- MATERIAL** • Alloy tool steel
- FEATURES** • Pair of gauges with maximum and minimum limit size to test the compatibility of hole width
- SPECIFICATIONS** • Hardness HV653 ~ 772

| Order No. | Model No. | Nominal size<br>D (mm) | Outside Diameter<br>d (mm) | Thickness<br>T (mm) | Tolerance Class | Tolerance<br>( $\mu$ m) |
|-----------|-----------|------------------------|----------------------------|---------------------|-----------------|-------------------------|
| 394000    | LR10-h7   | $\phi$ 10              | 32                         | 8                   | h7              | 0<br>-15                |
| 394010    | LR11-h7   | $\phi$ 11              | 38                         | 10                  |                 | 0<br>-18                |
| 394020    | LR12-h7   | $\phi$ 12              |                            |                     |                 |                         |
| 394030    | LR13-h7   | $\phi$ 13              |                            |                     |                 |                         |
| 394040    | LR14-h7   | $\phi$ 14              |                            |                     |                 |                         |
| 394050    | LR15-h7   | $\phi$ 15              |                            |                     |                 |                         |
| 394060    | LR16-h7   | $\phi$ 16              | 45                         | 12                  |                 | 0<br>-21                |
| 394070    | LR17-h7   | $\phi$ 17              |                            |                     |                 |                         |
| 394080    | LR18-h7   | $\phi$ 18              |                            |                     |                 |                         |
| 394090    | LR19-h7   | $\phi$ 19              |                            |                     |                 |                         |
| 394100    | LR20-h7   | $\phi$ 20              |                            |                     |                 |                         |
| 394110    | LR21-h7   | $\phi$ 21              | 53                         | 14                  |                 |                         |
| 394120    | LR22-h7   | $\phi$ 22              |                            |                     |                 |                         |
| 394130    | LR23-h7   | $\phi$ 23              |                            |                     |                 |                         |
| 394140    | LR24-h7   | $\phi$ 24              |                            |                     |                 |                         |
| 394150    | LR25-h7   | $\phi$ 25              |                            |                     |                 |                         |
| 394160    | LR26-h7   | $\phi$ 26              | 63                         | 16                  |                 |                         |
| 394170    | LR27-h7   | $\phi$ 27              |                            |                     |                 |                         |
| 394180    | LR28-h7   | $\phi$ 28              |                            |                     |                 |                         |
| 394190    | LR29-h7   | $\phi$ 29              |                            |                     |                 |                         |
| 394200    | LR30-h7   | $\phi$ 30              |                            |                     |                 |                         |

GAUGES

THREAD  
GAUGES

PLUG  
GAUGES

RING  
GAUGES

THICKNESS  
GAUGES

TAPER  
GAUGES

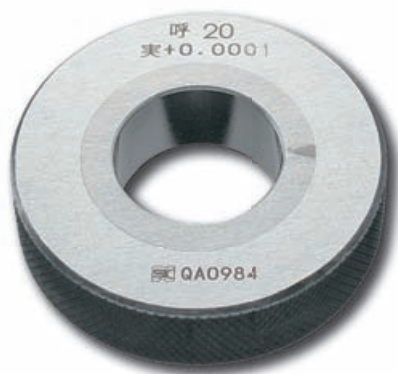
WELDING  
GAUGES

OTHER  
GAUGES

## CARBIDE RING GAUGE



### LAPPED FINISH



#### FEATURES

- Durable and long life
- The coefficient of thermal expansion is small ( $1/2$  of steel,  $5 \times 10^{-6} \text{K}^{-1}$ ), so better tolerates temperature changes
- Less likely to be damaged due to high hardness
- Economical- Frequent periodic calibration not required

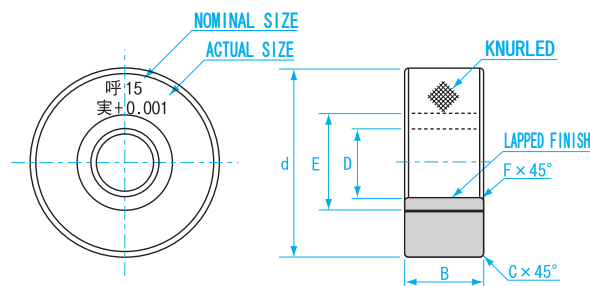
**MATERIAL** • Steel with carbide insert

#### SPECIFICATIONS

| Size (mm)          | Step (mm) | Out of Roundness/ Cylindricity ( $\mu\text{m}$ ) | Tolerance ( $\mu\text{m}$ ) |
|--------------------|-----------|--------------------------------------------------|-----------------------------|
| 1 to less than 30  | —         | 0.5                                              | $\pm 1$                     |
| 30 to less than 50 | —         | 0.8                                              | $\pm 1.5$                   |

### DIMENSIONS

Units : mm



#### Size List

| Size<br>D (mm)     | Diameter of<br>Carbide part<br>E (mm) | Outside<br>Diameter<br>d (mm) | Thickness<br>B (mm) | Chamfering for<br>outside Diameter<br>C (mm) | Chamfering for<br>inside Diameter<br>F (mm) |
|--------------------|---------------------------------------|-------------------------------|---------------------|----------------------------------------------|---------------------------------------------|
| 1 to less than 2.5 | 8                                     | 22                            | 4                   | 0.4                                          | 0.3                                         |
| 2.5 to less than 5 | 11                                    |                               | 5                   |                                              |                                             |
| 5 to less than 10  | 16                                    | 32                            | 8                   | 0.8                                          | 0.5                                         |
| 10 to less than 15 | 21                                    | 38                            | 10                  | 1.2                                          |                                             |
| 15 to less than 20 | 28                                    | 45                            | 12                  |                                              |                                             |
| 20 to less than 25 | 33                                    | 53                            | 14                  |                                              |                                             |
| 25 to less than 32 | 40                                    | 63                            | 16                  | 1.5                                          | 1.0                                         |
| 32 to less than 40 | 50                                    | 71                            | 18                  | 2.0                                          |                                             |
| 40 to less than 50 | 60                                    | 85                            | 20                  |                                              |                                             |

## CERAMIC RING GAUGE



### LAPPED FINISH



#### FEATURES

- Ceramic material is less susceptible to abrasion and age deterioration than steel
- Free from rust and corrosion, and easy maintenance
- Non-magnetic body
- Does not deform with damage, resists scratches and forming burrs
- Size is laser marked

**MATERIAL** • Ceramics

#### Material Data

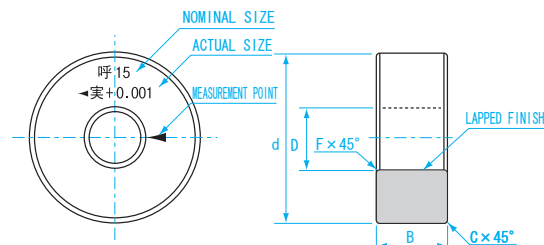
| List                             | Material                | Ceramic  |        |
|----------------------------------|-------------------------|----------|--------|
|                                  |                         | Aluminum | Zircon |
| Gravity                          | —                       | 3.8      | 5.6    |
| Hardness                         | HV                      | 1500     | 1100   |
| Bending Strength                 | MPa                     | 3.9      | 7~8    |
| Young's modulus                  | GPa                     | 360      | 205    |
| Coefficient of thermal expansion | $10^{-6} \text{K}^{-1}$ | 8        | 8      |
| Heat conductivity                | W/m·K                   | 29       | 3.4    |

#### SPECIFICATIONS

| Size (mm)          | Step (mm) | Out of Roundness ( $\mu\text{m}$ ) | Tolerance ( $\mu\text{m}$ ) |
|--------------------|-----------|------------------------------------|-----------------------------|
| 1 to less than 30  | 0.5 step  | 0.5                                | $\pm 1$                     |
| 30 to less than 50 |           | 0.8                                | $\pm 1.5$                   |

### DIMENSIONS

Units : mm



#### Size List

| Size<br>D (mm)     | Outside<br>Diameter<br>d (mm) | Thickness<br>B (mm) | Chamfering for<br>outside diameter<br>C (mm) | Chamfering for<br>inside diameter<br>F (mm) |
|--------------------|-------------------------------|---------------------|----------------------------------------------|---------------------------------------------|
| 3 to less than 10  | 32                            | 8                   | 0.8                                          | 0.5                                         |
| 10 to less than 15 | 38                            | 10                  | 1.2                                          |                                             |
| 15 to less than 20 | 45                            | 12                  |                                              |                                             |
| 20 to less than 25 | 53                            | 14                  |                                              |                                             |
| 25 to less than 32 | 63                            | 16                  | 1.5                                          | 1.0                                         |
| 32 to less than 40 | 71                            | 18                  | 2.0                                          |                                             |
| 40 to less than 50 | 85                            | 20                  |                                              |                                             |

## RING GAUGE (with protective cover)



GAUGES

No-Slip and Easy to Handle, will increase productivity

CARBIDE RING GAUGE (with Protective Cover)



STEEL RING GAUGE (with Protective Cover)



CERAMIC RING GAUGE (with Protective Cover)



### FEATURES

- A ring gauge embedded in Aluminum Protective Cover.
- Covered gauge is easier to handle with dirty hands Less susceptible to thermal expansion when holding a gauge by hand.
- Protects from chipping when dropped

### MATERIAL

- Protective Cover: Anodized Aluminum
- Gauge: Steel / Carbide / Ceramic

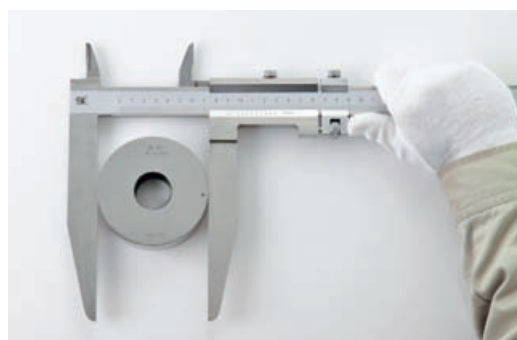
### SPECIFICATIONS

| Size (mm)                               | Step (mm) | Roundness•Cylindricity (μm) | Tolerance (μm) |
|-----------------------------------------|-----------|-----------------------------|----------------|
| 1 to less than 2 (Steel & Carbide only) | 1mm step  | 0.5                         | ±1             |
| 2 to less than 30                       | 1mm step  | 0.5                         | ±1             |
| 30 to less than 50                      | 1mm step  | 0.8                         | ±1.5           |

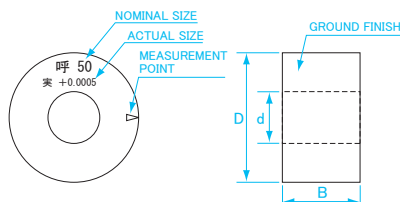
## STEEL RING GAUGE OD model



New Product! Available from  $\phi 40$ -400mm. Simple calibration or 0 adjustment of outside measuring instrument



### DIMENSIONS



### SPECIFICATIONS

| SizeD<br>(mm)        | Step<br>(mm) | OD<br>tolerance<br>(μm) | Out of<br>Roundness<br>(μm) | Out of<br>Cylindricity<br>(μm) | Thickness<br>(mm) | Hole Diameter<br>(mm) |
|----------------------|--------------|-------------------------|-----------------------------|--------------------------------|-------------------|-----------------------|
| 40 to less than 50   | 10.0 step    | ±3                      | 1.5                         | 1.5                            | 30                | 20                    |
| 50 to less than 70   |              | ±5                      | 2.5                         | 2.5                            |                   | 30                    |
| 70 to less than 100  |              |                         |                             |                                |                   | 40                    |
| 100 to less than 150 |              |                         |                             |                                |                   | 50                    |
| 150 to less than 200 |              | ±10                     | 5                           | 5                              |                   | 80                    |
| 200 to less than 300 |              |                         |                             |                                |                   | 160                   |
| 300 to less than 350 |              |                         |                             |                                |                   | 200                   |
| 350 to less than 375 |              |                         |                             |                                |                   | 250                   |
| 375 to less than 400 |              |                         |                             |                                |                   |                       |

**USE** • For quick calibration of micrometer

### MATERIAL

- Alloy tool steel

### FEATURES

- Custom sizes are available up to  $\phi 400$
- Size range: 40-400mm

### SPECIFICATIONS

- Hardness: HV653-772

BLOCK GAUGES

PIN GAUGES

PIN VISE

PIN GAUGE ACCESSORIES

GAUGES

THREAD GAUGES

PLUG GAUGES

RING GAUGES

THICKNESS GAUGES

TAPER GAUGES

WELDING GAUGES

OTHER GAUGES





## SPECIAL SHAPE- multiple-step gauge

### APPLICATIONS

- Quick calibration of Micrometers( 0-25mm)

### MATERIAL

- Alloy tool steel

### FEATURES

- OD pitch: 5・10・15・20・25mm Integrated type gauge



※Sample of special shape

Custom Designs  
for Fast Delivery!

Please contact us  
with request



## SPECIAL SHAPE- multiple-step gauge/ OD model

### APPLICATIONS

- Use for calibration or 0 adjustment

### MATERIAL

- Alloy tool steel

### FEATURES

- Size combination is arranged on request



※Sample of custom design

Custom Design  
for Fast Delivery!

Please contact us  
with request

## SPECIAL SHAPE- Step gauge/ Inner model

### APPLICATIONS

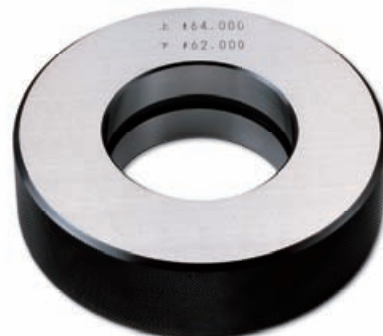
- 0 adjustment for dial bore gauge

### MATERIAL

- Alloy tool steel

### FEATURES

- Size combination is arranged on request



※Sample of custom design

Custom Designs  
for Fast Delivery!

Please contact us  
with request

## SPECIAL SHAPE- Cut out

### APPLICATIONS

- Hold ring gauge in a jig and prevent movement

### MATERIAL

- Alloy tool steel



※Sample of custom design

Custom Designs  
for Fast Delivery!

Please contact us  
with request

BLOCK  
GAUGES

PIN  
GAUGES

PIN  
VISE

PIN  
GAUGE  
ACCESSORIES

GAUGES

THREAD  
GAUGES

PLUG  
GAUGES

RING  
GAUGES

THICKNESS  
GAUGES

TAPER  
GAUGES

WELDING  
GAUGES

OTHER  
GAUGES

## USE

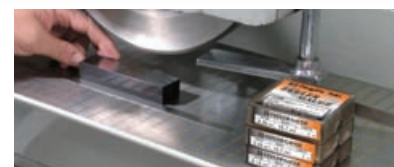
- Measurement of gap width

## MATERIAL

- SFG series : Stainless steel
- FG series : Carbon tool steel (Hardened)

## FEATURES

- Use for assembly or adjustment of automotive engine components or other machines by cutting it to necessary size
- Leaf width: 12.7mm
- 3m and 5m also available



## SFG series (Stainless Steel)

| Order No. | Model No. | Size     | Leaf Width (mm) | Accuracy (mm) | Case size (mm) | Weight |
|-----------|-----------|----------|-----------------|---------------|----------------|--------|
| 007245    | SFG-005-1 | 0.005×1m | 12.7            | ±0.004        | 77×77×22       | 40g    |
| 007251    | SFG-01-1  | 0.01 ×1m |                 |               |                |        |
| 007252    | SFG-02-1  | 0.02 ×1m |                 |               |                |        |
| 007381    | SFG-03-1  | 0.03 ×1m |                 |               |                |        |
| 007382    | SFG-04-1  | 0.04 ×1m |                 |               |                |        |
| 007383    | SFG-05-1  | 0.05 ×1m |                 |               |                |        |
| 007384    | SFG-06-1  | 0.06 ×1m |                 |               |                |        |
| 007385    | SFG-07-1  | 0.07 ×1m |                 |               |                |        |
| 007386    | SFG-08-1  | 0.08 ×1m |                 |               |                |        |
| 007387    | SFG-09-1  | 0.09 ×1m |                 |               |                |        |
| 007388    | SFG-10-1  | 0.10 ×1m |                 | ±0.006        |                | 50g    |

## FG series (Carbon Tool Steel)

| Order No. | Model No. | Size     | Leaf Width<br>(mm) | Accuracy<br>(mm) | Case size<br>(mm) | Weight |        |
|-----------|-----------|----------|--------------------|------------------|-------------------|--------|--------|
| 007253    | FG-03-1   | 0.03 ×1m | 12.7               | ±0.005           | 77×77×22          | 40g    |        |
| 007254    | FG-04-1   | 0.04 ×1m |                    |                  |                   |        |        |
| 007255    | FG-05-1   | 0.05 ×1m |                    |                  |                   |        |        |
| 007256    | FG-06-1   | 0.06 ×1m |                    |                  |                   |        |        |
| 007257    | FG-07-1   | 0.07 ×1m |                    |                  |                   |        |        |
| 007258    | FG-08-1   | 0.08 ×1m |                    |                  |                   |        |        |
| 007259    | FG-09-1   | 0.09 ×1m |                    |                  |                   |        |        |
| 007260    | FG-10-1   | 0.10 ×1m |                    |                  |                   |        |        |
| 007261    | FG-11-1   | 0.11 ×1m |                    | ±0.01            | 77×77×22          | 50g    |        |
| 007262    | FG-12-1   | 0.12 ×1m |                    |                  |                   |        |        |
| 007263    | FG-13-1   | 0.13 ×1m |                    |                  |                   |        |        |
| 007264    | FG-14-1   | 0.14 ×1m |                    |                  |                   |        |        |
| 007265    | FG-15-1   | 0.15 ×1m |                    |                  |                   |        |        |
| 007270    | FG-20-1   | 0.20 ×1m |                    |                  |                   |        |        |
| 007275    | FG-25-1   | 0.25 ×1m |                    |                  |                   |        |        |
| 007280    | FG-30-1   | 0.30 ×1m |                    |                  |                   |        | ±0.012 |
| 007282    | FG-35-1   | 0.35 ×1m |                    |                  |                   |        |        |
| 007284    | FG-40-1   | 0.40 ×1m |                    |                  |                   |        |        |
| 007286    | FG-45-1   | 0.45 ×1m |                    |                  |                   |        |        |
| 007287    | FG-50-1   | 0.50 ×1m |                    |                  |                   |        |        |
| 007289    | FG-60-1   | 0.60 ×1m |                    |                  |                   |        |        |
| 007291    | FG-70-1   | 0.70 ×1m |                    |                  |                   |        |        |
| 007292    | FG-80-1   | 0.80 ×1m |                    | ±0.02            | —                 | 90g    |        |
| 007293    | FG-90-1   | 0.90 ×1m |                    |                  |                   |        | 100g   |
| 007294    | FG-00-1   | 1.00 ×1m |                    |                  |                   |        | 110g   |

BLOCK GAUGES

PIN GAUGES

PIN VISE

PIN GAUGE ACCESSORIES

GAUGES

THREAD GAUGES

PLUG GAUGES

RING GAUGES

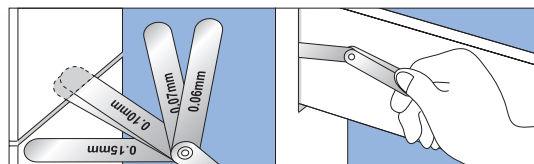
THICKNESS GAUGES

TAPER GAUGES

WELDING GAUGES

OTHER GAUGES

## THICKNESS GAUGE



※Leaves can be combined for a wide range of measurements

## USE

- Measurement of gap width

## MATERIAL

- Carbon tool steel

## FEATURES

- Use for precise spacing inspection by inserting into the gap between two flat surfaces
- Indispensable instrument for measuring gap between piston and cylinder of automotive engine
- Leaf width 12.7mm

## ACCURACY

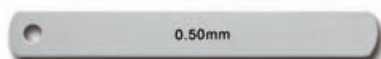
| Leaf size (mm) | Tolerance (mm) |
|----------------|----------------|
| 0.01~0.06      | ±0.005         |
| 0.07~0.10      | ±0.01          |
| 0.11~0.35      | ±0.015         |
| 0.40~0.60      | ±0.02          |
| 0.70~3.00      | ±0.035         |

| Order No. | Model No. | Leaf Length (mm) | Pieces/ Set | Nominal Size (mm)                                                                                                            | Weight |
|-----------|-----------|------------------|-------------|------------------------------------------------------------------------------------------------------------------------------|--------|
| 111032    | 172MA     | 75               | 9           | 0.30 0.04 0.05 0.06 0.07 0.08 0.10 0.15 0.20                                                                                 | 30g    |
| 111033    | 172MB     | 100              |             |                                                                                                                              | 30g    |
| 111034    | 172MC     | 150              |             |                                                                                                                              | 50g    |
| 110970    | 172MD     | 230              |             |                                                                                                                              | 70g    |
| 110971    | 172ME     | 300              | 10          | 0.03 0.04 0.05 0.08 0.10 0.15 0.20 0.25 0.30 0.40                                                                            | 90g    |
| 110972    | 100MR     | 100              |             |                                                                                                                              | 40g    |
| 110973    | 150MR     | 150              |             |                                                                                                                              | 60g    |
| 110974    | 100MK     | 100              | 10          | 0.01 0.02 0.03 0.04 0.05 0.06 0.07 0.08 0.09 0.10                                                                            | 30g    |
| 110975    | 150MK     | 150              |             |                                                                                                                              | 40g    |
| 111038    | 60M       | 75               | 19          | 0.03 0.04 0.05 0.06 0.07 0.08 0.09 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50 0.70 0.80 1.00                               | 60g    |
| 111039    | 100MY     | 100              |             |                                                                                                                              | 80g    |
| 111040    | 150MY     | 150              |             |                                                                                                                              | 120g   |
| 111035    | 65M       | 75               | 25          | 0.03 0.04 0.05 0.06 0.07 0.08 0.09 0.10 0.11 0.12 0.13 0.14 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50 0.60 0.70 0.80 0.90 1.00 | 80g    |
| 111036    | 100MZ     | 100              |             |                                                                                                                              | 100g   |
| 111037    | 150MZ     | 150              |             |                                                                                                                              | 150g   |
| 111031    | 72M       | 75               | 12          | 0.04 0.05 0.06 0.07 0.08 0.10 0.15 0.20 0.30 1.00 2.00 3.00                                                                  | 70g    |
| 111044    | 100MT     | 100              |             |                                                                                                                              | 100g   |
| 111045    | 150MT     | 150              |             |                                                                                                                              | 140g   |
| 110976    | 100ML     | 100              | 19          | 0.01 0.02 0.03 0.04 0.05 0.06 0.07 0.08 0.09 0.10 0.20 0.30 0.40 0.50 0.60 0.70 0.80 0.90 1.00                               | 80g    |
| 110977    | 150ML     | 150              |             |                                                                                                                              | 120g   |
| 110978    | 80M       | 75               | 13          | 0.03 0.04 0.05 0.06 0.07 0.08 0.10 0.15 0.20 0.30 1.00 2.00 3.00                                                             | 60g    |
| 111046    | 100MX     | 100              |             |                                                                                                                              | 90g    |
| 111047    | 150MX     | 150              |             |                                                                                                                              | 140g   |
| 111048    | 100MH     | 100              | 10          | 0.10 0.20 0.30 0.40 0.50 0.60 0.70 0.80 0.90 1.00                                                                            | 80g    |
| 111049    | 150MH     | 150              |             |                                                                                                                              | 110g   |

## THICKNESS GAUGES Leaf

NEW ITEM

T RACEABILITY



S100-05



S150-10

## MATERIAL

- Carbon tool steel

## SPECIFICATIONS

- Leaf width : 12.7mm

## ■ Leaf Length : 100mm

| Order No.  | Model No. | Thickness (mm) |
|------------|-----------|----------------|
| NEW 110801 | S100-001  | 0.01           |
| NEW 110802 | S100-002  | 0.02           |
| NEW 110803 | S100-003  | 0.03           |
| NEW 110804 | S100-004  | 0.04           |
| NEW 110805 | S100-005  | 0.05           |
| NEW 110806 | S100-006  | 0.06           |
| NEW 110807 | S100-007  | 0.07           |
| NEW 110808 | S100-008  | 0.08           |
| NEW 110809 | S100-009  | 0.09           |
| NEW 110810 | S100-01   | 0.10           |
| NEW 110811 | S100-02   | 0.20           |
| NEW 110812 | S100-03   | 0.30           |
| NEW 110813 | S100-04   | 0.40           |
| NEW 110814 | S100-05   | 0.50           |
| NEW 110815 | S100-06   | 0.60           |
| NEW 110816 | S100-07   | 0.70           |
| NEW 110817 | S100-08   | 0.80           |
| NEW 110818 | S100-09   | 0.90           |
| NEW 110819 | S100-10   | 1.00           |

## ■ Leaf Length : 150mm

| Order No.  | Model No. | Thickness (mm) |
|------------|-----------|----------------|
| NEW 110820 | S150-001  | 0.01           |
| NEW 110821 | S150-002  | 0.02           |
| NEW 110822 | S150-003  | 0.03           |
| NEW 110823 | S150-004  | 0.04           |
| NEW 110824 | S150-005  | 0.05           |
| NEW 110825 | S150-006  | 0.06           |
| NEW 110826 | S150-007  | 0.07           |
| NEW 110827 | S150-008  | 0.08           |
| NEW 110828 | S150-009  | 0.09           |
| NEW 110829 | S150-01   | 0.10           |
| NEW 110830 | S150-02   | 0.20           |
| NEW 110831 | S150-03   | 0.30           |
| NEW 110832 | S150-04   | 0.40           |
| NEW 110833 | S150-05   | 0.50           |
| NEW 110834 | S150-06   | 0.60           |
| NEW 110835 | S150-07   | 0.70           |
| NEW 110836 | S150-08   | 0.80           |
| NEW 110837 | S150-09   | 0.90           |
| NEW 110838 | S150-10   | 1.00           |

BLOCK GAUGES

PIN GAUGES

PIN VISE

PIN GAUGE ACCESSORIES

GAUGES

THREAD GAUGES

PLUG GAUGES

RING GAUGES

THICKNESS GAUGES

TAPER GAUGES

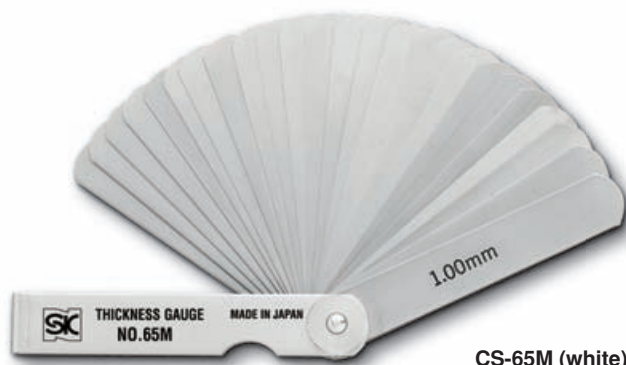
WELDING GAUGES

OTHER GAUGES

## THICKNESS GAUGE with COLOR SLEEVES

Please choose from white, black and green.

• For parts other than 172 series, Threaded pivot so leaves can be removed and replaced.



CS-65M (white)



CS-65M (black)



CS-65M (green)

**USE** • Measurement of gap width

### MATERIAL

- Carbon tool steel

### FEATURES

- Use for precise spacing inspection by inserting into the gap between two flat surfaces
- Indispensable for measuring the gap between piston and cylinder of automotive engine
- Leaf width 12.7mm

### ACCURACY

| Leaf size (mm) | Tolerance(mm) |
|----------------|---------------|
| 0.01~0.06      | ±0.005        |
| 0.07~0.10      | ±0.01         |
| 0.11~0.35      | ±0.015        |
| 0.40~0.60      | ±0.02         |
| 0.70~3.00      | ±0.035        |

※ Please specify color (White, Black, Green) when ordering

| Model No. | Leaf Length (mm) | Pieces/set | Size (mm)                                                                                                                          |  |  |  |  |  |  |  |  |  |  |  | Weight |
|-----------|------------------|------------|------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|--|--|--------|
| CS-172MA  | 75               | 9          | 0.30 0.04 0.05 0.06 0.07 0.08 0.10 0.15 0.20                                                                                       |  |  |  |  |  |  |  |  |  |  |  | 30g    |
| CS-172MB  | 100              |            |                                                                                                                                    |  |  |  |  |  |  |  |  |  |  |  | 30g    |
| CS-172MC  | 150              |            |                                                                                                                                    |  |  |  |  |  |  |  |  |  |  |  | 50g    |
| CS-172MD  | 230              |            |                                                                                                                                    |  |  |  |  |  |  |  |  |  |  |  | 70g    |
| CS-172ME  | 300              |            |                                                                                                                                    |  |  |  |  |  |  |  |  |  |  |  | 90g    |
| CS-100MR  | 100              | 10         | 0.03 0.04 0.05 0.08 0.10 0.15 0.20 0.25 0.30 0.40                                                                                  |  |  |  |  |  |  |  |  |  |  |  | 40g    |
| CS-150MR  | 150              | 10         | 0.01 0.02 0.03 0.04 0.05 0.06 0.07 0.08 0.09 0.10                                                                                  |  |  |  |  |  |  |  |  |  |  |  | 60g    |
| CS-100MK  | 100              |            |                                                                                                                                    |  |  |  |  |  |  |  |  |  |  |  | 30g    |
| CS-150MK  | 150              | 19         | 0.03 0.04 0.05 0.06 0.07 0.08 0.09 0.10 0.15 0.20<br>0.25 0.30 0.35 0.40 0.45 0.50 0.70 0.80 1.00                                  |  |  |  |  |  |  |  |  |  |  |  | 40g    |
| CS-60M    | 75               |            |                                                                                                                                    |  |  |  |  |  |  |  |  |  |  |  | 60g    |
| CS-100MY  | 100              |            |                                                                                                                                    |  |  |  |  |  |  |  |  |  |  |  | 80g    |
| CS-150MY  | 150              | 25         | 0.03 0.04 0.05 0.06 0.07 0.08 0.09 0.10 0.11 0.12<br>0.13 0.14 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50<br>0.60 0.70 0.80 0.90 1.00 |  |  |  |  |  |  |  |  |  |  |  | 120g   |
| CS-65M    | 75               |            |                                                                                                                                    |  |  |  |  |  |  |  |  |  |  |  | 80g    |
| CS-100MZ  | 100              |            |                                                                                                                                    |  |  |  |  |  |  |  |  |  |  |  | 100g   |
| CS-150MZ  | 150              | 12         | 0.04 0.05 0.06 0.07 0.08 0.10 0.15 0.20 0.30 1.00<br>2.00 3.00                                                                     |  |  |  |  |  |  |  |  |  |  |  | 150g   |
| CS-72M    | 75               |            |                                                                                                                                    |  |  |  |  |  |  |  |  |  |  |  | 70g    |
| CS-100MT  | 100              |            |                                                                                                                                    |  |  |  |  |  |  |  |  |  |  |  | 100g   |
| CS-150MT  | 150              | 19         | 0.01 0.02 0.03 0.04 0.05 0.06 0.07 0.08 0.09 0.10<br>0.20 0.30 0.40 0.50 0.60 0.70 0.80 0.90 1.00                                  |  |  |  |  |  |  |  |  |  |  |  | 140g   |
| CS-100ML  | 100              |            |                                                                                                                                    |  |  |  |  |  |  |  |  |  |  |  | 80g    |
| CS-150ML  | 150              |            |                                                                                                                                    |  |  |  |  |  |  |  |  |  |  |  | 120g   |
| CS-80M    | 75               | 13         | 0.03 0.04 0.05 0.06 0.07 0.08 0.10 0.15 0.20 0.30<br>1.00 2.00 3.00                                                                |  |  |  |  |  |  |  |  |  |  |  | 60g    |
| CS-100MX  | 100              |            |                                                                                                                                    |  |  |  |  |  |  |  |  |  |  |  | 90g    |
| CS-150MX  | 150              |            |                                                                                                                                    |  |  |  |  |  |  |  |  |  |  |  | 140g   |
| CS-100MH  | 100              | 10         | 0.10 0.20 0.30 0.40 0.50 0.60 0.70 0.80 0.90 1.00                                                                                  |  |  |  |  |  |  |  |  |  |  |  | 80g    |
| CS-150MH  | 150              |            |                                                                                                                                    |  |  |  |  |  |  |  |  |  |  |  | 110g   |

BLOCK  
GAUGES

PIN  
GAUGES

PIN  
VISE

PIN  
GAUGE  
ACCESSORIES

GAUGES

THREAD  
GAUGES

PLUG  
GAUGES

RING  
GAUGES

THICKNESS  
GAUGES

TAPER  
GAUGES

WELDING  
GAUGES

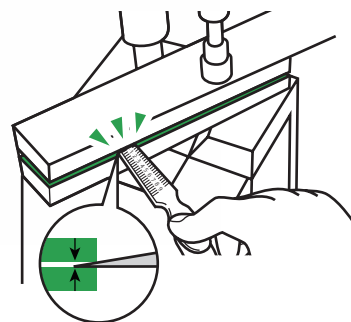
OTHER  
GAUGES



## TAPER GAUGES



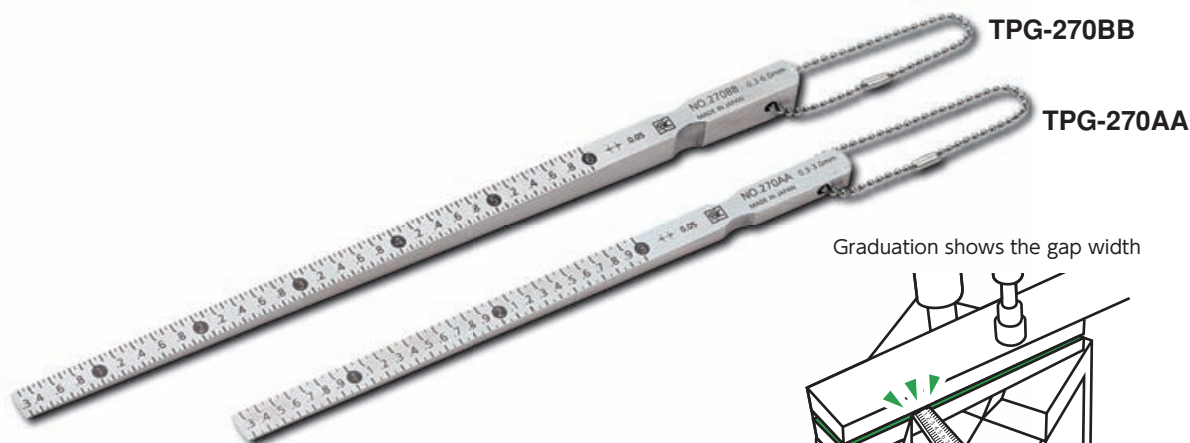
Graduation shows the gap width



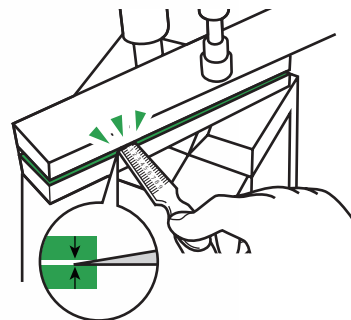
- USE** • Measurement of groove and gap etc.
- MATERIAL** • Machine grade carbon steel (S55C), not hardened
- FEATURES**
  - Use the thickness of taper to measure the gap width
  - Packed in plastic carrying case
  - Accuracy  $\pm 0.04\text{mm}$  • Satin finish

| Order No. | Model No. | Standard | Measuring Range (mm) | Accuracy (mm) | Graduation (mm) | Taper Angle | Full Length (H) × (W) (mm) | Weight |
|-----------|-----------|----------|----------------------|---------------|-----------------|-------------|----------------------------|--------|
| 007000    | TPG-270A  | 270A     | 0.3~4                | $\pm 0.04$    | 0.05            | 1°54'33"    | 160×11                     | 95g    |
| 007001    | TPG-270B  | 270B     | 0.4~6                | $\pm 0.04$    | 0.05            | 2°51'45"    | 160×11                     | 95g    |

## TAPER GAUGES



Graduation shows the gap width

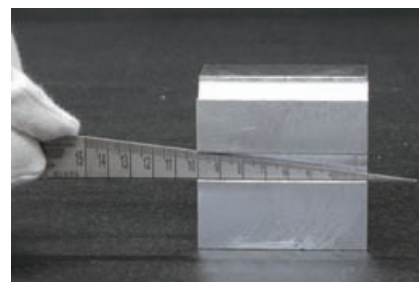
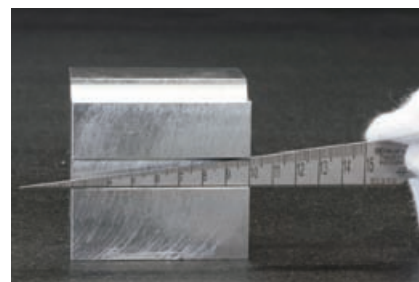
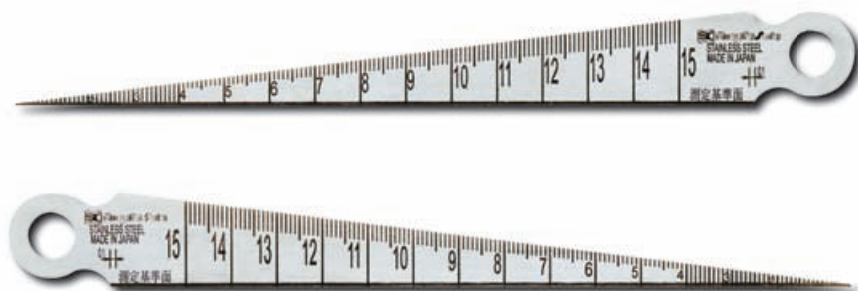


- USE** • Measurement of groove and gap etc.
- MATERIAL** • Machine grade carbon steel (S55C), not hardened
- FEATURES**
  - Use the thickness of taper to measure the gap width, also can use as height adjustment jig
  - Narrow width type
  - Satin finish
  - Packed in plastic carrying case
  - Ball chain attached

| Order No. | Model No. | Standard | Measuring Range (mm) | Accuracy (mm) | Graduation (mm) | Taper Angle | Full Length (H) × (W) (mm) | Weight |
|-----------|-----------|----------|----------------------|---------------|-----------------|-------------|----------------------------|--------|
| 007002    | TPG-270AA | 270AA    | 0.3~3                | $\pm 0.04$    | 0.05            | 1°54'33"    | 127.5 × 6                  | 18g    |
| 007003    | TPG-270BB | 270BB    | 0.3~6                | $\pm 0.04$    | 0.05            | 2°51'45"    | 160 × 6                    | 38g    |



## RIGHT ANGLE TAPER GAUGE



- USE**
  - Measurement of groove and gap etc.
- MATERIAL**
  - Hardened stainless steel (SUS420J2)
- FEATURES**
  - Taper gauge specialized for inner width measurements. One side of gauge rests secure along with the workpiece for a stable measurement.
  - Scale is on the side of gauge to allow reading when top surface is not visible during measurement

| Order No. | Model No. | Measuring Range (mm) | Accuracy (mm) | Graduation (mm) | Taper Angle | Product Dimensions Full Length x Width (mm) | Weight |
|-----------|-----------|----------------------|---------------|-----------------|-------------|---------------------------------------------|--------|
| 007004    | TPG-700T  | 1~15                 | ±0.05         | 0.1             | 7° 9' 10"   | 148.5                                       | 10g    |

BLOCK GAUGES

PIN GAUGES

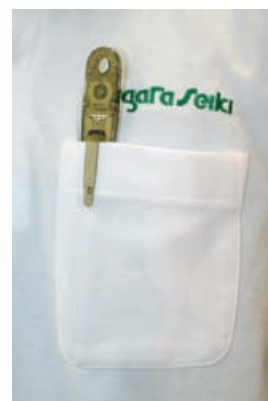
PIN VISE

PIN GAUGE ACCESSORIES

## TAPER GAUGES

RACEABILITY

Clip style plastic case



Perfect for carrying in shirt pocket

- USE**
  - Use the width of taper to measure the gap width
- MATERIAL**
  - Hardened stainless steel (SUS420J2)
  - Hardness : HV480
- FEATURES**
  - Satin finish
  - Reverse side- scale graduated, hole diameter conversion table
  - Pocket clip style carrying case
  - Scale : Front side- Width scale, Reverse side - Length scale

| Order No. | Model No. | Standard                    | Measuring Range (mm) | Accuracy (mm) | Graduation (mm) | Taper Angle | Full Length (mm) | Thickness (mm) | Weight |
|-----------|-----------|-----------------------------|----------------------|---------------|-----------------|-------------|------------------|----------------|--------|
| 007008    | TPG-700AC | #700 1-15 with Plastic case | 1 ~ 15               | ± 0.05        | 0.1             | 7° 9' 10"   | 148.5            | 1.2            | 10g    |

GAUGES

THREAD GAUGES

PLUG GAUGES

RING GAUGES

THICKNESS GAUGES

TAPER GAUGES

WELDING GAUGES

OTHER GAUGES



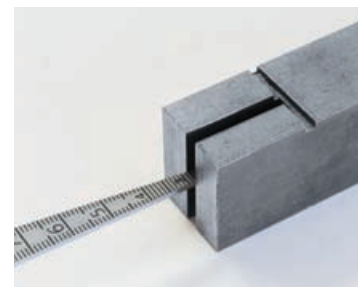
## TAPER GAUGES



TPG-700A



TPG-700B



Measurement of gap width



TPG-700C



TPG-700D

BLOCK  
GAUGESPIN  
GAUGESPIN  
VISEPIN  
GAUGE  
ACCESSORIES

GAUGES

THREAD  
GAUGESPLUG  
GAUGESRING  
GAUGESTHICKNESS  
GAUGESTAPER  
GAUGESWELDING  
GAUGESOTHER  
GAUGES

- USE** • Measure openings, slot width, hole size etc
- MATERIAL** • Hardened stainless steel (SUS420J2)  
• Hardness : HV480
- FEATURES** • Satin finish

| Order No. | Model No. | Standard   | Measuring Range (mm) | Accuracy (mm) | Graduation (mm) | Taper Angle | Full Length (mm) | Thickness (mm) | Weight |
|-----------|-----------|------------|----------------------|---------------|-----------------|-------------|------------------|----------------|--------|
| 007010    | TPG-700A  | #700 1-15  | 1 ~ 15               | ± 0.05        | 0.1             | 7° 9' 10"   | 148.5            | 1.2            | 10g    |
| 007011    | TPG-700B  | #700 15-30 | 15 ~ 30              | ± 0.05        | 0.1             | 7° 9' 10"   | 153              | 1.2            | 40g    |
| 007012    | TPG-700C  | #700 30-45 | 30 ~ 45              | ± 0.05        | 0.1             | 7° 9' 10"   | 159              | 1.2            | 60g    |
| 007013    | TPG-700D  | #700 45-60 | 45 ~ 60              | ± 0.05        | 0.1             | 7° 9' 10"   | 161.5            | 1.2            | 80g    |



- USE** • Measuring of tubing, bore, slot width, hole size and flange face to face dimension, etc.
- MATERIAL** • Hardened stainless steel(SUS420J2)
- FEATURES** • Convenient set, taper gauge 700A with 130mm ruler  
• Folds safely with pocket clip, easy to carry.

| Order No. | Model No. | Standard | Weight |
|-----------|-----------|----------|--------|
| 007200    | TPG-700S  | 700S     | 40g    |

|             | Measuring Range (mm) | Accuracy (mm) | Graduation (mm) | Full length (mm) | Taper Angle |
|-------------|----------------------|---------------|-----------------|------------------|-------------|
| Taper gauge | 1~ 15                | ±0.05         | 0.1             | 148.5            | 7°9'10"     |
| Ruler       | 0~130                | ±0.13         | 0.5             | 155              | —           |

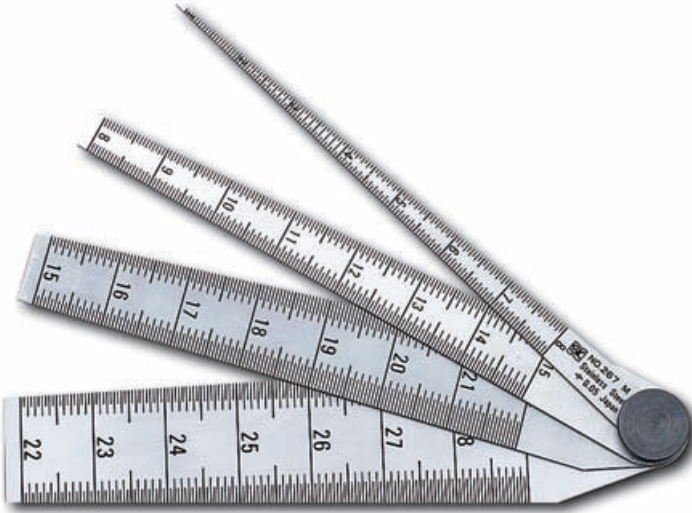
BLOCK GAUGES

PIN GAUGES

PIN VISE

PIN GAUGE ACCESSORIES

TAPER GAUGES



- USE** • Measurement of slot width and hole size etc.
- MATERIAL** • Hardened stainless steel(SUS420J2)
- FEATURES** • Use the width of taper to check the inside diameter of tubing or hole size  
• Number of leaves: 4 pieces (1~8mm, 8~15mm, 15~22mm, 22~29mm)

| Order No. | Model No. | Standard | Measuring Range (mm) | Accuracy (mm) | Graduation (mm) | Full Length (mm) | Thickness (mm) | Weight |
|-----------|-----------|----------|----------------------|---------------|-----------------|------------------|----------------|--------|
| 007030    | TPG-267M  | 267M     | 1~29                 | ±0.05         | 0.05            | 144              | 1.2            | 80g    |

GAUGES

THREAD GAUGES

PLUG GAUGES

RING GAUGES

THICKNESS GAUGES

TAPER GAUGES

WELDING GAUGES

OTHER GAUGES



## CIRCULAR TAPER GAUGES



TPG-710A



TPG-710B



TPG-710C

- USE** • Measure hole size or gap width
- MATERIAL** • TPG-710A : SK Steel, TPG-710B/710C : Carbon steel for machine structural use  
• Grip : Free cutting steel
- FEATURES** • Cylindrical type  
• Silver finish

| Order No. | Model No. | Standard | Measuring Range (mm) | Accuracy (mm) | Graduation (mm) | Taper Angle | Full Length (mm) | Weight |
|-----------|-----------|----------|----------------------|---------------|-----------------|-------------|------------------|--------|
| 007100    | TPG-710A  | 710A     | 1 ~ 6                | ± 0.05        | 0.1             | 5° 44'      | 93               | 20g    |
| 007101    | TPG-710B  | 710B     | 4 ~ 15               | ± 0.05        | 0.1             | 5° 44'      | 175              | 140g   |
| 007102    | TPG-710C  | 710C     | 4 ~ 25               | ± 0.05        | 0.1             | 5° 44'      | 290              | 550g   |

## CIRCULAR TAPER GAUGES



TPG-715A

- USE** • Use for measuring hole size or gap width
- MATERIAL** • Gauge : SK Steel (Non-Hardened)  
• Case : Brass
- FEATURES** • Silver finish  
• Comes with a protective cap for the gauge tip

| Order No. | Model No. | Standard | Measuring Range (mm) | Accuracy (mm) | Graduation (mm) | Taper Angle | Full Length (mm) | Weight |
|-----------|-----------|----------|----------------------|---------------|-----------------|-------------|------------------|--------|
| 007150    | TPG-715A  | 715A     | 0.1 ~ 3              | ± 0.05        | 0.1             | 5° 43' 29"  | 118.5            | 33g    |
| 007151    | TPG-715B  | 715B     | 1 ~ 6                | ± 0.05        | 0.1             | 5° 43' 29"  | 168              | 80g    |

## CIRCULAR TAPER GAUGE WITH GREEN COLOR GRIP



GAUGES

06

### New line-up with Green Aluminum Grip



CGTPG-710A



CGTPG-710B



CGTPG-710C

**USE** • Measure hole size or gap width

#### MATERIAL

- Gauge : SK steel (CGTPG-710A), Carbon steel for machine structure use (CGTPG-710B & CGTPG-710C)
- Grip : Anodized aluminum

#### FEATURES

- Sliver finish

| Order No. | Model No.  | Standard | Measuring Range (mm) | Accuracy (mm) | Graduation (mm) | Taper Angle | Full Length (mm) | Weight |
|-----------|------------|----------|----------------------|---------------|-----------------|-------------|------------------|--------|
| 007103    | CGTPG-710A | 710A     | 1 ~ 6                | ± 0.05        | 0.1             | 5° 44'      | 93               | 20g    |
| 007104    | CGTPG-710B | 710B     | 4 ~ 15               | ± 0.05        | 0.1             | 5° 44'      | 175              | 140g   |
| 007105    | CGTPG-710C | 710C     | 4 ~ 25               | ± 0.05        | 0.1             | 5° 44'      | 290              | 550g   |

BLOCK GAUGES

PIN GAUGES

PIN VISE

PIN GAUGE ACCESSORIES

## CIRCULAR TAPER GAUGE WITH GREEN COLOR CASE



### New line-up. Circular taper gauge with green case



CCTPG-715A

**USE** • Use for measuring hole size or gap width

#### MATERIAL

- Gauge : SK steel
- Anodized aluminum

#### FEATURES

- Comes with a protective cap for the gauge tip

| Order No. | Model No.  | Standard | Measuring Range (mm) | Accuracy (mm) | Graduation (mm) | Taper Angle | Full Length (mm) | Weight |
|-----------|------------|----------|----------------------|---------------|-----------------|-------------|------------------|--------|
| 007152    | CCTPG-715A | 715A     | 0.1 ~ 3              | ± 0.05        | 0.1             | 5° 43' 29"  | 118.5            | 33g    |
| 007153    | CCTPG-715B | 715B     | 1 ~ 6                | ± 0.05        | 0.1             | 5° 43' 29"  | 168              | 80g    |

GAUGES

THREAD GAUGES

PLUG GAUGES

RING GAUGES

THICKNESS GAUGES

TAPER GAUGES

WELDING GAUGES

OTHER GAUGES





## SLIDE TAPER GAUGES

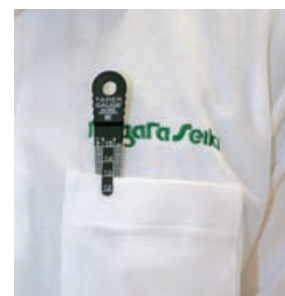
Clip-style  
slide casePerfect for carrying in shirt  
pocket

- USE**
  - Measurement of tubing, bore, slot width, hole size etc.
- MATERIAL**
  - Hardened stainless steel (SUS420J2)
  - Hardness : HV480
- FEATURES**
  - Satin finish
  - Clip-type slide case for safe and convenient carrying
  - Gauge tip is rounded for safety
  - Slide into case for storage

| Order No. | Model No. | Standard | Measuring Range (mm) | Accuracy (mm) | Graduation (mm) | Taper Angle | Weight |
|-----------|-----------|----------|----------------------|---------------|-----------------|-------------|--------|
| 007201    | TPG-700SL | 700SL    | 1~9                  | ±0.05         | 0.1             | 7° 9' 10"   | 20g    |

BLOCK  
GAUGESPIN  
GAUGESPIN  
VISEPIN  
GAUGE  
ACCESSORIES

## PLASTIC TAPER GAUGES



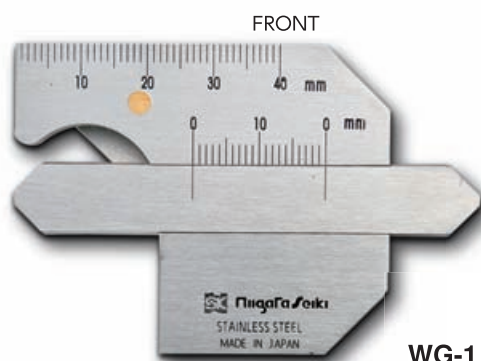
can put in a pocket

- USE**
  - Measure openings, slot width, hole size, etc.
- MATERIAL**
  - Polycarbonate
- FEATURES**
  - Scratch resistant
  - Clip design

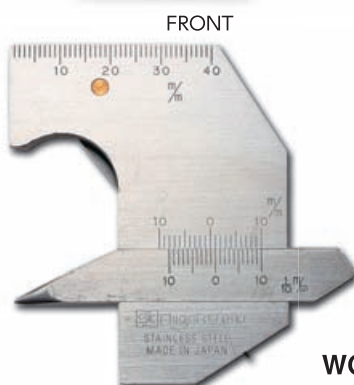
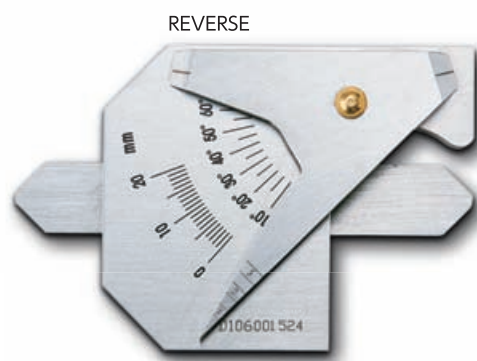
| Order No. | Model No. | Standard | Measuring range (mm) | Accuracy (mm) | Graduation (mm) | Weight |
|-----------|-----------|----------|----------------------|---------------|-----------------|--------|
| 007040    | TPG-800   | 800      | 1~15                 | ±0.2          | 0.1             | 5g     |

GAUGES

THREAD  
GAUGESPLUG  
GAUGESRING  
GAUGESTHICKNESS  
GAUGESTAPER  
GAUGESWELDING  
GAUGESOTHER  
GAUGES



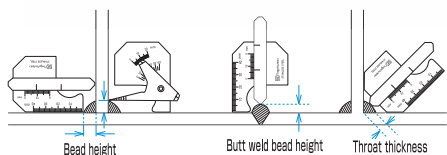
WG-1



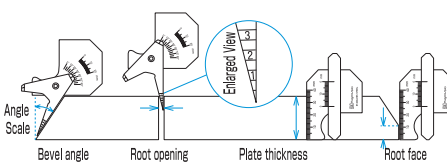
WG-2



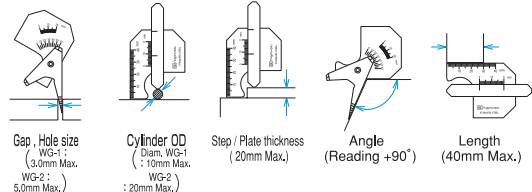
Weld Bead Measurement



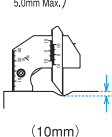
Measurement Before Welding



Misc. Measurements



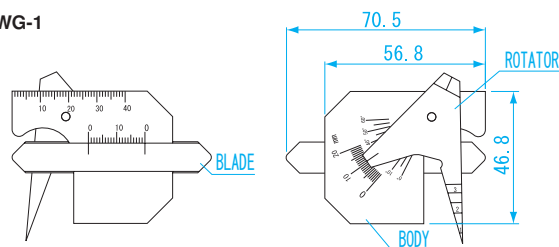
Undercut Measurement (WG-2 only)



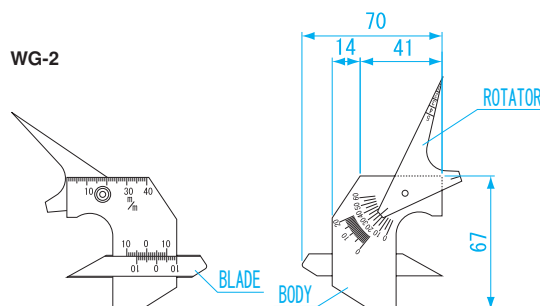
## DIMENSIONS

Units : mm

WG-1



WG-2



**USE** • For measuring fillet weld, bead weld, etc.

**MATERIAL** • Stainless steel (SUS410)

**FEATURES** • Efficient for welding and quality control  
• Tough and portable (with vinyl case)

BLOCK  
GAUGES

PIN  
GAUGES

PIN  
VISE

PIN  
GAUGE  
ACCESSORIES

GAUGES

THREAD  
GAUGES

PLUG  
GAUGES

RING  
GAUGES

THICKNESS  
GAUGES

TAPER  
GAUGES

WELDING  
GAUGES

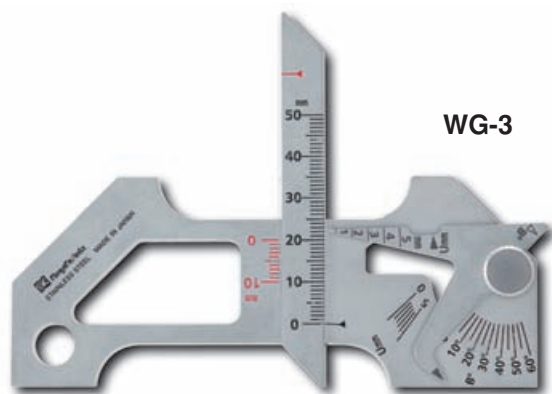
OTHER  
GAUGES

| Order No. | Model No. | Measurement Accuracy for Throat Thickness of Fillet Weld | Bevel Angle Accuracy | Accuracy | Weight |
|-----------|-----------|----------------------------------------------------------|----------------------|----------|--------|
| 007502    | WG-1 (M)  | ± 0.4mm                                                  | ± 0.7°               | ± 0.4mm  | 79g    |
| 007503    | WG-2 (L)  | ± 0.2mm                                                  | ± 0.7°               | ± 0.4mm  | 91g    |

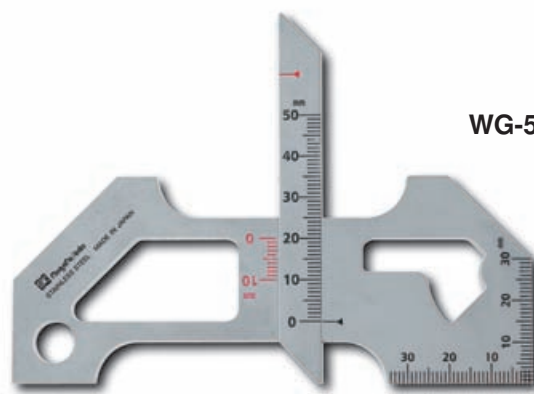


## WELDING GAUGE

**New product! Gauges with new features added to existing welding gauge line-up**  
**Measure weld reinforcement height up to 50mm**



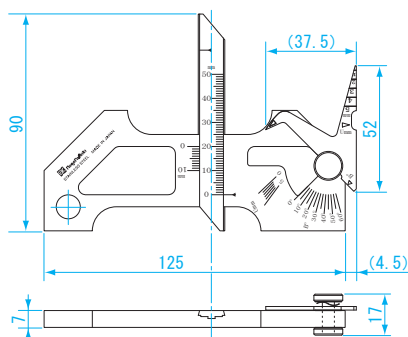
WG-3



WG-5

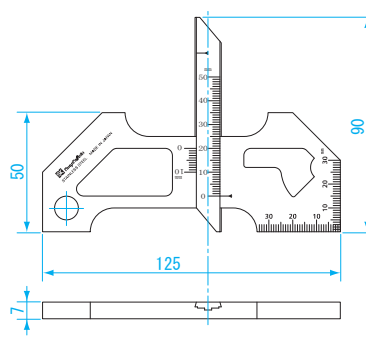
## DIMENSIONS

Units : mm



## DIMENSIONS

Units : mm



**USE** • Measurement of size and alignment of bead, gap size, undercut, etc.

## MATERIAL

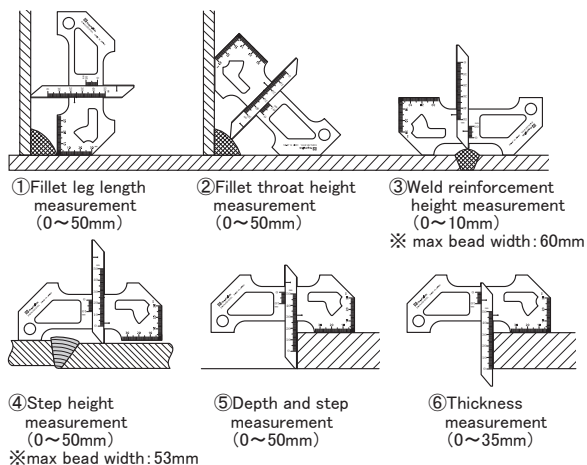
- Stainless Steel (SUS410) Silver finish

## FEATURES

- Speed up and streamline the quality control of welding
- Measures weld reinforcement height up to 50mm
- Wide base for stability during measurements
- Pivoting gauge provides a variety of measurement functions
- Translucent case for easy confirmation of contents

## Measurement Functions

## WG-3, WG-5 capabilities



**USE** • Measurement of size and alignment of bead, gap size, undercut, etc.

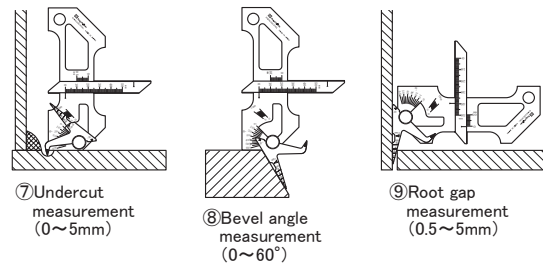
## MATERIAL

- Stainless steel (SUS410) Silver finish

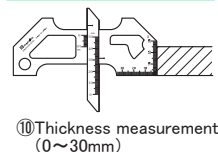
## FEATURES

- Speed up and streamline the quality control of welding
- Measures weld reinforcement height up to 50mm
- Wide base for stability during measurements silver finish is ideal for reduced reflection when photographing measurements
- Translucent case for easy confirmation of contents

## WG-3 only



## WG-5 only



| Order No.       | Model No. | Weight |
|-----------------|-----------|--------|
| NEW ITEM 007506 | WG-3      | 198g   |
| NEW ITEM 007507 | WG-5      | 187g   |

BLOCK GAUGES

PIN GAUGES

PIN VISE

PIN GAUGE ACCESSORIES

GAUGES

THREAD GAUGES

PLUG GAUGES

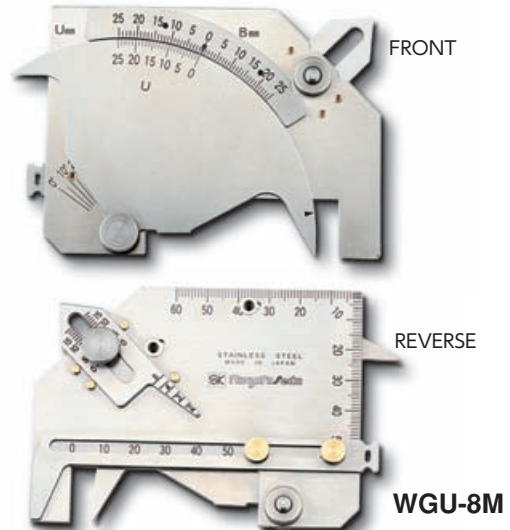
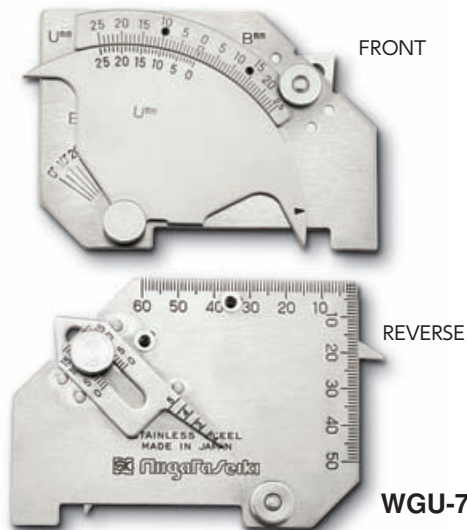
RING GAUGES

THICKNESS GAUGES

TAPER GAUGES

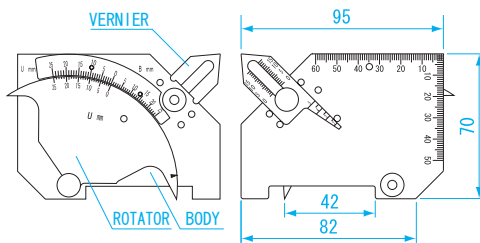
WELDING GAUGES

OTHER GAUGES



## DIMENSIONS

Units : mm



## USE • For wide of variety welding measurements

Undercut depth/ Groove angle/ Inconsistent level  
Height of fillet weld & bead weld/ Throat thickness of fillet  
Root opening/ Plate thickness

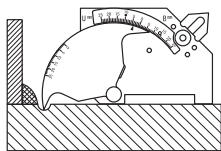
## MATERIAL • Stainless steel (SUS410)

## FEATURES

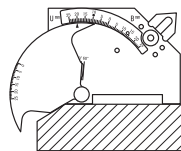
- Long usage life, rust and corrosion resistant and extremely durable as well as being light weight
- Very convenient to the welding process involving steel frame assembly such as general welding, ship building, bridge construction, etc.
- Easy reading scale

## MEASUREMENT FUNCTION

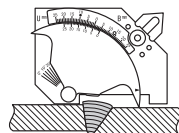
WGU-7M, WGU-8M, WGU-9M common functions



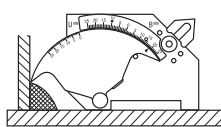
① Undercut depth  
(0~25mm)



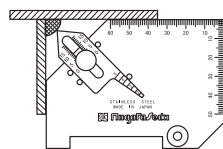
② Bevel angle  
(WGU-7M: 0~60°  
(WGU-8M-WGU-9M: 0~70°)



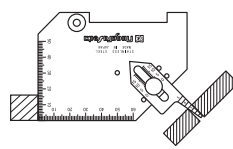
③ Bead striding width (WGU-7M: 42mm)  
(WGU-8M-WGU-9M: 53mm)  
Step difference  
(0~25mm)



④ Height of fillet &  
bead weld (0~25mm)

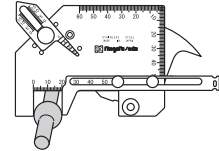


⑤ Throat thickness of  
fillet weld (0~15mm)

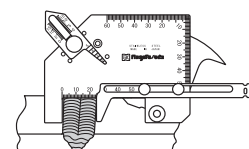


⑥ Root opening (2~5mm)  
⑦ Plate thickness (scale)

WGU-8M, WGU-9M common functions



⑧ External diameter of circular  
workpiece  
WGU-8M: up to 30mm  
WGU-9M: up to 50mm

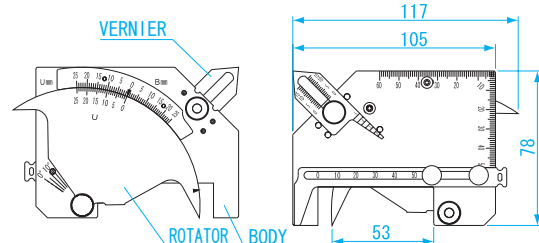


⑨ Width of bead weld (0~53mm)

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 007513    | WGU-7M    | 150g   |
| 007514    | WGU-8M    | 190g   |

## DIMENSIONS

Units : mm



## USE • For wide of variety welding measurements

Undercut depth/ Groove angle/ Inconsistent level  
Height of fillet weld & bead weld/ Throat thickness of fillet  
Root opening/ Plate thickness/ External diameter of circular  
workpiece/ Width of bead weld

## MATERIAL • Stainless steel (SUS420J2)

## FEATURES

- Additional function for measurement of external diameter of circular workpiece, swelling of pressure welding of reinforcing iron and width of bead weld
- Bead stride width: 53mm
- Bevel angle range: 0-70°
- Easy reading scale

BLOCK  
GAUGES

PIN  
GAUGES

PIN  
VISE

PIN  
GAUGE  
ACCESSORIES

GAUGES

THREAD  
GAUGES

PLUG  
GAUGES

RING  
GAUGES

THICKNESS  
GAUGES

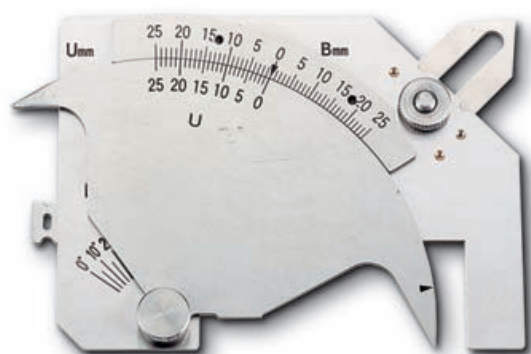
TAPER  
GAUGES

WELDING  
GAUGES

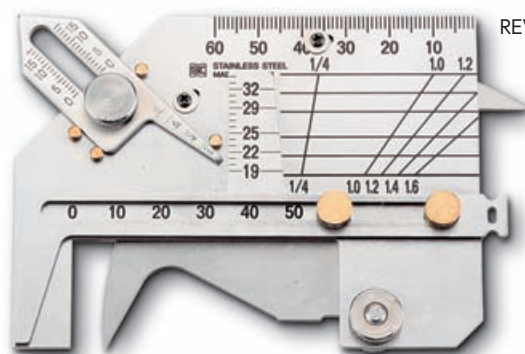
OTHER  
GAUGES



## WELDING GAUGE



FRONT



REVERSE

**USE** • For a wide variety of welding measurements

Undercut depth/ Groove angle/ Inconsistent level  
 Height of fillet weld & bead weld/ Throat thickness of fillet  
 Root opening/ Plate thickness/ External diameter of circular  
 workpiece/ Width of bead weld

**MATERIAL**

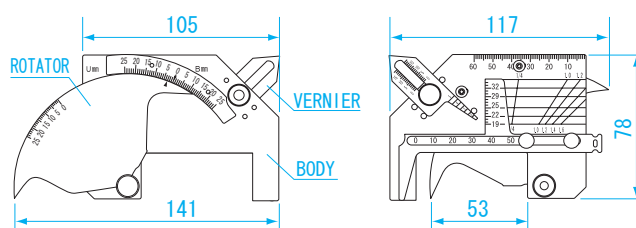
- Stainless steel (SUS420J2)

**FEATURES**

- Additional functions for measurement of
  - external diameter of circular workpiece
  - swelling of pressure welded reinforcing iron
  - width of bead weld
- Bead stride width: 53mm
- Bevel angle range: 0-70°
- Higher accuracy undercut measurement function

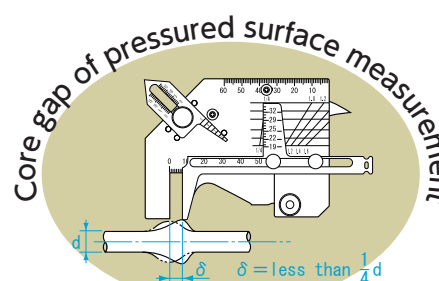
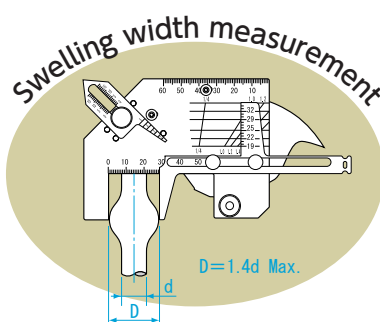
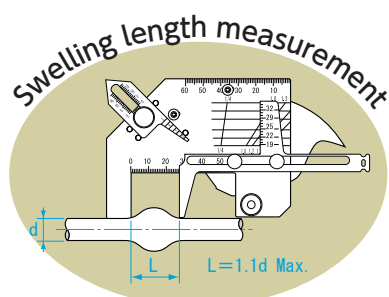
**DIMENSIONS**

Units : mm

**Additional functions**

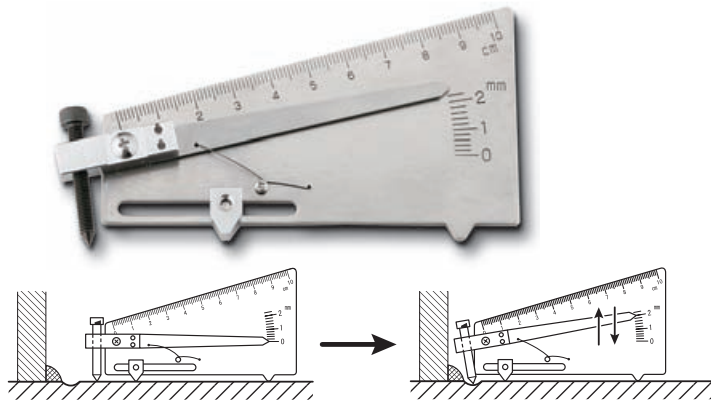
Provides quick way to measure the diameter of welded rebar to insure proper dimensions of weld seam.

Scale marked for material diameter ( $\phi$  19, 20, 25, 29, 32) corresponding to various rebar diameters, and amount of expansion (1/4, 1.0~1.6). You can quickly find the ratio by reading the intersection of the two scale lines.



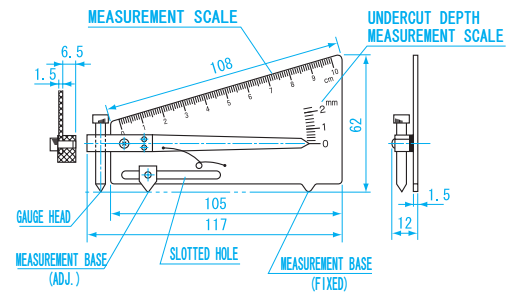
| Order No. | Model No. | Rebar diameter (mm) | Expansion      | Weight |
|-----------|-----------|---------------------|----------------|--------|
| 007515    | WGU-9M    | $\phi$ 19 ~ 35      | 1/4, 1.0 ~ 1.6 | 190g   |





## DIMENSIONS

Units : mm



### Zero Adjustment

1. Press this gauge to the measuring sample.
2. Adjust Zero point adjustment screw to indicate 0, insuring that all three points contact surface.

### Measurement

After 0 adjustment, put the tool on undercut and the spring will move indicator arm to show depth of undercut on graduation.

- USE** • For undercut depth and length measurement (Scale range : 0-2mm)
- MATERIAL**
  - Stainless steel (SUS410)
- FEATURES**
  - Easy to measure depth and length of undercut
  - Capable of 0 adjustment with screw type of gauge head
- SPECIFICATIONS**
  - Exclusive use for undercut measurement (minimum reading : 0.2mm)

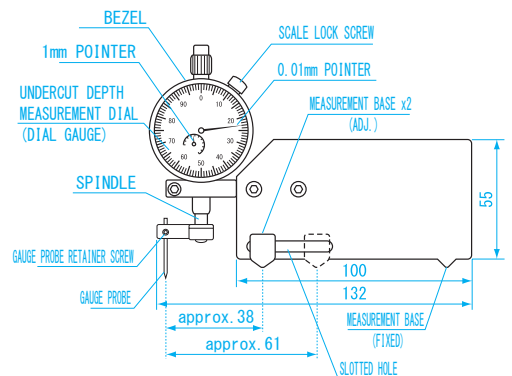
| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 007521    | WGU-2S    | 100g   |

# WELDING GAUGE

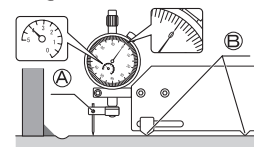


## DIMENSIONS

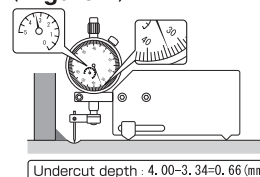
Units : mm



(Figure 1)



(Figure 2)



### Zero Adjustment

Recommended to be performed on a flat surface such as a surface plate.

- ① Loosen GAUGE PROBE RETAINER SCREW using hex key.
- ② Place Welding Gauge on surface insuring all three points of MEASUREMENT BASE are making contact (2x ADJ. 1x FIXED) and push on SPINDLE shaft. When 1mm POINTER indicates 4.00mm, tighten GAUGE PROBE RETAINER SCREW. (Insure that probe tip is in contact with the surface plate)

### Measurement

- ① Place the gauge on a flat surface and rotate BEZEL to indicate 0.01mm. (Figure 1)
- ② Place PROBE tip on weld undercut point to be measured. (Figure 2)
- ③ Undercut value is obtained by subtracting Dial Gauge reading from 4.00mm.

- USE** • Exclusive use for undercut measurement
- FEATURES**
  - Stainless steel (SUS420J2)
  - Easy and accurate to measure depth and length of undercut
  - Dial gauge type performs more precise measurement
  - Three point support for stable measurement
- SPECIFICATIONS**
  - Measurement range : 0 ~ 4.00mm
  - Minimum reading : 0.01mm
  - Accuracy :  $\pm 0.04\text{mm}$
  - Width of measurement base :  $\approx 23\text{mm}$

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 007520    | FDW-1     | 280g   |

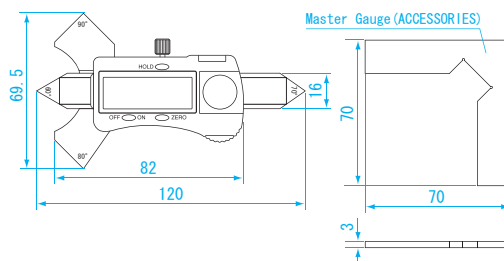
## DIGITAL WELDING GAUGE

Essential for welding process. Digital welding gauge specialized for measuring fillet weld and bead weld height  
Provided with zero setting master gauge



### DIMENSIONS

Units : mm



**USE** • For measuring the size of fillet weld and bead weld

### MATERIAL

- Stainless steel

### FEATURES

- Easy to read with digital display
- Bevel angle: 60° , 70° , 80° , 90°
- Master gauge included
- Hold function

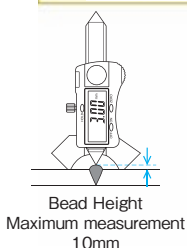
### SPECIFICATIONS

- Throat thickness : 20mm
- Bead height : 10mm
- perating temperature : 0 ~ 40°C

### POWER

- SR44 or LR44, one included for testing

#### Weld reinforcement height measurement

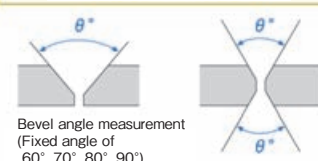


Bead Height  
Maximum measurement  
10mm

#### Measurement before welding process



Throat thickness  
Maximum measurement  
20mm

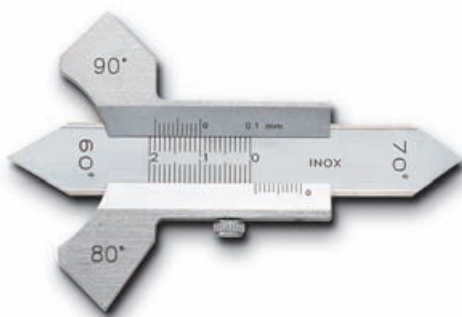


Bevel angle measurement  
(Fixed angle of  
60°, 70°, 80°, 90°)

| Order No. | Model No. | Resolution (mm) | Accuracy※ (mm) | Weight |
|-----------|-----------|-----------------|----------------|--------|
| 007526    | DWG-20G   | 0.01            | ± 0.03         | 130g   |

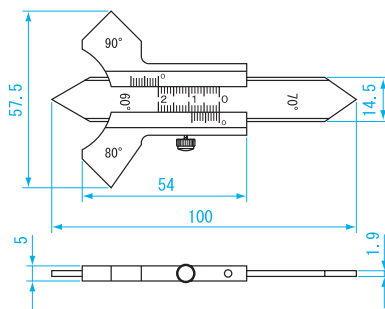
※ Quantization Error ( ± 1 digit ) not included

## WELDING GAUGE



### DIMENSIONS

Units : mm



**USE** • Use for measuring the size of fillet weld and bead weld

### MATERIAL

- Stainless steel

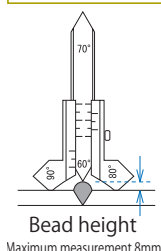
### FEATURES

- Bevel angle: 60° 70° 80° 90°

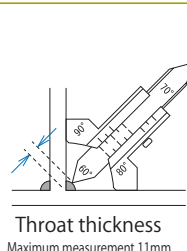
### SPECIFICATIONS

- Fillet weld : 11mm
- Bead weld : 8mm
- Accuracy: ± 0.2mm
- Minimum reading : 0.1mm

#### Weld Bead Measurement

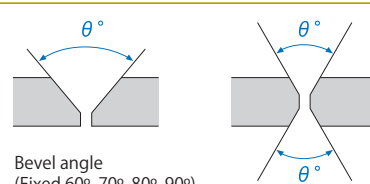


Bead height  
Maximum measurement 8mm



Throat thickness  
Maximum measurement 11mm

#### Measurement Before Welding



Bevel angle  
(Fixed 60°, 70°, 80°, 90°)

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 007516    | AWG-10    | 80g    |

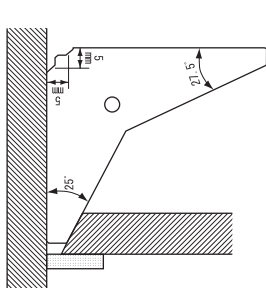


WAL2542

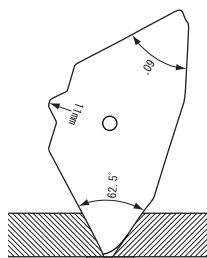


WAL4562

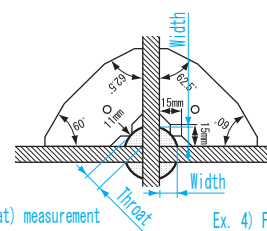
## Example use



Ex. 1) Joint gap angle (inside) measurement



Ex. 2) Butt joint gap angle measurement



Ex. 3) Fillet weld (throat) measurement

Ex. 4) Fillet weld width measurement

**USE** • For measuring bevel angle of T-joint (interior angle), bevel angle of facing joint (interior angle), leg length (height), and throat thickness of fillet weld

## MATERIAL

- SUS304

## FEATURES

- Indication of size limit for easy judgement (angle step by 2.5°, throat thickness step by 1mm)
- Set of 4 pieces
- Provided with plastic case and ball chain

## SPECIFICATIONS

| Model No.                    |                          | WAL2542                                    |       |       |       | WAL4562                                     |       |       |       |
|------------------------------|--------------------------|--------------------------------------------|-------|-------|-------|---------------------------------------------|-------|-------|-------|
| Blank No.                    |                          | 1                                          | 2     | 3     | 4     | 1                                           | 2     | 3     | 4     |
| Outline Dimension (mm)       | Overall width            | 92                                         |       |       |       | 92                                          |       |       |       |
|                              | Overall height           | 46                                         | 45    | 44    | 43    | 43                                          | 44    | 45    | 46    |
|                              | Plate thickness          | 1.5                                        |       |       |       | 1.5                                         |       |       |       |
| Material/ Finish             |                          | SUS304 /barrel semi-gloss finish           |       |       |       | SUS304 / barrel semi-gloss finish           |       |       |       |
| Measurement Value Indication | Angle degree (Both side) | 25°                                        | 30°   | 35°   | 40°   | 45°                                         | 50°   | 55°   | 60°   |
|                              |                          | 27.5°                                      | 32.5° | 37.5° | 42.5° | 47.5°                                       | 52.5° | 57.5° | 62.5° |
|                              | Throat thickness (Front) | 4                                          | 5     | 6     | 7     | 8                                           | 9     | 10    | 11    |
|                              |                          | 5                                          | 7     | 8     | 10    | 11                                          | 13    | 14    | 15    |
| Accuracy                     |                          | Fillet weld·Reinforcement±0.1mm/ Angle ±1° |       |       |       | Fillet weld·Reinforcement±0.1mm / Angle ±1° |       |       |       |

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 007550    | WAL2542   | 100g   |
| 007551    | WAL4562   | 120g   |

BLOCK GAUGES

PIN GAUGES

PIN VISE

PIN GAUGE ACCESSORIES

GAUGES

THREAD GAUGES

PLUG GAUGES

RING GAUGES

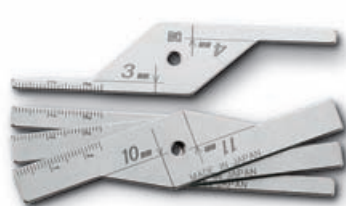
THICKNESS GAUGES

TAPER GAUGES

WELDING GAUGES

OTHER GAUGES

## ROOT LIMIT GAUGE

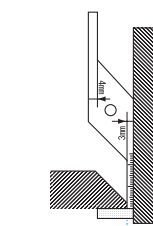


WRL310

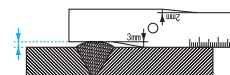


WRL1118

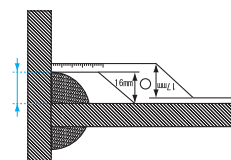
### Example use



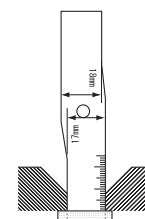
Ex. 1) T-joint root thickness measurement



Ex. 2) Butt joint reinforcement height measurement



Ex. 3) Fillet weld width measurement



Ex. 4) Butt joint root thickness measurement

### USE

- Use for measuring root gap of T-joint or facing joint, leg length (height) of fillet weld and excess weld and height of facing joint

### MATERIAL

- SUS304

### FEATURES

- Measure with 1mm interval
- The measurement result of root thickness will be indicated on the scale
- Measurement range chosen so most frequently used dimensions are combined
- Provided with plastic case & ball chain

### SPECIFICATIONS

| Model No.                    |                          | WRL310                            |       |       |       | WRL1118                           |       |       |       |
|------------------------------|--------------------------|-----------------------------------|-------|-------|-------|-----------------------------------|-------|-------|-------|
| Blank No.                    |                          | 1                                 | 2     | 3     | 4     | 1                                 | 2     | 3     | 4     |
| Outline dimension (mm)       | Overall width            | 90                                |       |       |       | 90                                |       |       |       |
|                              | Overall height           | 20                                |       |       |       | 20                                |       |       |       |
|                              | Plate thickness          | 2                                 |       |       |       | 2                                 |       |       |       |
| Material/ Finish             |                          | SUS304 / barrel semi-gloss finish |       |       |       | SUS304 / barrel semi-gloss finish |       |       |       |
| Measurement Value Indication | Root gap (Front)         | 3·4                               | 5·6   | 7·8   | 9·10  | 11·12                             | 13·14 | 15·16 | 17·18 |
|                              | Leg length-height (Back) | 16·17                             | 14·15 | 12·13 | 10·11 | 8·9                               | 6·7   | 4·5   | 2·3   |
|                              | Root side(Front)         | 20                                |       |       |       | 20                                |       |       |       |
|                              | Plate thickness          | 20                                |       |       |       | 20                                |       |       |       |
| Accuracy                     |                          | ±0.1mm                            |       |       |       | ±0.1mm                            |       |       |       |

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 007560    | WRL310    | 60g    |
| 007561    | WRL1118   | 90g    |

## WELDING ELECTRODE GAUGE



※Sample of custom design

Custom Designs  
with Fast Delivery

Please contact us  
with request

- USE • Use for measuring height of welding electrode

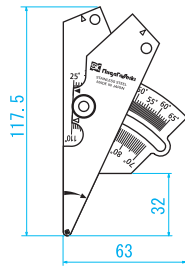
- MATERIAL • SUS420J2

## New Product. Specialized for angle measurement of grooves with minimum reading 0.5°



### DIMENSIONS

Units : mm



**USE** • Butt angle measurement and gap angle measurement

**MATERIAL** • Stainless(SUS410)

### FEATURES

- Measurement of butt joint gap angle
- Sharpened tip enables measurement for root gap of 0mm, or when sheet thickness is less than 15mm
- Minimum reading 0.5° , large scale for easy reading
- T-joint gap angle can be measured avoiding weld buildup
- Non-reflective satin finish for easy to read scale
- Solid and convenient carrying.(Provided with plastic carrying case)

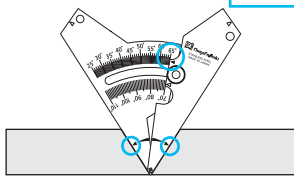
### SPECIFICATIONS

- Bevel angle : 25 ~ 65° ( Minimum graduation: 0.5°)
- Angle of cross weld part : 70-110°

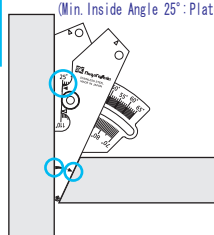
### Example use

1) Butt joint gap angle measurement  
( Max. Inside Angle 65° :  
Plate Thickness :30mm)

• How to Read the value  
for examples 1) & 2)  
Angle between ◀ marks  
indicated at ▶

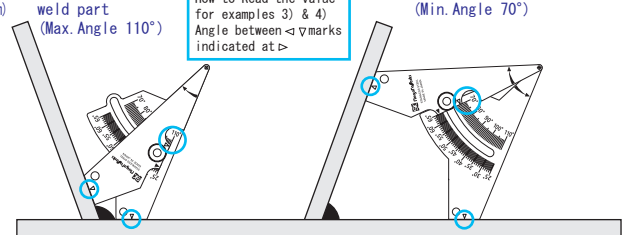


2) T-joint gap angle measurement  
(Min. Inside Angle 25° :Plate Thickness: 30mm)



3) Angle of cross  
weld part  
(Max. Angle 110°)

• How to Read the value  
for examples 3) & 4)  
Angle between ◀ marks  
indicated at ▶



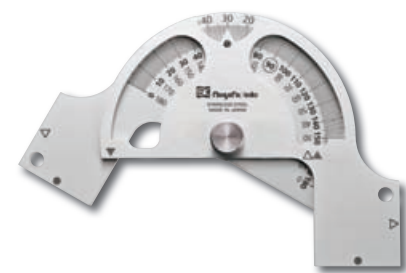
4) Angle of cross weld part  
(Min. Angle 70°)

### SPECIFICATIONS

| Order No. | Model No. | Accuracy of angle | Weight |
|-----------|-----------|-------------------|--------|
| 007518    | WGA-65    | ± 0.5°            | 73.5g  |

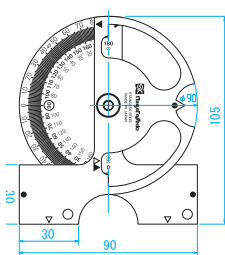
# ANGLE PROTRACTOR

## New Product. Specialized for angle measurement. 3 measurement points enable multiple angle measurements



### DIMENSIONS

Units : mm



**USE** • Measuring angles for sheet metal bending, welding flanges and butt joints, openings and bevels, scissors plates, etc.

**MATERIAL** • Stainless steel (SUS410)

### FEATURES

- Enables a wide range of angle measurements before and after welding process
- Direct measurement can be done without interference from swelling or weld bead
- Can measure sheet metal bends and outside angle measurements
- Non-reflective satin finish for easy to read scale
- Solid and convenient carrying ( provided with plastic case)

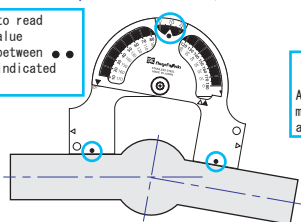
### SPECIFICATIONS

- Bevel angle : Scissors angle 30-130° (Minimum graduation : 1°)
- Bending angle and angle of butt weld joint : 0 ~ 90°
- Stud and beam angle after welding : 0 ~ 180°

### Example use

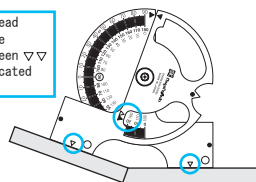
Example 1) Angle measurement of bent butt weld (0-90°:Example indicates 10°)

• How to read the value  
Angle between ● marks indicated at ●



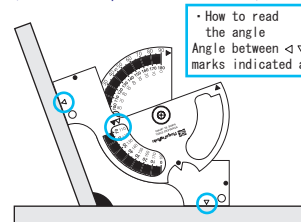
Example 2) Angle measurement of bent Flange and metal plate (0-180°:Example indicates 20°)

• How to read the value  
Angle between ▼ marks indicated at ▶



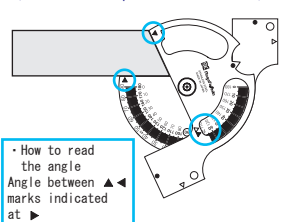
Example 3) Angle of cross weld part (0-180°:Example indicates 110°)

• How to read the angle  
Angle between ◀ marks indicated at ▶



Example 4) Plate bevel angle (30-130°:Example indicates 65°)

• How to read the angle  
Angle between ▲ marks indicated at ▶



### SPECIFICATIONS

| Order No. | Model No. | Accuracy of angle | Weight |
|-----------|-----------|-------------------|--------|
| 007519    | AP-130    | ± 0.5°            | 100g   |





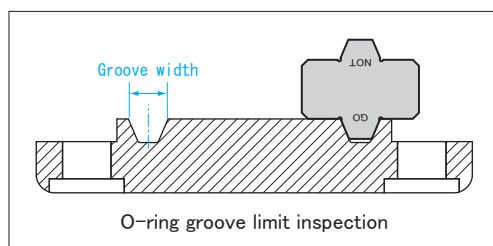
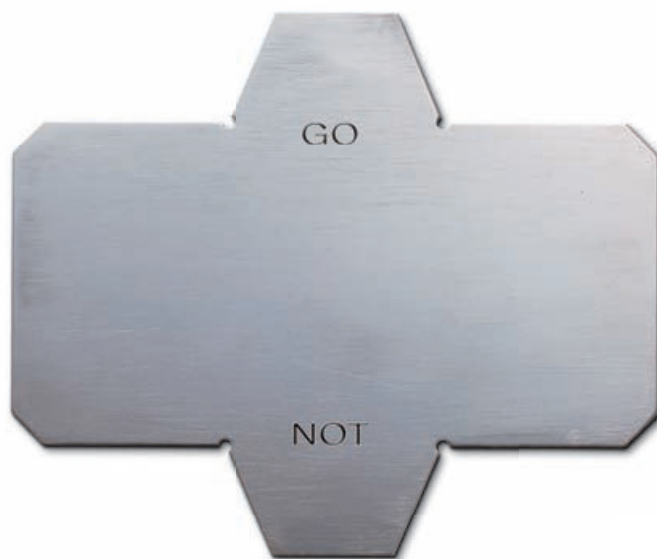
## Measurement function and List

| Process                                 | No. | Categories                                 | Figures | Applicable Model |   |   |   |   |   |    |    |   |   |   |   |   |   |   |   |
|-----------------------------------------|-----|--------------------------------------------|---------|------------------|---|---|---|---|---|----|----|---|---|---|---|---|---|---|---|
|                                         |     |                                            |         |                  |   |   |   |   |   |    |    |   |   |   |   |   |   |   |   |
| Machining and Assembly (Before welding) | 1   | T joint Gap                                |         | ✓                | ✓ | ✓ | ✓ | — | ✓ | ✓  | ✓  | — | — | ✓ | — | — | — | — | — |
|                                         | 2   | Lap joint Gap                              |         | ✓                | ✓ | ✓ | ✓ | — | ✓ | ✓  | ✓  | — | — | ✓ | — | — | — | — | — |
|                                         | 3   | Misalignment of Butt weld                  |         | ✓                | ✓ | ✓ | ✓ | — | ✓ | ✓  | ✓  | — | — | ✓ | — | — | — | — | — |
|                                         | 4   | Root Openings                              |         | ✓                | ✓ | ✓ | ✓ | — | ✓ | ✓  | ✓  | — | — | ✓ | — | — | — | — | — |
|                                         | 5   | Root gap of T-joint                        |         | —                | — | — | — | — | — | —  | —  | — | — | ✓ | — | — | — | — | — |
|                                         | 6   | Root Face                                  |         | —                | ✓ | ✓ | ✓ | ✓ | ✓ | ✓  | ✓  | ✓ | — | ✓ | — | — | — | — | — |
|                                         | 7   | Bevel Angle                                |         | —                | ✓ | ✓ | ✓ | — | ✓ | ✓  | ✓  | — | — | — | — | — | — | — | ✓ |
|                                         | 8   | Groove angle                               |         | —                | — | — | — | — | — | —  | —  | — | — | — | ✓ | ✓ | ✓ | ✓ | — |
|                                         | 9   | T-joint gap angle                          |         | —                | — | — | — | — | — | —  | —  | — | — | — | ✓ | — | — | ✓ | — |
|                                         | 10  | Edg Misalignment                           |         | —                | ✓ | ✓ | ✓ | ✓ | ✓ | ✓  | ✓  | — | — | — | — | — | — | — | — |
| After Welding                           | 11  | Leg length (height) of Fillet Weld         |         | —                | ✓ | ✓ | ✓ | ✓ | ✓ | ✓  | ✓  | — | — | ✓ | ✓ | — | — | — | — |
|                                         | 12  | Throat Thickness of Fillet Weld            |         | —                | ✓ | ✓ | ✓ | ✓ | ✓ | ✓  | ✓  | — | — | — | ✓ | ✓ | ✓ | — | — |
|                                         | 13  | Height of Butt weld Overlay                |         | —                | ✓ | ✓ | ✓ | ✓ | ✓ | ✓  | ✓  | — | — | ✓ | — | ✓ | ✓ | — | — |
|                                         | 14  | Height of T-joint weld Overlay             |         | —                | ✓ | ✓ | ✓ | ✓ | ✓ | ✓  | ✓  | — | — | ✓ | — | ✓ | ✓ | — | — |
|                                         | 15  | Undercut                                   |         | —                | — | ✓ | ✓ | — | ✓ | ✓  | ✓  | ✓ | ✓ | — | — | — | — | — | — |
|                                         | 16  | Misalignment of Butt Weld                  |         | —                | — | ✓ | ✓ | ✓ | ✓ | ✓  | ✓  | — | — | — | — | — | — | — | — |
|                                         | 17  | Bending angle and angle of butt weld joint |         | —                | — | — | — | — | — | —  | —  | — | — | — | — | — | — | — | ✓ |
|                                         | 18  | Angle of Cross weld part                   |         | —                | — | — | — | — | — | —  | —  | — | — | — | — | — | — | ✓ | ✓ |
|                                         | 19  | Stud angle after welding                   |         | —                | — | — | — | — | — | —  | —  | — | — | — | — | — | — | ✓ | ✓ |
|                                         | 20  | Irregularity of Bead Surface               |         | —                | — | — | — | — | — | ✓  | ✓  | — | — | — | — | — | — | — | — |
| Pressure welding                        | 21  | Swelling diameter                          |         | —                | — | — | — | — | — | △※ | ✓  | — | — | — | — | — | — | — | — |
|                                         | 22  | Swelling length                            |         | —                | — | — | — | — | — | —  | △※ | ✓ | — | — | — | — | — | — | — |
|                                         | 23  | Misalignment of Pressured Surface          |         | —                | — | — | — | — | — | —  | △※ | ✓ | — | — | — | — | — | — | — |
|                                         | 24  | Bending angle                              |         | —                | — | — | — | — | — | —  | —  | — | — | — | — | — | — | — | ✓ |

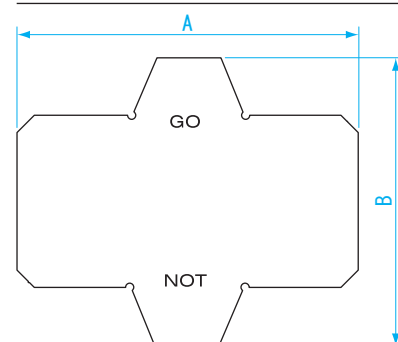
※ Measures dimension of weld, relative amount must be calculated.

## SPECIFICATIONS

| Model No. | Material                                                              | Scale   | Height of Bead Weld | Height of Fillet Weld       | Throat thickness of fillet weld | Undercut depth | Root Opening             | Width of Bead Weld | Welding Bar Diameter | Length Accuracy                 | Beveling(groove) angle                                              | Bending angle and angle of butt weld joint | Stud and beam angle after welding | Angle Accuracy |                                          |
|-----------|-----------------------------------------------------------------------|---------|---------------------|-----------------------------|---------------------------------|----------------|--------------------------|--------------------|----------------------|---------------------------------|---------------------------------------------------------------------|--------------------------------------------|-----------------------------------|----------------|------------------------------------------|
| WG-1      | Stainless steel SUS410<br>Plate thickness: 4.3mm                      | 40mm    | 10mm                | 20mm                        | 10mm                            | —              | 0.5~3mm                  | —                  | 10mm                 | ±0.4mm                          | 0~60° Minimum reading value:5°                                      | —                                          | —                                 | ±0.7°          |                                          |
| WG-2      | Stainless steel (SUS410)<br>Plate thickness: 4.9mm                    |         |                     | 10mm<br>Minimum reading 0.1 |                                 | 10mm           | 0.5~5mm                  |                    | 20mm                 | ±0.2mm (gap measurement ±0.4mm) |                                                                     |                                            |                                   |                |                                          |
| WG-3      | Stainless steel SUS410                                                | —       | 10mm                | 50mm                        | 50mm                            | 10mm           | 0.5~5mm                  | —                  | 10mm                 | ±0.4mm                          | 0~60° Minimum reading value:5°                                      | —                                          | —                                 | ±0.7°          |                                          |
| WG-5      | Plate thickness 7mm Satin finish                                      | 30・35mm |                     |                             |                                 | —              | —                        |                    | —                    | —                               |                                                                     |                                            |                                   |                |                                          |
| WGU-7M    | Stainless steel (SUS410)<br>Plate thickness: 1.5mm                    | 50・60mm | 25mm                | 25mm                        | 15mm                            | 25mm           | 2~5mm                    | 0~53mm             | —                    | —                               | ±0.4mm (Throat thickness measurement ±0.7mm—manufacturing accuracy) | 0~60° Minimum reading value:5°             | —                                 | —              | ±2°                                      |
| WGU-8M    | Stainless steel (SUS420J2)<br>Plate thickness: 1.5mm                  |         |                     |                             |                                 |                |                          |                    | 30mm                 | 0~70° Minimum reading value:5°  | —                                                                   | —                                          |                                   |                |                                          |
| WGU-9M    | Stainless steel (SUS420J2)<br>Plate thickness: 1.5mm                  | 60mm    | 50mm                | —                           | —                               |                |                          |                    |                      |                                 |                                                                     |                                            |                                   |                |                                          |
| WGU-2S    | Stainless steel (SUS410)<br>Plate thickness: 1.5mm                    | 100mm   | —                   | —                           | —                               | 2mm            | —                        | —                  | —                    | ±0.1mm                          | —                                                                   | —                                          | —                                 | —              |                                          |
| FDW-1     | Stainless steel (SUS420J2)<br>Plate thickness: 1.5mm                  | —       |                     |                             |                                 | 4mm            |                          |                    |                      | ±0.04mm                         |                                                                     |                                            |                                   |                |                                          |
| AWG-10    | Stainless steel<br>Thickness: Body: 5mm, Blade:1.9mm                  | —       | 8mm                 | —                           | 11mm                            | —              | —                        | —                  | —                    | ±0.2mm                          | 60・70・80・90°fixed                                                   | —                                          | —                                 | —              |                                          |
| DWG-20    | Stainless steel Thickness: Body:5.2mm<br>Blade: 2.7mm Display: 13.5mm |         | 10mm                |                             | 20mm                            |                |                          |                    |                      | ±0.05mm                         |                                                                     |                                            |                                   |                |                                          |
| WRL310    | Stainless steel (SUS304)<br>Plate thickness: 2mm                      | 20mm    | 10~17mm (1mm step)  | 10~17mm fixed (1mm step)    | —                               | —              | 3~10mm fixed (1mm step)  | —                  | —                    | ±0.1mm                          | —                                                                   | —                                          | —                                 | —              |                                          |
| WRL1118   | Stainless steel (SUS304)<br>Plate thickness: 2mm                      |         | 2~9mm (1mm step)    | 2~9mm fixed (1mm step)      |                                 |                | 11~18mm fixed (1mm step) |                    |                      | —                               |                                                                     |                                            |                                   |                |                                          |
| WAL2542   | Stainless steel (SUS304)<br>Plate thickness: 1.5mm                    | —       | —                   | 5・7・8・10mm fixed            | 4~7mm fixed (1mm step)          | —              | —                        | —                  | —                    | ±0.1mm                          | 25・27.5・30・32.5<br>35・37.5・40・42.5°fixed                            | —                                          | —                                 | ±1°            |                                          |
| WAL4562   | Stainless steel (SUS304)<br>Plate thickness: 1.5mm                    |         |                     | 11・13・14・15mm fixed         | 8~11mm fixed (1mm step)         |                |                          |                    |                      |                                 | —                                                                   |                                            |                                   |                | 45・47.5・50・52.5<br>55・57.5・60・62.5°fixed |
| WGA-65    | Stainless steel SUS410 Plate thickness 1.5mm Satin finish             | —       | —                   | —                           | —                               | —              | —                        | —                  | —                    | —                               | 25~65° Minimum reading value: 0.5°                                  | —                                          | 70~110°                           | ±0.5°          |                                          |
| AP-130    |                                                                       |         |                     |                             |                                 |                |                          |                    |                      |                                 | 30~130° Minimum reading value: 1°                                   | 0~90°                                      | 0~180°                            |                |                                          |



## DIMENSIONS



BLOCK  
GAUGES

PIN  
GAUGES

PIN  
VISE

PIN  
GAUGE  
ACCESSORIES

GAUGES

**USE** • Limit gauge for measuring width of O-ring groove

## MATERIAL

- SUS420J2 (Polished finish)

## FEATURES

- GO/NO GO standard conforms to JPI-7S-23
- Groove width accuracy :  $\pm 0.20\text{mm}$
- Groove depth accuracy :  $\pm 0.41/0\text{mm}$
- Groove bottom corner radius tolerance:  
Less than 1.5mm  $\cdots +0.8\text{mm}$   
More than 1.5mm  $\cdots \pm 0.8\text{mm}$
- Angle accuracy :  $\pm 0.5^\circ$

Units : mm

| Model No. | A  | B  |
|-----------|----|----|
| GSW-1     | 40 | 35 |
| GSW-2     | 40 | 35 |
| GSW-3     | 60 | 50 |
| GSW-4     | 60 | 50 |
| GSW-5     | 80 | 60 |
| GSW-6     | 80 | 60 |
| GSW-7     | 80 | 70 |

THREAD  
GAUGES

PLUG  
GAUGES

RING  
GAUGES

THICKNESS  
GAUGES

| Order No. | Model No. | Compatible O-Ring No                                                    | Groove Width (mm) | Groove Depth (mm) | Groove Bottom Corner Radius | Weight |
|-----------|-----------|-------------------------------------------------------------------------|-------------------|-------------------|-----------------------------|--------|
| 007471    | GSW-1     | 21,23,24,26,27,30,31,34,35,37,39,41,44,45,49,53,57,61,65,69,82,84,92,99 | 7.92              | 11.91             | 0.8                         | 11g    |
| 007472    | GSW-2     | 28,32,46,73                                                             | 9.52              | 13.49             | 1.5                         | 11g    |
| 007473    | GSW-3     | 38,50,54,62,66,77,86,87                                                 | 11.13             | 16.66             | 1.5                         | 22g    |
| 007474    | GSW-4     | 42,47,70,74,88,89,93,94,95                                              | 12.70             | 19.84             | 1.5                         | 22g    |
| 007475    | GSW-5     | 51,58,96,97,98                                                          | 14.27             | 23.01             | 1.5                         | 35g    |
| 007476    | GSW-6     | 63,78                                                                   | 15.88             | 26.97             | 2.3                         | 35g    |
| 007477    | GSW-7     | 55,67,71,100                                                            | 17.48             | 30.18             | 2.3                         | 40g    |

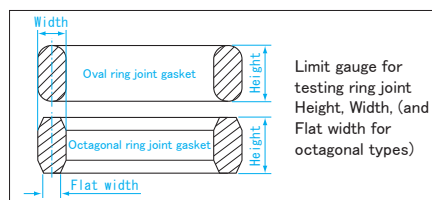
TAPER  
GAUGES

WELDING  
GAUGES

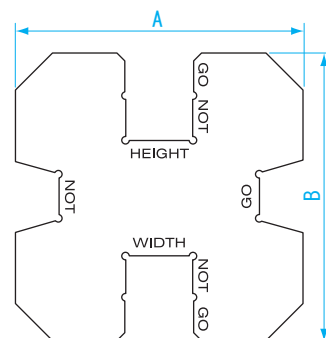
OTHER  
GAUGES



## GASKET LIMIT GAUGE for width and height measurement



### DIMENSIONS



Units : mm

| Model No. | A   | B   |
|-----------|-----|-----|
| GST-1     | 80  | 80  |
| GST-2     | 80  | 80  |
| GST-3     | 80  | 80  |
| GST-4     | 120 | 120 |
| GST-5     | 120 | 120 |
| GST-6     | 140 | 140 |
| GST-7     | 140 | 140 |

**USE** • Limit gauge for GO / NO GO testing of ring joint gaskets

### MATERIAL

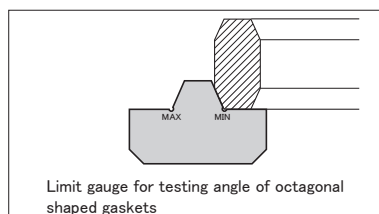
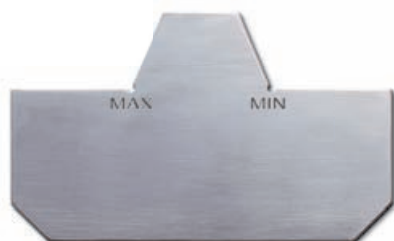
- SUS420J2 (Polished finish)

### SPECIFICATIONS

- GO/NO GO standard conforms to JPI-7S-23
- Gasket width accuracy :  $\pm 0.20\text{mm}$
- Gasket height accuracy :  $\pm 0.5/0\text{mm}$
- Octagonal corner radius accuracy :  $\pm 0.5\text{mm}$

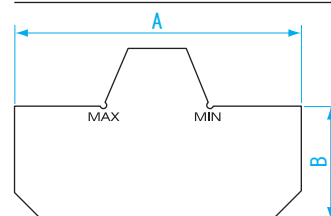
| Order No. | Model No. | Compatible Gasket No.                                                   | Gasket Width (mm) | Gasket Height (mm) | Octagonal Corner Radius (mm) | Weight |
|-----------|-----------|-------------------------------------------------------------------------|-------------------|--------------------|------------------------------|--------|
| 007478    | GST-1     | 21,23,24,26,27,30,31,34,35,37,39,41,44,45,49,53,57,61,65,69,82,84,92,99 | 11.13             | 15.7               | 1.5                          | 53g    |
| 007479    | GST-2     | 28,32,46,73                                                             | 12.70             | 17.5               | 1.5                          | 53g    |
| 007480    | GST-3     | 38,50,54,62,66,77,86,87                                                 | 15.88             | 20.6               | 1.5                          | 110g   |
| 007481    | GST-4     | 42,47,70,74,88,89,93,94,95                                              | 19.05             | 23.9               | 1.5                          | 110g   |
| 007482    | GST-5     | 51,58,96,97,98                                                          | 22.22             | 26.9               | 1.5                          | 110g   |
| 007483    | GST-6     | 63,78                                                                   | 25.40             | 31.8               | 2.3                          | 139g   |
| 007484    | GST-7     | 55,67,71,100                                                            | 28.58             | 35.1               | 2.3                          | 139g   |

## OCTAGONAL GASKET LIMIT GAUGE



### DIMENSIONS

Units : mm



**USE** • Limit gauge for GO/ NO GO testing of angle for octagonal ring joint gaskets

### MATERIAL

- SUS420J2 (Polished finish)

### SPECIFICATIONS

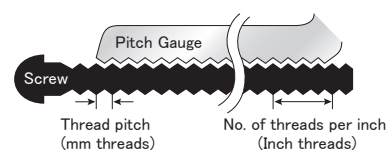
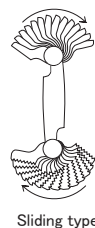
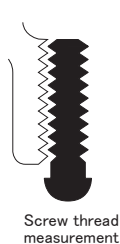
- Conform to JPI-7S-23 standards
- Dimensional tolerance of angle :  $\pm 0.5^\circ$

| Order No. | Model No. | Width A (mm) | Height B (mm) | MAX     | MIN     | Weight |
|-----------|-----------|--------------|---------------|---------|---------|--------|
| 007485    | OG-1      | 50           | 20            | 23° 30' | 22° 30' | 10g    |
| 007486    | OG-2      | 60           | 27            | 23° 30' | 22° 30' | 18g    |



W26

- USE** • Use for measuring screw pitch
- MATERIAL** • Machine grade carbon steel
- FEATURES** • Pitch is marked on leaf



| Order No. | Model No. | Indication unit | Number of leaves | Pitch size                                                                                                                 | Weight |
|-----------|-----------|-----------------|------------------|----------------------------------------------------------------------------------------------------------------------------|--------|
| 110961    | M28       | mm              | 28               | 0.25 0.3 0.35 0.4 0.45 0.5 0.55 0.6 0.65<br>0.7 0.75 0.8 0.85 0.9 1 1.1 1.2 1.25 1.3<br>1.4 1.5 1.6 1.7 1.75 1.8 1.9 2 2.5 | 40g    |
| 110962    | W26       | inch            | 26               | 4 4 1/2 5 6 7 8 9 10 11 12<br>13 14 16 18 19 20 22 24 25 26<br>28 30 32 40 48 60                                           | 40g    |

BLOCK GAUGES

PIN GAUGES

PIN VISE

PIN GAUGE ACCESSORIES

## CENTER GAUGE



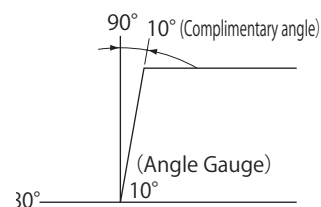
## ANGLE GAUGE



SG-60M

- USE** • Use for inspection of the angle of lathe center, angle of the tool for screw cutting, etc
- MATERIAL** • Machine grade carbon steel
- FEATURES** • Can check the angle of tool bits and tool edges

| Order No. | Model No. | Angle | Graduation                                | Accuracy | Weight |
|-----------|-----------|-------|-------------------------------------------|----------|--------|
| 007541    | SG-60M    | 60°   | 0~25mm<br>0.5mm step, 1mm step            | ±1°      | 10g    |
| 007542    | SG-55I    | 55°   | 0~1inch<br>1/14 inch step, 1/20 inch step | ±1°      | 10g    |



- USE** • Use for inspection of internal angle
- MATERIAL** • Stainless steel
- FEATURES** • 11 leaves on each side, range of 1° ~45°  
• The angle marked on each leaf is complementary angle

| Order No. | Model No. | Graduation                                                        | Accuracy | Weight |
|-----------|-----------|-------------------------------------------------------------------|----------|--------|
| 110931    | AG-22     | 1 2 3 4 5 6 7 8 9<br>10 12 14 14.5 15 16<br>18 20 25 30 35 40 45° | ±20'     | 200g   |

GAUGES

THREAD GAUGES

PLUG GAUGES

RING GAUGES

THICKNESS GAUGES

TAPER GAUGES

WELDING GAUGES

OTHER GAUGES



## RADIUS GAUGE



- USE** • Use for checking the radius curve of dies, jigs, and wooden molds, etc.
- MATERIAL**
  - Machine grade carbon steel
- FEATURES**
  - Concave and convex leaves are separated.



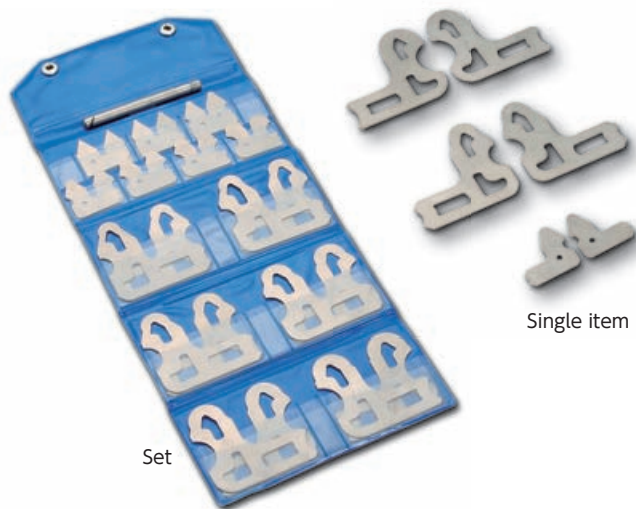
RG-32

| Order No. | Model No. | Number of Leaves per set | Details of Radius Dimension (mm)             | Accuracy (mm) | Weight |
|-----------|-----------|--------------------------|----------------------------------------------|---------------|--------|
| 110923    | RG-34     | 34                       | 1.0~3.0 (0.25 step)<br>3.5~7.0 (0.5 step)    | ±0.1          | 65g    |
| 110922    | RG-32     | 32                       | 7.5~15.0 (0.5 step)                          | ±0.1          | 115g   |
| 110921    | RG-30     | 30                       | 15.5~20.0 (0.5 step)<br>21.0~25.0 (1.0 step) | ±0.1          | 110g   |

## RADIUS GAUGE (Set/ Single part)

BLOCK  
GAUGESPIN  
GAUGESPIN  
VISEPIN  
GAUGE  
ACCESSORIES

GAUGES

THREAD  
GAUGESPLUG  
GAUGESRING  
GAUGESTHICKNESS  
GAUGESTAPER  
GAUGESWELDING  
GAUGESOTHER  
GAUGES

Set

Single item

## SPECIFICATIONS (Single part)

| Order No. | Model No. | Detail of Radius Dimension (mm) |
|-----------|-----------|---------------------------------|
| 110881    | RGL-05    | 0.5                             |
| 110882    | RGL-10    | 1.0                             |
| 110883    | RGL-15    | 1.5                             |
| 110884    | RGL-20    | 2.0                             |
| 110885    | RGL-25    | 2.5                             |
| 110886    | RGL-30    | 3.0                             |
| 110887    | RGL-35    | 3.5                             |
| 110888    | RGL-40    | 4.0                             |
| 110889    | RGL-45    | 4.5                             |
| 110890    | RGL-50    | 5.0                             |
| 110891    | RGL-55    | 5.5                             |
| 110892    | RGL-60    | 6.0                             |
| 110893    | RGL-65    | 6.5                             |
| 110894    | RGL-70    | 7.0                             |
| 110895    | RGL-75    | 7.5                             |
| 110896    | RGL-80    | 8.0                             |
| 110897    | RGL-85    | 8.5                             |
| 110898    | RGL-90    | 9.0                             |
| 110899    | RGL-95    | 9.5                             |
| 110900    | RGL-100   | 10.0                            |
| 110901    | RGL-105   | 10.5                            |
| 110902    | RGL-110   | 11.0                            |
| 110903    | RGL-115   | 11.5                            |
| 110904    | RGL-120   | 12.0                            |
| 110905    | RGL-125   | 12.5                            |
| 110906    | RGL-130   | 13.0                            |

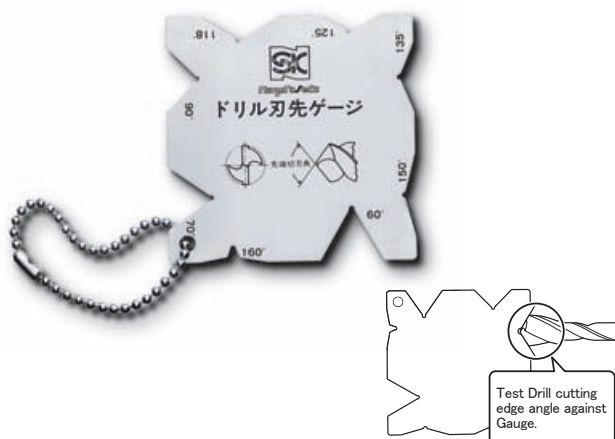
- USE** • For checking radius curve of dies, jigs and wooden mold etc.
- MATERIAL**
  - Machine grade carbon steel
- FEATURES**
  - Each size is separated, suitable for measuring difficult to access parts

## SPECIFICATIONS (radius gauge set)

| Order No.     | Model No. | Pieces per set | Detail of Radius Dimension (mm) |
|---------------|-----------|----------------|---------------------------------|
| 110875        | RG-26S    | 26             | 0.5~13.0 (0.5 step)             |
| Accuracy (mm) |           | Weight         |                                 |
| ±0.1          |           | 290g           |                                 |



## DRILL TIP GAUGE



- USE** • Use for measuring drill-tip after grinding (60° 70° 90° 118° 125° 135° 150° 160°)
- MATERIAL** • Stainless steel (SUS420J2)
- FEATURES**
  - 8 types of edge angle gauges are useful when grinding
  - 2mm scale to measure length of drill tip
  - Provided with ball chain

| Order No. | Model No. | Product Dimension W×H×D (mm) | Accuracy | Weight |
|-----------|-----------|------------------------------|----------|--------|
| 007531    | DPG-A     | 77×77×1                      | ±1.5°    | 11g    |

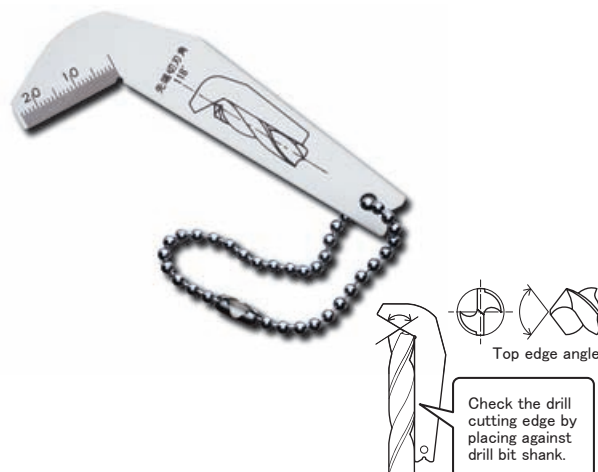
## DRILL POINT GAUGE



- USE** • Use for measuring the drill edge length range of 3mm-45mm, right and left side
- MATERIAL** • Carbon tool steel
- FEATURES**
  - Provided with ball chain
  - Rotating tip angle gauge (Marking at 60° 70° 90° 125° 135° 150°)
  - Tip angle : 118°
  - Drill edge length : 3 ~ 45mm

| Order No. | Model No. | Product Dimension (mm)                             | Accuracy | Weight |
|-----------|-----------|----------------------------------------------------|----------|--------|
| 007535    | DP-118    | Base:22×110×8<br>Rotor:7.5×50×2<br>Main Scale:68×9 | ±1.5°    | 160g   |

## DRILL TIP GAUGE



- USE** • Use for measuring drill-tip after grinding (118°)
- MATERIAL** • Stainless steel (SUS420J2)
- FEATURES**
  - Confirms drill tip edge angle after grinding
  - Provided with ball chain

| Order No. | Model No. | Product Dimension L×D (mm) | Accuracy | Weight |
|-----------|-----------|----------------------------|----------|--------|
| 007532    | DPG-118   | 90×0.5                     | ±1.5°    | 10g    |

## SLIDING DRILL POINT GAUGE



- USE** • Maintenance management of drill point angle  
• Use for measuring the drill tip edge length range of 3-40mm
- MATERIAL**
  - Stainless steel (SUS420J2) Satin finish
- FEATURES**
  - Tip angle : 118°
  - Drill edge length : 3~40mm

| Order No. | Model No. | Accuracy | Weight |
|-----------|-----------|----------|--------|
| 007536    | S-118     | ±1.5°    | 150g   |



GAUGES

06

BLOCK GAUGES

PIN GAUGES

PIN VISE

PIN GAUGE ACCESSORIES

GAUGES

THREAD GAUGES

PLUG GAUGES

RING GAUGES

THICKNESS GAUGES

TAPER GAUGES

WELDING GAUGES

OTHER GAUGES

CHAMFER MEASURING GAUGE **T** TRACEABILITY

**USE** • Use for measuring the size of all kinds of chamfer

**MATERIAL**

- Stainless steel (SUS420J2)

**FEATURES**

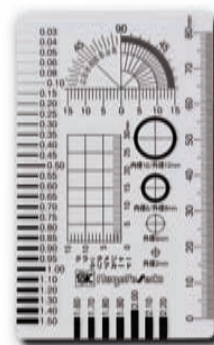
- Measure chamfer circumference of workpiece on lathe
- For milling, measure hole chamfer on workpiece
- Measurement range : 0 ~ 15C
- Minimum reading : 0.5mm

| Order No. | Model No. | Product Dimension (mm)                  | Accuracy (mm) | Weight |
|-----------|-----------|-----------------------------------------|---------------|--------|
| 006990    | CMG-10    | Overall Length 71.6×2<br>Side Length 16 | ±0.25         | 20g    |

## CRACK GAUGE/ CLEAR CARD TYPE



CM-P



CM-C

**USE** • Use for measuring cracks

**MATERIAL**

- Polyester

**FEATURES**

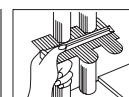
- CM-P: can measure width and length of cracks
- CM-C: can measure width, angle and length of cracks
- Flexible, transparent polyester makes it easy to use
- Portable (Business card size)

| Order No. | Model No. | Product Dimension (H) × (W) × (D) (mm) | Weight |
|-----------|-----------|----------------------------------------|--------|
| 111162    | CM-P      | 91×55×0.175                            | 1g     |
| 111163    | CM-C      | 91×55×0.175                            | 1g     |

## PROFILE GAUGE



Example of Use



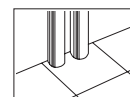
1. Push profile gauge against desired sample



3. Cut workpiece to shape



2. Transfer profile to workpiece



4. A perfect fit made easy

**USE**

- Use for recording the cross-sectional shape of a surface

**MATERIAL**

- Pin material : Stainless steel

**FEATURES**

- Pins are thin and can easily record a smooth curve

**SPECIFICATIONS**

- Active Length: 150mm

| Order No. | Model No. | Product Dimension (mm) | Weight |
|-----------|-----------|------------------------|--------|
| 011440    | CG-100S   | 155×84                 | 210g   |

BLOCK GAUGES

PIN GAUGES

PIN VISE

PIN GAUGE ACCESSORIES

GAUGES

THREAD GAUGES

PLUG GAUGES

RING GAUGES

THICKNESS GAUGES

TAPER GAUGES

WELDING GAUGES

OTHER GAUGES

# HOW TO USE PIN GAUGE

## Measuring Tool Checking



Caliper Checking

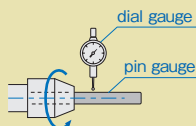


Micrometer Checking



Height Gauge Checking

## Center Runout Measurement



Drilling Machine Runout Measurement

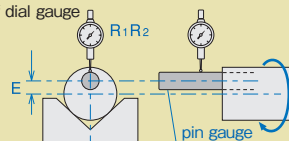


Chuck Runout Measurement

## Hole eccentricity Measurement



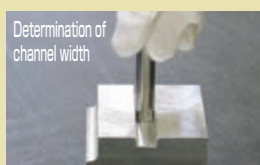
R1... Max. reading of dial gauge  
R2... Min. reading of dial gauge  
$$E = \frac{R1 - R2}{2}$$



## Dovetail Measurement



## Determination of channel width



Determination of channel width



Width measurement of milling slot

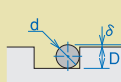
Key way and etc



## Groove depth measurement

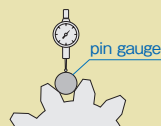


$\delta$ ... Dial gauge reading  
 $D = d - \delta$



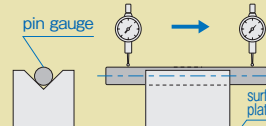
## Gear tooth measurement

Dial gauge measurement

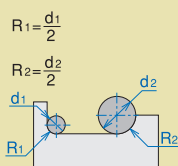
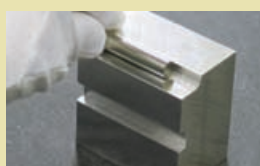


## Measuring V groove parallelism

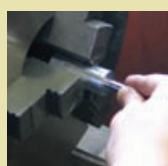
Dial gauge measurement



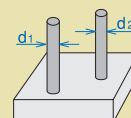
## Radius measurement



## Hole diameter measurement



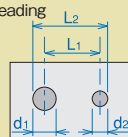
GO / No-Go Pin Gauges also available



## Measurement between holes



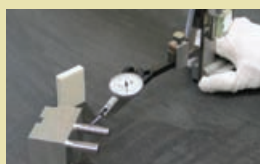
$d1 \cdot d2$ ... Pin Gauge diameters  
 $L2$ ... Micrometer reading  
$$L1 = L2 - \frac{d1 + d2}{2}$$



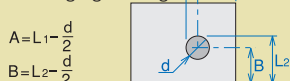
## Mill tool positioning



## Measurement of hole position, parallelism

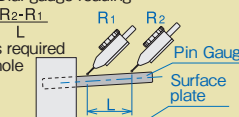


Measuring hole center position  
 $d$ ... Pin Gauge diameter  
 $L1 \cdot L2$ ... Dial gauge reading



Slope of hole (parallelism measurement)

$R1 \cdot R2$ ... Dial gauge reading  
$$\text{Slope} = \frac{R2 - R1}{L}$$
  
Repeat as required for each hole



BLOCK GAUGES

PIN GAUGES

PIN VISE

PIN GAUGE ACCESSORIES

GAUGES

THREAD GAUGES

PLUG GAUGES

RING GAUGES

THICKNESS GAUGES

TAPER GAUGES

WELDING GAUGES

OTHER GAUGES

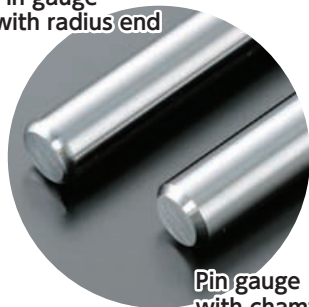


# SPECIAL SHAPES

Custom shape pin gauges available upon request

## Pin gauges for special applications

Pin gauge with radius end



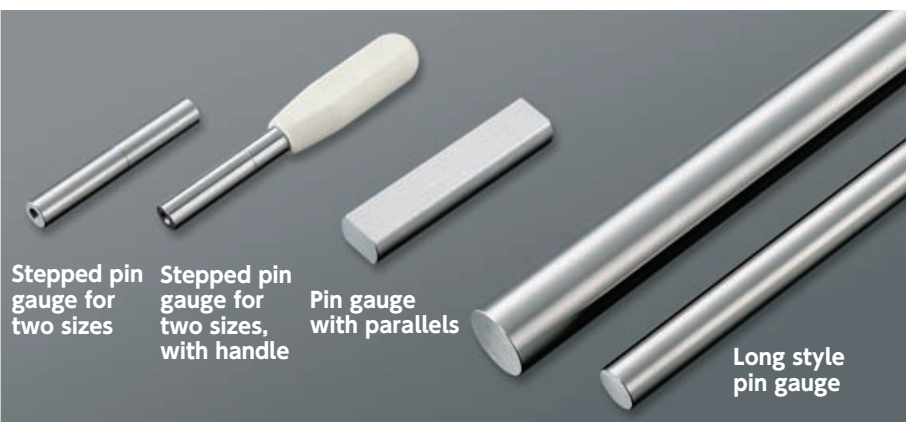
Pin gauge with chamfer

Stepped pin gauge for two sizes

Stepped pin gauge for two sizes, with handle

Pin gauge with parallels

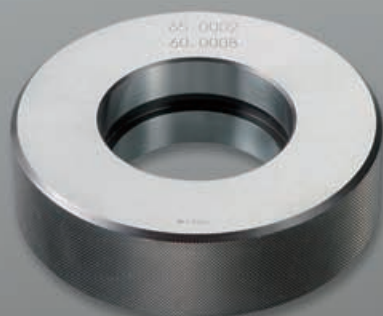
Long style pin gauge



Custom Ring gauges. Stepped gauges, special shapes available upon request.

## Ring gauges for special applications

Custom marking also available

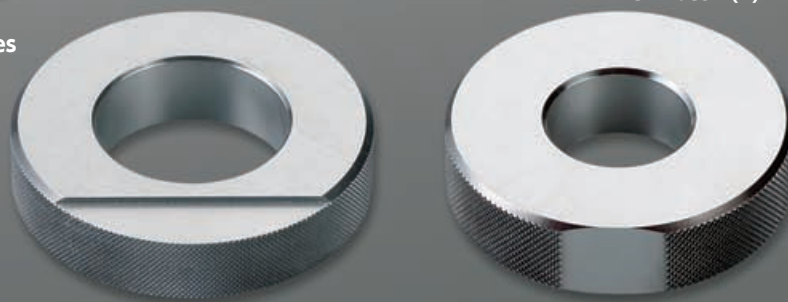


Ring gauge with included OD standard

Stepped ring gauge for two sizes

Ring gauge with notch (A)

Ring Gauge with notch (B)



Please contact us with request

BLOCK GAUGES

PIN GAUGES

PIN VISE

PIN GAUGE ACCESSORIES

GAUGES

THREAD GAUGES

PLUG GAUGES

RING GAUGES

THICKNESS GAUGES

TAPER GAUGES

WELDING GAUGES

OTHER GAUGES





174p



175p



175p



176p



176p



177p



178p



178p



179p



179p



180p



180p



181p



182p



183p



185p



185p



186p



186p



187p



187p



188p

# ANGLE



188p



189p



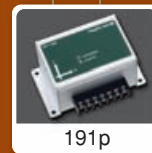
189p



190p



191p



191p



192p



192p



193p



193p



194p



194p



194p



195p



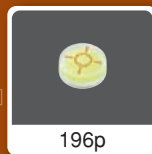
196p



196p



196p



196p



196p



196p



196p



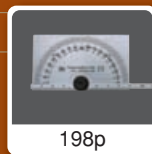
196p



197p



197p



198p



198p



198p



198p



199p



199p



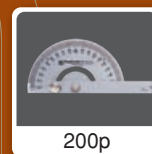
199p



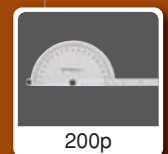
199p



200p



200p



200p



200p



201p



201p



201p



202p



202p

LEVELING

PRECISION  
LEVEL

ANGLE  
LEVEL

LEVEL

PROTRA  
CTOR





# Angle Measurement Specifications Summary

※ Refer to the page listed for each item for detailed specifications

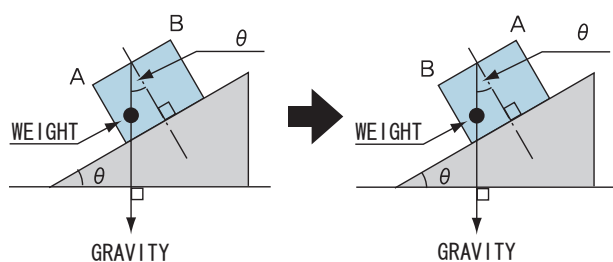
|                     | Product Name                       | Model No.             | Measuring Range                                                  | Minimum Reading                                            | Page    |
|---------------------|------------------------------------|-----------------------|------------------------------------------------------------------|------------------------------------------------------------|---------|
| DIGITAL LEVEL       | LEVELNIC                           | DL-S3・DL-S3C・DL-S3L   | $\pm 5.00\text{mm/m} \cdot \pm 0.286^\circ$                      | $0.001\text{mm/m} \cdot \pm 0.0001^\circ$                  | 173・174 |
|                     | LEVELNIC                           | DL-S2W                | $\pm 5.000\text{mm/m} \cdot \pm 0.2865^\circ$                    | $0.001\text{mm/m} \cdot \pm 0.0001^\circ$                  | 177     |
|                     | LEVELNIC                           | DL-m1                 | $\pm 5.00\text{mm/m}$                                            | $0.01\text{mm/m}$                                          | 179     |
|                     | LEVELNIC                           | DL-m3・DL-m3LS         | $\pm 5.00\text{mm/m}$                                            | $0.01\text{mm/m}$                                          | 179・180 |
|                     | SEPARATE SYSTEM                    | DL-S2+・DL-D3          | $\pm 5.000\text{mm/m} \cdot \pm 0.2865^\circ$                    | $0.001\text{mm/m} \cdot \pm 0.0001^\circ$                  | 181     |
|                     | LEVELNIC                           | DL-S1                 | $\pm 9.99\text{mm/m}$                                            | $0.01\text{mm/m}$                                          | 182     |
| LEVEL               | LEVELNIC                           | EL-01A                | $\pm 0.2\text{mm/m}$<br>$\pm 1\text{mm/m}$<br>$\pm 2\text{mm/m}$ | $0.01\text{mm/m}$<br>$0.05\text{mm/m}$<br>$0.1\text{mm/m}$ | 183     |
| DIGITAL ANGLE LEVEL | DIGITAL ANGLE GAUGE                | DP-10XY               | $\pm 9.99^\circ$                                                 | $0.01^\circ$ (in sensor mode : $0.002^\circ$ )             | 190     |
|                     | DIGITAL ANGLE GAUGE                | DP-10S・DP-10D SET     | $\pm 9.99^\circ$                                                 | $0.01^\circ$ (in sensor mode : $0.002^\circ$ )             | 191     |
|                     | DIGITAL LEVEL SENSOR               | DP-10M                | $\pm 9.998^\circ$                                                | $0.002^\circ$                                              | 191     |
|                     | DIGITAL PROTRACTOR                 | DP-50                 | $\pm 50^\circ$                                                   | $0.1^\circ$                                                | 189     |
|                     | DIGITAL PROTRACTOR                 | DP-90                 | $\pm 90^\circ$                                                   | $1\text{mm/m} \cdot 0.05^\circ \cdot 0.1\%$                | 189     |
|                     | BEVEL BOX                          | BB-180                | $\pm 180.0^\circ$                                                | $0.1^\circ$                                                | 192     |
|                     | BEVEL BOX                          | BB-180A               | $\pm 180.0^\circ$                                                | $0.1^\circ$                                                | 192     |
| ANGLE LEVEL         | LEVEL METER                        | LM-90                 | $0 \sim 90^\circ$                                                | $1^\circ$                                                  | 193     |
|                     | LEVEL MATE                         | LM-360                | $0 \sim 360^\circ$                                               | $1^\circ$                                                  | 193     |
|                     | DIAL SLANT RULE                    | DSR-ST・DSR-MG         | $0 \sim 180^\circ$                                               | $1^\circ$                                                  | 194     |
|                     | LEVEL POINT GAUGE                  | LP-360                | $0 \sim 360^\circ$                                               | $1^\circ$                                                  | 194     |
| PROTRACTOR          | PROTRACTOR No.15                   | PRT-15                | $180^\circ$                                                      | $1^\circ$                                                  | 198     |
|                     | PROTRACTOR No.19 Satin finish      | PRT-19                | $180^\circ$                                                      | $1^\circ$                                                  | 198     |
|                     | PROTRACTOR No.19 Polished finish   | PRT-19S               | $180^\circ$                                                      | $1^\circ$                                                  | 198     |
|                     | PROTRACTOR No.19 with 2 blades     | PRT-19SW              | $180^\circ$                                                      | $1^\circ$                                                  | 198     |
|                     | PROTRACTOR No.19A                  | PRT-19A               | $90^\circ$                                                       | $1^\circ$                                                  | 199     |
|                     | PROTRACTOR No.19B                  | PRT-19B               | $180^\circ$                                                      | $1^\circ$                                                  | 199     |
|                     | PROTRACTOR No.182                  | PRT-182S              | $180^\circ$                                                      | $1^\circ$                                                  | 199     |
|                     | PROTRACTOR No.183                  | PRT-183S              | $180^\circ$                                                      | $1^\circ$                                                  | 199     |
|                     | PROTRACTOR No.30                   | PRT-30S               | $180^\circ$                                                      | $1^\circ$                                                  | 200     |
|                     | PROTRACTOR No.101                  | PRT-101S              | $180^\circ$                                                      | $1^\circ$                                                  | 200     |
|                     | PROTRACTOR No.300                  | PRT-300S・PRT-300SW    | $180^\circ$                                                      | $0.5^\circ$                                                | 200     |
|                     | PROTRACTOR No.400                  | PRT-400S・PRT-400SW    | $180^\circ$                                                      | $0.5^\circ$                                                | 200     |
|                     | PROTRACTOR No.600                  | PRT-600S・PRT-600SW    | $180^\circ$                                                      | $0.5^\circ$                                                | 200     |
|                     | PROTRACTOR No.1000                 | PRT-1000S・PRT-1000SW  | $180^\circ$                                                      | $0.5^\circ$                                                | 200     |
|                     | INSIDE PROTRACTOR                  | IP-90                 | $10^\circ \sim 90^\circ$                                         | $1^\circ$                                                  | 201     |
|                     | PROTRACTOR No.192                  | PRT192-90S・120S       | $180^\circ$                                                      | $1^\circ$                                                  | 201     |
|                     | PROTRACTOR No.192                  | PRT192-200S・250S・300S | $180^\circ$                                                      | $0.5^\circ$                                                | 201     |
|                     | PROTRACTOR No.193                  | PRT193-□              | $360^\circ$                                                      | $1^\circ$                                                  | 201     |
|                     | UNIVERSAL BEVEL PROTRACTOR         | 495D                  | $360^\circ$                                                      | $5''$                                                      | 202     |
|                     | DIGITAL UNIVERSAL BEVEL PROTRACTOR | DUP-360               | $360^\circ$                                                      | $30''$ ( $0.008^\circ$ )                                   | 202     |
| ANGLE GAUGE         | ANGLE GAUGE                        | WGA-65                | $25 \sim 65^\circ$<br>$70 \sim 110^\circ$                        | $0.5^\circ$<br>$1^\circ$                                   | 161     |
|                     | ANGLE PROTRACTOR                   | AP-130                | $30 \sim 130^\circ \cdot 0 \sim 90^\circ \cdot 0 \sim 180^\circ$ | $1^\circ$                                                  | 161     |

## Levelnic principles of operation

### The role of "0 adjust", and "1/2 adjust".

Levelnic, like every level, is an instrument which is sensitive to its position relative to earth's gravity. The operation is as follows.

We can show how we determine true horizontal using the following method. On a slope, put a board with a weight suspended by a string. The weight will hang at an angle of  $\theta$  from a line perpendicular to the slope. If the board is rotated  $180^\circ$ , the weight will hang at the same angle  $\theta$  from a line perpendicular to the slope. Without having an absolute reference, we can determine the angle  $2\theta$  by rotating our instrument  $180^\circ$  and measuring the total change in angle relative our perpendicular reference. We can thereby determine  $\theta$  if we divide by two. Also notice that the angle of the slope relative to true horizontal is also  $\theta$ . If we set zero with the level on a slope, when we rotate the level  $180^\circ$  the reading will be twice the actual angle of the slope. If we then adjust the slope of the surface being measured (the device under test) until the angle reading is reduced to  $1/2$  of that value, the surface will be horizontal. Conversely, some desire having an absolute standard only because of confusion or misunderstanding regarding the above process.



※DL-S3, DL-m1, DL-m3, have a built in computer to allows one touch adjustment using the 0 adjust and 1/2 adjust buttons

### Zero point set

Levelnic does not have true horizontal reference built in. When it is turned on, the first number that appears is not necessarily referenced to true horizontal. If you need to reference true horizontal, you will have to set a zero point each time you turn it on. Once the zero point is correctly set, each measurement is properly reference to true horizontal, eliminating any possible errors from the deviation of zero point. To set zero point a "0 adjust" and "1/2 adjust" operation must be performed.

#### A) To compare slope of different surfaces

- ① Place levelnic on an inclined surface.
  - ② When display stabilizes press "0 adjust" and "0" will be displayed.
- For comparison purposes a zero point has been set which is not true horizontal.

#### B) If zero point is set to true horizontal.

- ① Place the levelnic on the surface to be adjusted to horizontal
  - ② Adjust surface until display stabilizes to zero
- The surface is level

#### C) If you are unsure if a surface is horizontal

- ① Place the levelnic on the surface
  - ② When display stabilizes press "0 adjust" and "0" will be displayed
  - ③ Rotate the levelnic  $180^\circ$  and put in the same spot
  - ④ When display stabilizes press "1/2 adjust", and display will be halved.
- Zero is now set to true horizontal

To set the zero point precisely, there should be minimal slope in the roll direction (perpendicular to the measurement axis) so please set the level in two directions (X, Y) to set zero.

## Handling instruction for Levelnic

- Levelnic is a precision instrument. Please handle with care and avoid shock such as bumping or dropping.
- Before use, the levelnic base and the surface to be measured should be wiped clean of any dirt or oil using a paper towel or cloth dampened with ligroin or alcohol.
- There should be no temperature difference between levelnic and surface being measured. In general, precision measurements should be done in a temperature controlled environment.
- After use, the levelnic base should be coated with an anti-rust oil to protect from corrosion.



## LEVELNIC DL-S3



High accuracy Level with Simple & Clear Operation  
Worlds first Digital Level with built-in Microcomputer

■ Digital Display  
0.001mm/m



■ MATERIALS • Body : Aluminum  
• Base : Cast Iron

■ FEATURES • Easy to Fix the Datum point, Divide measurement value into halves with one-touch operation (With "0" cal. switch, 1/2 cal. switch)  
• Measurement value can be output with RS232 signal  
• Connectible to PC or Printer with RS232 interface  
• Custom-made base can be attached to the threaded screw holes in the bottom base

### SPECIFICATIONS

|                       |                                                                                                                                                     |                                                                                                                                                                                     |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Measuring Range       | $\pm 5.00\text{mm/m} \cdot \pm 0.286^\circ$                                                                                                         |                                                                                                                                                                                     |
| Minimum Reading       | $\pm 0.001\text{mm/m} \cdot \pm 0.0001^\circ$ (0 ~ $\pm 2\text{mm/m} \cdot 0 \sim \pm 0.115^\circ$ )<br>$\pm 0.01\text{mm/m} \cdot \pm 0.001^\circ$ |                                                                                                                                                                                     |
| Operating Temperature | 0 ~ 40°C                                                                                                                                            |                                                                                                                                                                                     |
| Accuracy              | 17 ~ 23°C                                                                                                                                           | $\pm 0.85\%\text{rdg}$ (0 ~ $\pm 2\text{mm/m} \cdot 0 \sim \pm 0.115^\circ$ )<br>$\pm 1.0\%\text{rdg}$ ( $\pm 2 \sim \pm 5\text{mm/m} \cdot \pm 0.115^\circ \sim \pm 0.286^\circ$ ) |
|                       | 0 ~ 40°C                                                                                                                                            | $\pm 2.6\%\text{rdg}$ (0 ~ $\pm 2\text{mm/m} \cdot 0 \sim \pm 0.115^\circ$ )<br>$\pm 2.7\%\text{rdg}$ ( $\pm 2 \sim \pm 5\text{mm/m} \cdot \pm 0.115^\circ \sim \pm 0.286^\circ$ )  |
| Repeatability         | Within $\pm 0.005\text{mm/m} \cdot \pm 0.0003^\circ$                                                                                                |                                                                                                                                                                                     |
| Output Signal         | Conforms to RS-232C                                                                                                                                 |                                                                                                                                                                                     |
| Dimensions            | L172 × W65 × H129mm (Base Dimension : L150 × W55mm)                                                                                                 |                                                                                                                                                                                     |

※ 1 : For DEG (°) Display mode, "0 (Zero)" before the decimal point is not displayed.

For 0.001mm/m (0.0001°) display mode, maximum reading which can be displayed is less than  $\pm 1.999\text{mm/m} (\pm 0.1145^\circ)$

※ 2 : % rdg indicates the percentage of displayed value

| Model No.                       | DL-S3                                                                 | DL-S3C                                                                                        |
|---------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Charging time                   | —                                                                     | 12hours (when fully charged)                                                                  |
| Power Source                    | "9V" type dry cell, 1 pc<br>AC adapter                                | Ni-MH rechargeable 8.4 nominal voltage,<br>200mAh                                             |
| Run time<br>(continuous use) ※3 | Zinc-carbon Cell : approx. 10 hrs.<br>Alkaline Cell : approx. 20 hrs. | 12hour charge... approx. 9hrs<br>8hour charge... approx. 6hrs<br>4hour charge... approx. 2hrs |

※ 3 : May vary depending upon measurement conditions

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 010013    | DL-S3     | 2.2kg  |
| 010030    | DL-S3C    | 2.2kg  |

■ With V Groove (available on request)

|                                     |                                                                                               |
|-------------------------------------|-----------------------------------------------------------------------------------------------|
| Model                               | DL - S3V                                                                                      |
| Tolerance                           | Within 0.1mm/m ( On condition that the bubble in the sub-bubble tube is within the base line) |
| Tolerance between Flat and V Groove | Within 0.05mm/m                                                                               |
| Angle of V Groove                   | 130° ( for cylindrical objects up to $\phi 65\text{mm}$ )                                     |

## LEVELNIC DL-S3 with magnetic L-type base.

Magnetic base enables Z-axis measurement in addition to X-axis and Y-axis.



### USE

- High precision leveling of machine tools and surface plates, Straightness, flatness, and vertical measurement

### MATERIALS

- DL-S3 / Body: Aluminum, Base: Cast Iron
- L-type base : Cast Iron

### FEATURES

- Quick display of the measured value
- Measurement value can be output with RS-232 signal.
- L-type magnetic base enables vertical(Z-axis) measurement
- With 130° V groove

| Order No. | Model No. | Base Squareness (mm) | Weight |
|-----------|-----------|----------------------|--------|
| 010027    | DL-S3L    | within $\pm 0.04$    | 5.5kg  |

※ Refer to DL-S3 for detailed specifications for this unit.

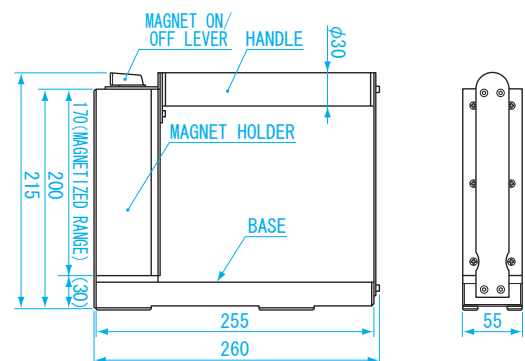
## L-TYPE BASE

LEVELNIC DL-S3 or DL-S2W, equipped with L-type base enables measurement in the Z-axis in addition to X-axis and Y-axis



### DIMENSIONS

Units : mm



### MATERIALS

- Cast Iron

### FEATURES

- Applicable Levelnic: DL-S3 • DL-S2W
- Vertical( Z-axis) measurement is available by mounting on Levelnic
- With 130° V groove

| Order No. | Model No. | Base Squareness (mm) | Weight |
|-----------|-----------|----------------------|--------|
| 010028    | DL-SL     | within $\pm 0.04$    | 4.9kg  |

ANGLE

LEVELNIC

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LEVEL

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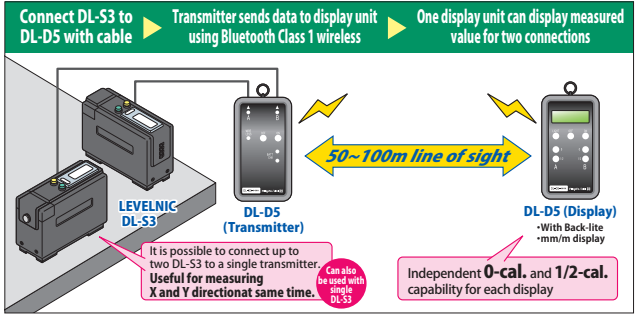


ANGLE

07

# TRANSMITTER / DISPLAY SET

**Connects to two DL-S3 at the same time**  
**Receiver can display measurements from X and Y directions**



**USE** • Transmit and display measurements for up to two Levelnic DL-S3

## FEATURES

- Simultaneous display of two connected DL-S3. Useful for measuring X and Y directions.
- Eases installation of large machine tools by allowing multiple operators to work at same time
- Measured data is more easily visible, especially when used in locations which are remote or have low clearance height.
- Since transmitter and receiver are a paired set, there is no need to set up after purchase – it can be used immediately.

| Order No. | Model No. | Compatible Model | Weight      |
|-----------|-----------|------------------|-------------|
| 010043    | DL-D5     | DL-S3 · DL-S3C   | 290g each ※ |

※ Including silicone battery cover

## SPECIFICATIONS

|                                 | Transmitter                                                                                                     | Display                                                       |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| Input                           | Levelnic DL-S3 external signal (x2)                                                                             | —                                                             |
| Display                         | —                                                                                                               | 16char × 2lines, character size = 4.9 × 2.5mm, with backlight |
| Wireless                        | Bluetooth Class1                                                                                                |                                                               |
| Communication range             | 50 ~ 100m line-of-sight (depending on conditions)                                                               |                                                               |
| operating temperature           | 0 ~ 40°C                                                                                                        |                                                               |
| Power                           | 2x AA cells (can also use commercially available rechargeable batteries)                                        |                                                               |
| operating life (continuous use) | communicating with display device : approx. 17 hours<br>attempting communication with display : approx. 3 hours | Alkaline cells : approx. 8 hours                              |
| DIMENSIONS                      | 144 × W76 × D27mm (Including lanyard ring)<br>(when mounted in silicone cover : L147 × W81 × D35mm)             |                                                               |
| Accessories                     | 2x connecting cable (approx. 80cm length)<br>2x AA cells, Silicone cover.                                       | 2x AA cells, Silicone cover                                   |

# LEVELNIC WIRELESS ADAPTER DL-BW

**Allows communicating with Levelnic using Bluetooth**  
**Wireless range of 50-100mm line-of-sight**



Shown mounted on DL-S3C

**USE** • Wireless adapter for Levelnic

**MATERIALS** • Body: Stainless

- FEATURES**
- The RS232C output signal is transmitted using Bluetooth wireless
  - Eliminating cables greatly improves work efficiency

## SPECIFICATIONS

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 010038    | DL-BW     | 530g   |

|                           |                                                                                                                                                                       |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Input                     | Levelnic RS-232C signals (Levelnic use only)                                                                                                                          |
| Wireless System           | Bluetooth Class1                                                                                                                                                      |
| Power Source              | AAA battery 6 pcs (rechargeable batteries can be used)                                                                                                                |
| Run time (continuous use) | Alkaline cell : Approx. 70 hrs/ Zinc-carbon cell : Approx. 30 hrs<br>1700mAh rechargeable battery: Approx. 45 hrs<br>※ May vary depending upon measurement conditions |
| Dimensions                | L143 × W50 × H173mm (Including trasmission unit)                                                                                                                      |
| Applicable Levelnic       | DL-S3, DL-S3C, DL-m3, DL-m3LS, DL-D3, DL-S3L<br>※ DL-S3, DL-S3C can direct mount                                                                                      |

※ A small thermal printer can not be used

ANGLE

LEVELNIC

PRECISION LEVEL

ANGLE LEVEL

LEVEL

PROTRACTOR





■ High accuracy Digital Level  
(Wireless by Bluetooth)  
Resolution 0.001mm/m

Wireless Data transmission.  
The maximum longitudinal coverage is  
50~100m.



- MATERIALS
  - Body: Aluminum
  - Base: Cast iron
- FEATURES
  - Wireless type Levelnic, useful for leveling and tilt measurement;
    - In overhead location
    - In places where the cable can not reach
  - PC screen becomes Display of Levelnic
    - Measurement data can be displayed on PC, using receiver and Data display software
  - Wireless data transmission
  - Custom-made base can be attached to the threaded screw holes (M5 × P0.8) in the bottom of Level base (Flat base)

■ SPECIFICATIONS

|                              |                                                                                                                                                                                                                  |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Measuring Range              | ± 5.000mm/m • ± 0.2865°                                                                                                                                                                                          |
| Minimum Reading              | 0.001mm/m • 0.0001°                                                                                                                                                                                              |
| Operating Temperature        | 0 ~ 40°C                                                                                                                                                                                                         |
| Accuracy                     | 17 ~ 23°C    ± 0.85% rdg (0 ~ ± 2mm/m、0 ~ ± 0.1146°)<br>± 1.0% rdg (± 2 ~ ± 5mm/m、± 0.1146 ~ ± 0.2865°)<br>0 ~ 40°C    ± 2.6% rdg (0 ~ ± 2mm/m、0 ~ ± 0.1146°)<br>± 2.7% rdg (± 2 ~ ± 5mm/m、± 0.1146 ~ ± 0.2865°) |
| Repeatability                | within ± 0.005mm/m • ± 0.0003°                                                                                                                                                                                   |
| Radio System                 | Bluetooth Class1                                                                                                                                                                                                 |
| Power Source                 | "9V" type dry cell (1pc)<br>AC Adapter (AC 100V) included                                                                                                                                                        |
| Run time<br>(Continuous use) | Alkaline dry cell: Approx. 10 hrs<br>※ May vary depending upon measurement conditions                                                                                                                            |
| Dimensions                   | L173 × W59 × H147mm (H : up to top of Antenna)<br>(Base Dimensions : L150 × W55mm)                                                                                                                               |

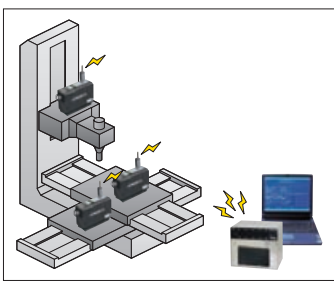
※ % rdg indicates percentage of displayed value

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 010017    | DL-S2W    | 2.1kg  |



# LEVELNIC DATA SYSTEM

Enables data display and saving of up to 8 levelnic with one PC



Example using multiple units with Bluetooth wireless communication

- USE** • For data management of multiple Levelnics
- MATERIALS** • Body: Stainless steel
- FEATURES** • 8 Levelnics can be connected at once
  - Data display software included
- SPECIFICATIONS**

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 010037    | DL-ADP    | 1.6kg  |

|                       |                                                                                                                                                                   |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Input                 | D-SUB (9 pins, male)<br>RS-232C compliant, 8 inputs (For Levelnic connection only)<br>1200 Baud, 1 stop bit, No parity, No handshaking                            |
| Output                | D-SUB (9 pins, male)<br>RS-232C compliant, 1 output (PC connection)<br>9600 Baud, 1 stop bit, No parity<br>No Hardware handshaking                                |
| Operating Temperature | 0 ~ 40°C                                                                                                                                                          |
| Power Source          | AC100V Adapter [DC9V Output] (Included)<br>AAA batteries (1.5V) 6 pc<br>※ Run time depends on number of Levelnics                                                 |
| Dimensions            | W180 × H150 × D130mm                                                                                                                                              |
| Applicable Levelnic   | DL-S3, DL-S3C, DL-S3L, DL-m3, DL-m3LS, DL-S2W<br>※ DL-P5AD, DL-P6 can also use cable connection<br>※ DL-S2W, DL-BW can connect using built-in wireless capability |

## LEVELNIC DISPLAY

Can display data at a distance of 50-100m (line-of-sight). Enables measurement process to be done by one person. The work of two can be done by one person.



Combination example with DL-S2W

- USE** • Levelnic measurement data display
- MATERIALS** • Body: Stainless steel
- FEATURES** • Can divide measurement value into half with one-touch operation (DL-S2W only)
- SPECIFICATIONS**

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 010024    | DL-D4     | 330g   |

|                           |                                                                                                                                                                        |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Display Range             | As per Levelnic spec.                                                                                                                                                  |
| Minimum Reading           | As per Levelnic spec.                                                                                                                                                  |
| Operating Temperature     | 0 ~ 40°C                                                                                                                                                               |
| Input Signal              | Conforms to RS-232C (Levelnic digital output signal only)                                                                                                              |
| Power Source              | " 9V " type dry cell / AC adapter (included)                                                                                                                           |
| Run time (Continuous use) | with wireless connection : Alkaline cell : Approx. 5 hrs<br>with cable connection : Alkaline cell : Approx. 60 hrs<br>※ May vary depending upon measurement conditions |
| Dimensions                | L116 × W62 × H48mm                                                                                                                                                     |
| Applicable Levelnic       | DL-S3, DL-S3C, DL-S3L, DL-m3, DL-m3LS, DL-S2W<br>※ DL-P5AD, DL-P6 can also use cable connection<br>※ Can connect to Wireless such as DL-S2W, DL-BW                     |

## LEVELNIC DL-m1



ANGLE

**Digital display with 0.01mm/m resolution. Unlike bubble level, there is no delay waiting for reading to settle, reducing human error.**

### ■ High accuracy Level Digital Display 0.01mm/m



- **USE**
  - High precision leveling of machine tools and surface plates.
  - Straightness and flatness measurement.
- **MATERIALS**
  - Body: Aluminum
  - Base: Cast iron
- **FEATURES**
  - Compact, Lightweight and simple operation
  - Easy to fix the Datum point, divide measurement value into half with one touch operation
  - Fast output reduces installation time for field work

### ■ SPECIFICATIONS

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 010014    | DL-m1     | 880g   |

|                           |                                                                                                                                                                   |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Measuring Range           | ± 5.00mm/m                                                                                                                                                        |
| Minimum Reading           | 0.01mm/m                                                                                                                                                          |
| Operating Temperature     | 0 ~ 40°C                                                                                                                                                          |
| Accuracy ※                | 17~23°C ±0.02mm/m or ±3% rdg whichever is larger (0~±2mm/m) ±4% rdg (±2~±5mm/m)<br>0~40°C ±0.02mm/m or ±5% rdg whichever is larger (0~±2mm/m) ±6% rdg (±2~±5mm/m) |
| Repeatability             | within ± 0.01mm/m                                                                                                                                                 |
| Power Source              | 9V type dry cell, 1 pc                                                                                                                                            |
| Run time (continuous use) | Zinc-carbon cell Approx. 45 hrs, Alkaline cell Approx. 90 hrs.<br>※ May vary depending upon the measurement conditions                                            |
| Dimensions                | L105 × W50 × H73mm (Base Dimensions : L100 × W50mm)                                                                                                               |

※ % rdg indicates the percentage of displayed value

07

## LEVELNIC DL-m3



### ■ High accuracy digital level 0.01mm/m, with RS-232C



- **USE**
  - High precision leveling of machine tools and surface plates.
  - Straightness and flatness measurement.
- **MATERIALS**
  - Body: Aluminum
  - Base: Cast iron
- **FEATURES**
  - Equipped with RS-232C output and Softwares for Data Saving, and calculating Flatness, Straightness
  - Easy to fix the Datum point, divide measurement value into half with one touch operation
  - Digital display for easy to read measurement
  - Compact, Light weight and Simple operation

### ■ SPECIFICATIONS

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 010015    | DL-m3     | 880g   |

|                           |                                                                                                                                                                   |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Measuring Range           | ± 5.00mm/m                                                                                                                                                        |
| Minimum Reading           | 0.01mm/m                                                                                                                                                          |
| Operating Temperature     | 0 ~ 40°C                                                                                                                                                          |
| Accuracy ※                | 17~23°C ±0.02mm/m or ±3% rdg whichever is larger (0~±2mm/m) ±4% rdg (±2~±5mm/m)<br>0~40°C ±0.02mm/m or ±5% rdg whichever is larger (0~±2mm/m) ±6% rdg (±2~±5mm/m) |
| Repeatability             | within ± 0.01mm/m                                                                                                                                                 |
| Output Signal             | Conforms to RS-232C                                                                                                                                               |
| Power Source              | " 9V" type dry cell, 1 pc                                                                                                                                         |
| Run time (continuous use) | Zinc-carbon cell Approx. 35 hrs, Alkaline cell Approx. 70 hrs.<br>※ May vary depending upon measurement conditions                                                |
| Dimensions                | L105 × W50 × H73mm (Base Dimensions : L100 × W50mm)                                                                                                               |

※ % rdg indicates percentage of displayed value

ANGLE

LEVELNIC

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ANGLE

07

# LEVELNIC DL-m3LS

Levelnic DL-m3 on L-type Base  
X axis·Y axis and in addition, Z-axis measurements are possible



- USE** • High precision leveling of machine tools and surface plates. Straightness, flatness and vertical measurement.
- MATERIALS** • DL-m3 Body: Aluminum, Base: Cast iron  
• L type base: Cast iron
- FEATURES** • Digital Display  
• Small and lightweight  
• Equipped with RS-232C output and software for data saving, and calculating flatness, straightness  
• L type base allows measurements in the vertical direction  
• with 130° V groove

※ Base does not have magnetic capability

| Order No. | Model No. | Base Squareness (mm) | Weight |
|-----------|-----------|----------------------|--------|
| 010019    | DL-m3LS   | within ± 0.035       | 2.8kg  |

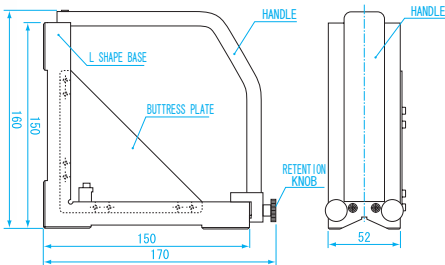
※ DL-m3LS conforms to DL-S3 specifications

## L-TYPE BASE FOR LEVELNIC DL-mL

Levelnic DL-m1, m3 mounted on base will be able to take vertical measurements



### DIMENSIONS Units : mm



※ Base does not have magnetic capability

- MATERIALS** • Cast iron
- FEATURES** • Applicable Levelnic : DL-m1 • DL-m3  
• Levelnic DL-m1, m3 mounted on base will be able to take vertical measurements  
• with 130° V groove

| Order No. | Model No. | Base Squareness (mm) | Weight |
|-----------|-----------|----------------------|--------|
| 010022    | DL-mL     | within ± 0.035       | 1.9kg  |

ANGLE

LEVELNIC

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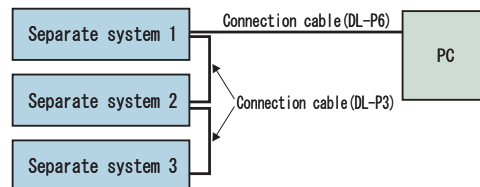
## High accuracy digital Level with output to external display 0.001mm/m



- Digital sensor (DL-S2) • Digital display (DL-D3) • Cable (DL-P1) as combined system.

※ PC is not included

### Example of connecting multiple systems



### USE

- High precision leveling of machine tools and surface plates. Straightness and flatness measurement for digital display

### MATERIALS

- Body: Aluminum • Sensor base : Cast iron

### FEATURES

- Display allows machine tool data obtained by Levelnic to be close at hand.
- When leveling large equipment or in high places, the separate display allows the operator to easily see the data.
- Output data is available on built in RS-232C interface for connection to computer or printer
- Multiple output signals can be combined onto one signal allowing expansion to 2, 3, or 4 devices for easy processing
- Easy to fix the Datum point, divide measurement value into half with one touch operation
- Custom-made base can be attached to the threaded screw holes (M5 × P0.8) in the bottom of digital sensor base

### SPECIFICATIONS

|                              |                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Measuring Range              | $\pm 5.000\text{mm/m} \cdot \pm 0.2865^\circ$                                                                                                                                                                                                                                                                                                                  |
| Minimum Reading              | 0.001mm/m • 0.0001°<br>0.01mm/m • 0.001°                                                                                                                                                                                                                                                                                                                       |
| Operating Temperature        | 0 ~ 40°C                                                                                                                                                                                                                                                                                                                                                       |
| Accuracy                     | 17 ~ 23°C $\pm 0.85\%$ rdg (0 ~ $\pm 2\text{mm/m} \cdot 0 \sim \pm 0.1146^\circ$ )<br>$\pm 1.0\%$ rdg ( $\pm 2 \sim \pm 5\text{mm/m} \cdot \pm 0.1146 \sim \pm 0.2865^\circ$ )<br>0 ~ 40°C $\pm 2.6\%$ rdg (0 ~ $\pm 2\text{mm/m} \cdot 0 \sim \pm 0.1146^\circ$ )<br>$\pm 2.7\%$ rdg ( $\pm 2 \sim \pm 5\text{mm/m} \cdot \pm 0.1146 \sim \pm 0.2865^\circ$ ) |
| Repeatability                | within $\pm 0.005\text{mm/m} \cdot \pm 0.0003^\circ$                                                                                                                                                                                                                                                                                                           |
| Output Signal                | Conforms to RS-232C                                                                                                                                                                                                                                                                                                                                            |
| Power Source                 | AAA battery 6 pc<br>AC adapter (included)                                                                                                                                                                                                                                                                                                                      |
| Run time<br>(Continuous use) | Zinc-carbon cell : Approx. 27 hrs<br>Alkaline cell : Approx. 55 hrs<br>※ May vary depending upon measurement conditions                                                                                                                                                                                                                                        |
| Dimensions                   | DL-S2 L167 × W59 × H111mm (Base Dimension : L150 × W55mm)<br>DL-D3 L235 × W106 × H51mm<br>DL-P1 Length : 5m (standard cable)                                                                                                                                                                                                                                   |

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 010023    | DL-D3     | 1kg    |
| 010012    | DL-S2     | 2kg    |
| 010031    | DL-P1     | 400g   |
| 010033    | DL-P3     | 100g   |

## PC connection cable

### USE

- For connecting Levelnic to PC, printer (DL-P6 not for printer connection)

### FEATURES

- Length:  $\phi 3 \times 5\text{m}$
- DL-P5AD : 25-pin connector, with pin adapter 25 → 9 (serial port connection)
- DL-P6 : 9 pins connector (Serial port connection)
- Applicable Levelnic : DL-m3 • DL-S3 • DL-m3L • DL-S3L • DL-S3C • Separate system

| Order No. | Model No. | Material               |
|-----------|-----------|------------------------|
| 010036    | DL-P5AD   | 2 cond. w/ shield (Cu) |
| 010040    | DL-P6     | 2 cond. w/ shield (Cu) |





ANGLE

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ANGLE

LEVELNIC

PRECISION  
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# LEVELNIC DL-S1



Digital display with 0.01mm/m resolution. Unlike bubble level, there is no delay waiting for reading to settle, reducing human error.

■ Digital display with 0.01mm/m resolution



- USE**
  - High precision leveling of machine tools and surface plates, Straightness and flatness measurement
- MATERIALS**
  - Body : Aluminum
  - Base : Cast iron
- FEATURES**
  - Faster response than bubble level
  - Wider range of measurement than conventional level
  - Measurement can be taken in difficult to see position by pressing hold switch and then reading
- SPECIFICATIONS**

|                           |                                                                                                                         |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Measuring Range           | ± 9.99mm/m                                                                                                              |
| Minimum Reading           | 0.01mm/m                                                                                                                |
| Operating Temperature     | 0 ~ 40℃                                                                                                                 |
| Accuracy                  | 17 ~ 23℃ ± 1.3% rdg<br>0 ~ 40℃ ± 3.0% rdg                                                                               |
| Repeatability             | within ± 0.01mm/m                                                                                                       |
| Power Source              | "9V" type dry cell × 1<br>AC adapter (Optional)                                                                         |
| Run time (continuous use) | Zinc-carbon Cell---Approx. 25 hrs<br>Alkaline Cell---Approx. 50 hrs<br>※ May vary depending upon measurement conditions |
| Dimensions                | L159 × W78 × H104mm (Base Dimension : L150 × W55mm)                                                                     |

※ 1 : AC adapter sold separately  
 ※ 2 : % rdg indicates percentage of displayed value.

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 010011    | DL-S1     | 2.0kg  |

■ Also available with special V-groove base

|                          |                                              |
|--------------------------|----------------------------------------------|
| Model                    | DL - S1V                                     |
| Rolling Error            | Within 0.1mm/m                               |
| Plane and V groove error | 0.05mm/m                                     |
| V groove angle           | 130° (for cylindrical objects up to φ 65mm ) |

**High-sensitive (0.01mm/m) Pendulum type level with analog output.**  
**Three levels of sensitivity**

## ■ Analog Display 0.01mm/m

**USE** • Leveling of machine tools and surface plates. Straightness and flatness measurements.

**MATERIALS** • Body : Aluminum  
 • Base : Cast iron

**FEATURES**

- Quicker response than bubble level
- Sensitivity is switchable in 3 steps
- Connectible directly to commonly-available analog recorder through analog output
- Custom-made base can be attached to the threaded screw holes (M5 × P0.8) in the bottom of level base(flat base)
- Automatically switches from DC to AC when the adapter is connected
- Pendulum system prevents any hysteresis errors and is not influenced by temperature change.



## ■ SPECIFICATIONS

|                              |                                                                                                                       |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| Sensitivity                  | I : 1 Division = 0.01mm/m<br>II : 1 Division = 0.05mm/m<br>III : 1 Division = 0.1mm/m                                 |
| Measuring Range              | ± 0.2mm/m (1 Division 0.01mm/m)<br>± 1mm/m (1 Division 0.05mm/m)<br>± 2mm/m (1 Division 0.1mm/m)                      |
| Operating Temperature        | 0 ~ 40℃                                                                                                               |
| Pointing Error               | within ± 0.5 Division                                                                                                 |
| Repeatability Accuracy       | within ± 0.005mm/m                                                                                                    |
| Output Signal                | Analog output<br>± 200mV F.S. (for all range)<br>Connectible load resistance: No less than 100 Ω                      |
| Power Source                 | "9V" type dry cell, 1 pc<br>AC Adapter (included)                                                                     |
| Run time<br>(continuous use) | Zinc-carbon Cell : Approx. 25 hrs<br>Alkaline cell : Approx. 50hrs<br>※ May vary depending upon measurement condition |
| Base Dimension               | L150 × W85 × H195mm ※ Excluding Handle (Dimension : L150 × W55mm)                                                     |

| Oeder No. | Model No. | Weight |
|-----------|-----------|--------|
| 010005    | EL-01A    | 2.9kg  |

## Connection Cable / EL-K2

**USE** • Connects to analog recorder with analog output of EL-01A

**FEATURES**

- Length : ϕ 3 × 5m
- Recorder: Banana plug
- Levelnic : M3 plug

| Oeder No. | Model No. | Weight |
|-----------|-----------|--------|
| 010082    | EL-K2     | 150g   |



# SOFTWARE FOR LEVELNIC

**Software for Levelnic.**  
Simple operation and graphics for easy use and understanding

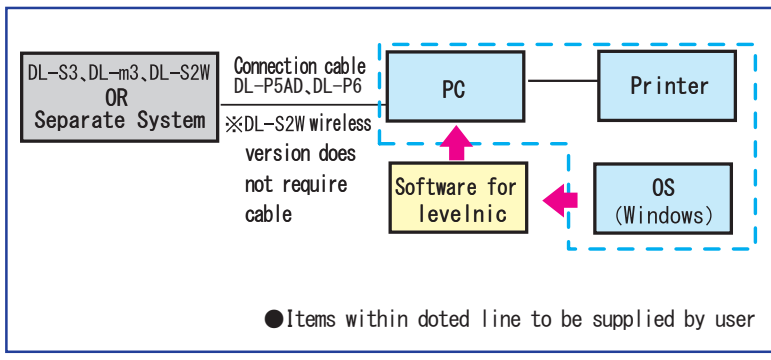
Straightness measurement computer software(ST)  
Flatness measurement computer software (FL)

- Greatly reduces measurement time by recording the results for straightness and flatness measurements
- For cabled and wireless system
- Supported OS : Windows 95 • 98 • ME • 2000 • XP • Vista • 7
- Direct input from DL-S2+D3,DL-S3,DL-S3C,DL-S3L,DL-m3,DL-m3LS,DL-S2W, and Separate System

■ Flatness measurement



■ Straightness measurement while connected to PC



## No need to install the software to PC

Only drag and drop .exe file, and double click to start. Also can be used directly from USB memory.

## Input selection

Data can be manually typed in from any level, including bubble tube type level.

## Input signal from Levelnic over RS-232C

With computer connected to the Levelnic output, sequential measurements taken at regular intervals can be used to calculate flatness and straightness for display, printing and storage. (saved measurement data can not be revised)

## Input typed onto keyboard from bubble level for display, calculation and storage

Using a bubble level, and keyboard to enter data, sequential measurement taken at regular intervals can be used for calculation, display and storage.

## Displacement measurements (μm) typed onto keyboard for display, calculation and storage

Measurement of displacement from a reference plane made with a linear gauge or dial indicator at regular intervals can be used in place of an electronic angle gauge (goniometer) and entered into keyboard for calculation, display and storage.



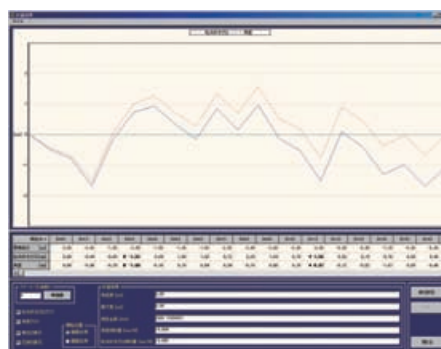
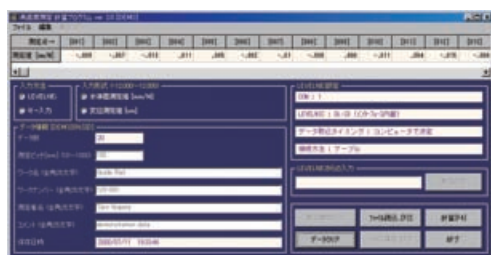
## LEVELNIC MEASUREMENT SOFTWARE

Use to easily calculate flatness and straightness when connected to Levelnic with cable or wireless connection

### Straightness software ver. 2.0

● With straightness software Levelnic can easily perform the straightness measurements that once required an autocollimator, and for a lower cost!

■ Straightness measurement



■ **USE** • Software to perform straightness calculations

### FEATURES

- Both wired and wireless capability
- Model compatibility: DL-S2 + D3 • DL-S3 • DL-S3C • DL-S3L • DL-m3 • DL-m3LS • DL-S2W
- ※ Above compatibility applies for direct connection. Data can be manually typed in from any model, including bubble tube type level.

### SPECIFICATIONS

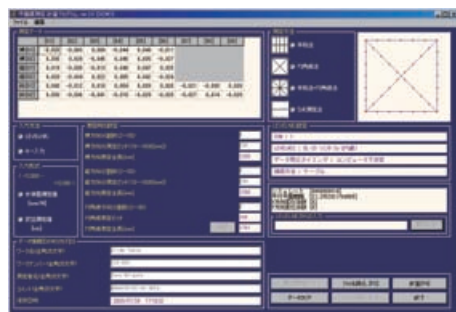
- Supports : Windows 95 • 98 • ME • 2000 • XP • Vista • 7

| Order No. | Model No. |
|-----------|-----------|
| 010066    | ST        |

### Flatness software Ver. 2.0

● With Flatness software Levelnic can easily perform the flatness measurements that once required an autocollimator, and for a lower cost!

■ Flatness measurement



■ **USE** • Software to perform flatness calculations

### FEATURES

- Both wired and wireless capability
- Model compatibility: DL-S2 + D3 • DL-S3 • DL-S3C • DL-S3L • DL-m3 • DL-m3LS • DL-S2W
- ※ Above compatibility applies for direct connection. Data can be manually typed in from any model, including bubble tube type level.

### SPECIFICATIONS

- Supports : Windows 95 • 98 • ME • 2000 • XP • Vista • 7

| Order No. | Model No. |
|-----------|-----------|
| 010065    | FL        |

### Data Record Software Ver. 2.0

■ **USE** • Records output data from Levelnic

■ **FEATURES** • Levelnic measurements are recorded to text file

- Model compatibility: DL-S2 + D3 • DL-S3 • DL-S3C • DL-S3L • DL-m3 • DL-m3LS • DL-S2W

### SPECIFICATIONS

- Supports : Windows 95 • 98 • ME • 2000 • XP • Vista • 7

| Order No. | Model No. |
|-----------|-----------|
| 010067    | LEVELOG   |



ANGLE

07

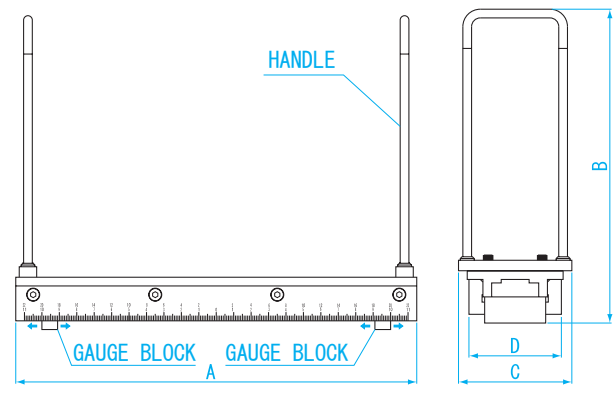
# LEVELNIC BASE WITH ADJUSTABLE PITCH

By attaching Levelnic to this base, any desired measurement pitch can be set



LP-300

## DIMENSIONS



**USE** • Setting a fixed pitch for straightness and flatness measurements

## FEATURES

- Made of Carbon tool steel
- Applicable levelnic: DL-S2 • DL-S3 • DL-S3C • DL-S2W • EL-01A
- The base is graduated in mm and enables setting measurement pitch
- Measuring face consists of 2 pcs of 15mm Gauge block

Units : mm

| Model No. | A   | B   | C  | D  |
|-----------|-----|-----|----|----|
| LP-200    | 230 | 180 | 65 | 55 |
| LP-300    | 330 | 180 | 65 | 55 |

| Order No. | Model No. | Measurement pitch range (mm) | Weight |
|-----------|-----------|------------------------------|--------|
| 010020    | LP-200    | 50 ~ 200                     | 1.8kg  |
| 010021    | LP-300    | 50 ~ 300                     | 2kg    |

# CASE FOR LEVELNIC



Shock resistant aluminum case for Levelnic. Suitable for storage and carrying



LV-CS3



LV-CM1

## FEATURES

- Carrying case for Levelnic (Levelnic is a precision instrument, we recommend that you use a carrying case)
- Body : Aluminum
- Inside : Urethane foam
- Applicable levelnic :  
LV-CS3 : DL-S1 • DL-S2 • DL-S2W • DL-S3 • DL-S3C  
LV-CM1 : DL-m1 • DL-m3
- Shock protection during transport

| Order No. | Model No. | Dimensions (mm) | Weight |
|-----------|-----------|-----------------|--------|
| 010025    | LV-CS3    | 362 × 236 × 184 | 1.86kg |
| 010026    | LV-CM1    | 250 × 200 × 150 | 1.15kg |

ANGLE

LEVELNIC

PRECISION LEVEL

ANGLE LEVEL

LEVEL

PROTRACTOR





## PRECISION LEVEL (JIS CLASS A)



- USE**
- Bubble tube indicates horizontal and measures small inclinations
  - Precision measurement for machine inspection and leveling

**FEATURES**

- JIS B7510 standard product
- Special tool steel body (hardened) is lapped and polished
- Sensitivity : 0.02mm/m
- Accuracy of the main bubble Full range accuracy : less than  $\pm 0.5$  graduation  
Adjacent accuracy : less than 0.2 graduation
- Parallelism between V groove and base : within 0.5 graduation
- Parallelism on base : within 0.003mm

| Order No. | Model No.  | Standard (mm) | Dimensions<br>L × W × H (mm) | Weight |
|-----------|------------|---------------|------------------------------|--------|
| 160001    | FLA-150002 | 150           | 150 × 44 × 42                | 1.6kg  |
| 160002    | FLA-200002 | 200           | 200 × 46 × 42                | 2.3kg  |
| 160003    | FLA-250002 | 250           | 250 × 46 × 42                | 2.5kg  |
| 160004    | FLA-300002 | 300           | 300 × 46 × 42                | 3.2kg  |

## PRECISION LEVEL



- USE**
- Bubble tube indicates horizontal and measures small inclinations
  - For machine installation and general mechanical assembly

**FEATURES**

- Quality cast iron(FC250) with perfect seasoning and lapped to a fine finish to maintain precision
- Sensitivity : 0.02mm/m

| Order No. | Model No.  | Standard (mm) | Dimensions<br>L × W × H (mm) | Weight |
|-----------|------------|---------------|------------------------------|--------|
| 160005    | FLW-150002 | 150           | 150 × 44 × 42                | 1.6kg  |
| 160006    | FLW-200002 | 200           | 200 × 46 × 42                | 2.3kg  |
| 160007    | FLW-250002 | 250           | 250 × 46 × 42                | 2.5kg  |
| 160008    | FLW-300002 | 300           | 300 × 46 × 42                | 3.2kg  |



ANGLE

07

## SQUARE PRECISION LEVEL (JIS CLASS A)

- USE**
- Bubble tube indicates horizontal and measures small inclination
  - Precision measurement for machine inspection and leveling

**FEATURES**

- JIS B7510 standard product
- Special tool steel body (hardened) is lapped and polished
- Sensitivity : 0.02mm/m
- Accuracy of the main bubble
  - Full range of the main bubble : less than  $\pm 0.5$  graduation
  - Adjacent accuracy : less than 0.2 graduation
- Perpendicularity of sides and bottom : less than 0.015mm/m
- Parallelism of V groove and V groove surface : less than 0.5 graduation
- Parallelism of top and bottom : less than 0.5 graduation
- Flatness of bottom and sides : less than 0.003mm



| Order No. | Model No.  | Standard (mm) | Dimensions<br>L × W × H (mm) | Weight |
|-----------|------------|---------------|------------------------------|--------|
| 160009    | SLA-150002 | 150           | 150 × 40 × 150               | 2.8kg  |
| 160010    | SLA-200002 | 200           | 200 × 43 × 200               | 4.6kg  |
| 160011    | SLA-250002 | 250           | 250 × 45 × 250               | 7.2kg  |
| 160012    | SLA-300002 | 300           | 300 × 47 × 300               | 8.8kg  |

## GENERAL PURPOSE SQUARE PRECISION LEVEL



- USE**
- Bubble tube indicates horizontal and measures small inclinations
  - Ideal for machine assembly and general purpose use

**FEATURES**

- Quality cast iron (FC250) with perfect seasoning and lapped to a fine finish to maintain precision
- Sensitivity : 0.02mm/m

| Order No. | Model No.  | Standard (mm) | Dimensions<br>L × W × H (mm) | Weight |
|-----------|------------|---------------|------------------------------|--------|
| 160013    | SLW-150002 | 150           | 150 × 40 × 150               | 2.8kg  |
| 160014    | SLW-200002 | 200           | 200 × 43 × 200               | 4.6kg  |
| 160015    | SLW-250002 | 250           | 250 × 45 × 250               | 7.2kg  |
| 160016    | SLW-300002 | 300           | 300 × 47 × 300               | 8.8kg  |

ANGLE

LEVELING

PRECISION  
LEVEL

ANGLE  
LEVEL

LEVEL

PROTRACTOR

## DIGITAL PROTRACTOR DP-50



ANGLE

07

**Digital angle measurement. High precision measurement & quick measurement time**

- USE**
  - For angle of tilt measurement
- MATERIALS**
  - Body : Aluminum
- FEATURES**
  - Digital angle meter is useful tool for every site
  - Slit encoder ensures accuracy and stability
  - Zero setting not required
  - Zero setting function
  - Display hold function
  - Measuring face : V-Groove (2 sides)
  - Vertical sides are magnetic
  - Display unit : DEG



### SPECIFICATIONS

|                              |                                                                                        |
|------------------------------|----------------------------------------------------------------------------------------|
| Measuring Range              | ± 50°                                                                                  |
| Minimum Reading              | 0.1°                                                                                   |
| Accuracy                     | ± 0.1° (0 ~ 50°)                                                                       |
| Repeatability                | ± 0.1°                                                                                 |
| Operating Temperature        | 0 ~ 50°C                                                                               |
| Display Units                | DEG                                                                                    |
| Dimensions                   | L141 × W47 × H109mm (excluding protrusions)                                            |
| M5 Mounting holes            | Screw hole spacing- 80mm (distance from end to screw hole -11mm)                       |
| Power Source                 | "9V" type dry cell, 1 pc                                                               |
| Run time<br>(continuous use) | Alkaline dry cell : Approx. 15 hrs<br>※ May vary depending upon measurement conditions |
| Accessories                  | Soft case, Manual, 9V battery                                                          |

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 010091    | DP-50     | 950g   |

## DIGITAL PROTRACTOR DP-90



**Digital angle measurement. High precision measurement & quick measurement time**

- USE**
  - Angle of tilt measurement
- MATERIALS**
  - Body: Aluminum
- FEATURES**
  - Wide range of measurement (90°)
  - Automatically reverses display when turned upside down
  - Display options : DEG, mm/m, % slope
  - Notification tones for 0°, 90° and for 0%, 0mm/m
  - Display hold function
  - Measuring surface : V-Groove, with magnet
  - Auto power off function (after 6 min)



### SPECIFICATIONS

|                       |                                                                      |
|-----------------------|----------------------------------------------------------------------|
| Measuring Range       | ± 90°                                                                |
| Minimum Reading       | Degree display : 0.05°<br>Percent display : 0.1%<br>Gradient : 1mm/m |
| Accuracy              | 0.0° ~ 90.0° = ± 0.2°                                                |
| Operating Temperature | 0 ~ 50°C                                                             |
| Display Setting Time  | Approx. 10 sec                                                       |
| Power Source          | "9V" type dry cell, 1 pc                                             |
| Dimensions            | L173 × W47 × H68mm (excluding protrusions)                           |
| Accessories           | Soft case, Manual, 9V dry cell                                       |

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 010092    | DP-90     | 550g   |

ANGLE

LEVELNIC

PRECISION  
LEVEL

ANGLE  
LEVEL

LEVEL

PROTRA  
CTOR



# DIGITAL ANGLE GAUGE DP-10XY

New product! This two-axis digital inclinometer takes measurements in X and Y direction at same time With 0 cal., 1/2 cal. features, can also be used as a level



Output from sensors can also be displayed or recorded on PC with dedicated software.

**USE** • Surface plate and machine tool angle of inclination measurement

- MATERIAL**
- Case: Aluminum
  - Base: Aluminum alloy

- FEATURES**
- Simultaneously measures angle of inclination in X and Y directions making leveling tasks easier
  - Display is switchable to show only X, only Y, or XY measurements
  - 0-cal. and 1/2 cal. switches allow calibration at the touch of a button.
  - In sensor mode, the measurement range is  $\pm 9.998^\circ$  with minimum reading of  $0.002^\circ$  (0-cal. and 1/2 cal. can not be used in this mode)
  - Built in output for display of sensor reading on PC
  - Back-light display
  - Output from sensors can also be displayed or recorded on PC with dedicated software.

## SPECIFICATIONS

|                                    |                                                                                                                                       |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Measuring range                    | $\pm 9.99^\circ$                                                                                                                      |
| Minimum reading                    | $0.01^\circ$                                                                                                                          |
| Operating temperature              | $0 \sim 40^\circ\text{C}$                                                                                                             |
| Accuracy                           | $\pm 0.01^\circ$ (for measuring range less than $\pm 2^\circ$ )<br>$\pm 0.05^\circ$ (for measuring range greater than $\pm 2^\circ$ ) |
| Repeatability                      | $\pm 0.01^\circ$                                                                                                                      |
| XY orthogonal accuracy             | 1%                                                                                                                                    |
| Response time (measurement period) | approx. 2.5s                                                                                                                          |
| Output signal                      | Conforms to RS-232C                                                                                                                   |
| Power                              | 2x AA cells<br>AC Adapter (3V)                                                                                                        |
| Run time (continuous use)          | Alkaline cells approx. 10 hrs.<br>※ may vary depending on measurement conditions                                                      |
| Dimensions                         | L88 × W85 × H73mm                                                                                                                     |

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 010093    | DP-10XY   | 560g   |



**New Products! Wireless 2-axis digital angle gauge with remote display set. Capable of simultaneous X and Y measurements.**

|                                    |                                                                                                                                       |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Model                              | Sensor:DP-10S    Display:DP-10D                                                                                                       |
| Measuring range                    | $\pm 9.99^\circ$                                                                                                                      |
| Minimum reading                    | 0.01°                                                                                                                                 |
| Operating temperature              | 0 ~ 40°C                                                                                                                              |
| Accuracy                           | $\pm 0.01^\circ$ (for measuring range less than $\pm 2^\circ$ )<br>$\pm 0.05^\circ$ (for measuring range greater than $\pm 2^\circ$ ) |
| Wireless                           | Bluetooth Class 1                                                                                                                     |
| Communication range                | 30 ~ 50m                                                                                                                              |
| Repeatability                      | $\pm 0.01^\circ$                                                                                                                      |
| XY orthogonal accuracy             | 1%                                                                                                                                    |
| response time (measurement period) | approx. 2.5s                                                                                                                          |
| Output signal                      | Conforms to RS-232C (DP-10D)                                                                                                          |
| Power                              | 2x AA cells each / AC Adapter (3V)                                                                                                    |
| Run time (continuous use)          | DP-10S: approx. 10 hrs. (communicating)<br>Alkaline cells approx 4 hrs. (waiting to communicate)                                      |
| DP-10D : About 10 hrs.             |                                                                                                                                       |
| Dimensions                         | DP-10S : L85 × W85 × H73mm<br>DP-10D : L145 × W76 × H30mm                                                                             |
| Weight                             | DP-10S : 540g                                                                                                                         |
| (Including battery)                | DP-10D : 230g                                                                                                                         |



DP-10S



DP-10D

**USE** • Surface plate and machine tool angle of inclination measurement

**MATERIAL**

- DP-10S...Case:Aluminum / Base: Aluminum alloy
- DP-10D...Case: ABS

**FEATURES**

- Simultaneously measures angle of inclination in X and Y directions making leveling tasks easier
- Display is switchable to show only X, only Y, or XY measurements
- 0-cal. and 1/2 cal. switches allow calibration at the touch of a button.
- In sensor mode, the measurement range is  $\pm 9.998^\circ$  with minimum reading of 0.002° (0-cal. and 1/2 cal. can not be used in this mode)0-cal. and 1/2 cal. switches allow calibration at the touch of a button.
- In sensor mode, the measurement range is  $\pm 9.998^\circ$  with minimum reading of 0.002° (0-cal. and 1/2 cal. can not be used in this mode)
- Built in output for display of sensor reading on PC
- Output from sensors can also be displayed or recorded on PC with dedicated software.

| Order No.  | Model No.           |
|------------|---------------------|
| NEW 010094 | DP-10S • DP-10D SET |

## DIGITAL LEVEL SENSOR

**New Product! Can be used as built in two-axis sensor for OEM equipment.**

**USE** • Sensors for measurement and control of angle of inclination in machine tools, construction machinery, structures, etc.

**MATERIAL**

- Case : Aluminum

**FEATURES**

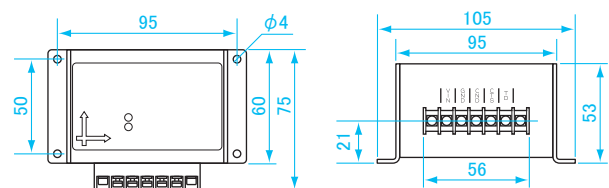
- Simultaneously measures angle of inclination in X and Y directions
- When power applied, angle of inclination is output via RS-232C signal. (Power and output connection via terminal block)
- Output from sensors can also be displayed or recorded on PC with dedicated software.

|                                    |                                                                                                                                       |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Measuring Range                    | $\pm 9.998^\circ$                                                                                                                     |
| Minimum reading                    | 0.002°                                                                                                                                |
| Operating temperature              | 0 ~ 40°C                                                                                                                              |
| Accuracy                           | $\pm 0.01^\circ$ (for measuring range less than $\pm 2^\circ$ )<br>$\pm 0.05^\circ$ (for measuring range greater than $\pm 2^\circ$ ) |
| Repeatability                      | $\pm 0.01^\circ$                                                                                                                      |
| XY orthogonal accuracy             | 1%                                                                                                                                    |
| response time (measurement period) | approx. 2.5s                                                                                                                          |
| Output signal                      | Conforms to RS-232C                                                                                                                   |
| Power                              | DC9 to 15V (approx 70mA)                                                                                                              |
| Dimensions                         | L105 × W75 × H53mm                                                                                                                    |



**DIMENSIONS**

Units : mm



| Order No.  | Model No. | Weight |
|------------|-----------|--------|
| NEW 010096 | DP-10M    | 270g   |





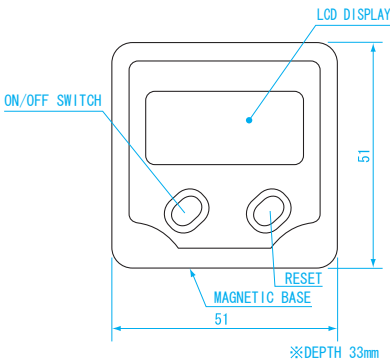
# BEVEL BOX BB-180

Compact design digital angle meter



## DIMENSIONS

Units : mm



- USE** • For all processes that require precise angle measurement, such as assembly, molding, machining and fixtures.
- MATERIALS** • Aluminum frame, Plastic face/back, magnet on base
- FEATURES**
  - Zero-setting at desired position
  - Auto power off function (after 5 min.)
  - One CR2032 (Lithium) battery included for testing

| Order No. | Model No. | Measuring Range | Resolution | Operating Temperature | Accuracy* | Repeatability | Weight |
|-----------|-----------|-----------------|------------|-----------------------|-----------|---------------|--------|
| 010101    | BB-180    | ± 180.0°        | 0.1°       | 5 ~ 45°C              | ± 0.2°    | 0.1°          | 120g   |

※ Quantization Error ( ± 1 digit ) not included



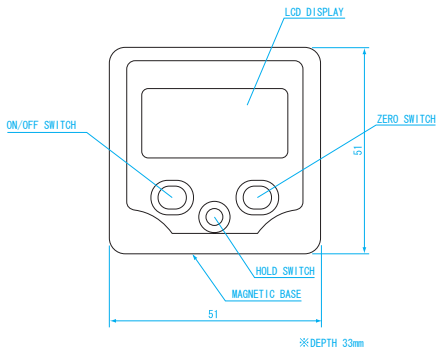
# BEVEL BOX BB-180A

Compact design digital angle meter  
Absolute measurement mode stores true horizontal



## DIMENSIONS

Units : mm



- USE** • For all processes that require precise angle measurement, such as assembly, molding, machining and fixtures.
- MATERIALS** • Body : Aluminum (with magnet on base)
- FEATURES**
  - Zero setting at desired position
  - Absolute measurement mode stores true horizontal
  - "Hold" button to fix reading on display
  - Auto power off function (after 5 min. )
  - One CR2032 (Lithium) battery included for testing



| Order No. | Model No. | Measuring Range | Resolution | Operating Temperature | Accuracy* | Repeatability | Weight |
|-----------|-----------|-----------------|------------|-----------------------|-----------|---------------|--------|
| 010102    | BB-180A   | ± 180.0°        | 0.1°       | 5 ~ 45°C              | ± 0.2°    | 0.1°          | 170g   |

※ Quantization Error ( ± 1 digit ) not included

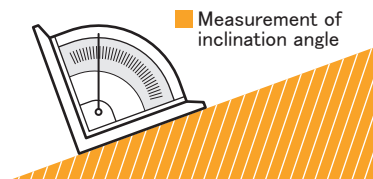
## LEVEL METER LM-90



ANGLE

07

### Analog type goniometer with magnetic base



**USE** • Measurement of inclination angle

#### **MATERIALS**

- Plastic

#### **FEATURES**

- Analog dial easier to read than bubble tube type meter
- With magnetic base to enables measuring horizontal and vertical angle
- Light weight, easy to use

#### **SPECIFICATIONS**

- Measuring range : 0 ~ 90 °
- Graduation : 1 °
- Accuracy : ± 0.5 °

| Order No. | Model No. | Dimensions<br>(H) × (W) × (T) (mm) | Weight |
|-----------|-----------|------------------------------------|--------|
| 011010    | LM-90     | 95 × 95 × 30                       | 120g   |

## LEVEL MATE LM-360



### Analog type goniometer With magnet for vertical surfaces



#### **USE**

- Angle of tilt measurement
- Mechanical assembly, installation
- Setting angles for machine work
- Miscellaneous plumbing work
- Construction and related work

#### **MATERIALS**

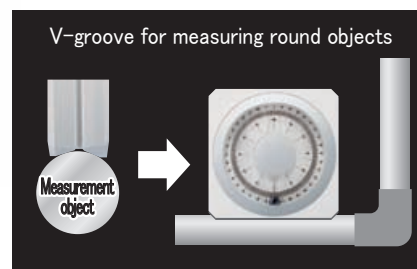
- Plastic

#### **FEATURES**

- V groove on bottom, magnet for vertical surface

#### **SPECIFICATIONS**

- Measurement range : 0 ~ 360 °
- Graduation : 1 °
- Reading accuracy : ± 0.5 °



| Order No. | Model No. | Dimensions<br>(H) × (W) × (T) (mm) | Weight |
|-----------|-----------|------------------------------------|--------|
| 011030    | LM-360    | 110 × 110 × 20                     | 140g   |



ANGLE

07

# DIAL SLANT RULE



## Analog dial angle meter



DSR-ST

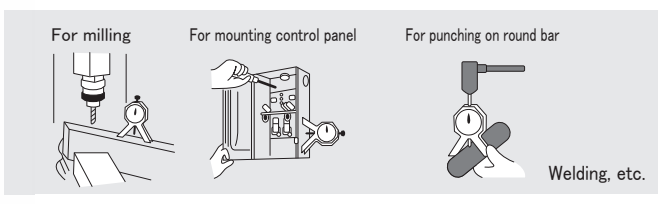


DSR-MG  
(with magnet)

- USE** • Measurement of inclination angle
- MATERIALS** • Plastic
- FEATURES**
  - Analog dial easier to read than bubble tube type meter
  - Light weight and easy to use
- SPECIFICATIONS**
  - Measuring Range : 0 ~ 180 °
  - Graduation : 1 °
  - Accuracy : ± 0.5 °

| Order No. | Model No. | Dimensions<br>(L) × (H) × (W) (mm) | Weight |
|-----------|-----------|------------------------------------|--------|
| 011000    | DSR-ST    | 182 × 92 × 20                      | 80g    |
| 011001    | DSR-MG    | 182 × 92 × 20                      | 90g    |

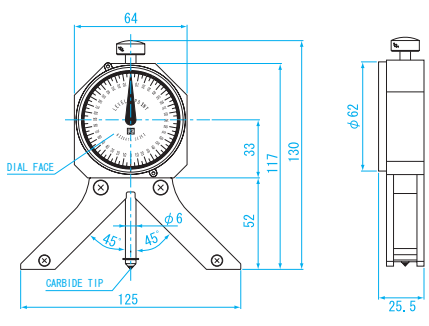
# LEVEL POINT GAUGE



- USE** • Measure angle of round bar, or center punch at exact angle
- MATERIALS** • Body : Aluminum • Leg : Steel
- FEATURES**
  - One touch direct angle reading
  - You can quickly and accurately measure any angle from horizontal to vertical
  - Punch end is carbide tipped
  - Magnetic feet
- SPECIFICATIONS**
  - Measuring Range : 0 ~ 360 °
  - Accuracy : within 1 °
  - Graduation : 1 °
  - Applicable diameter for V base : φ20 ~ 100mm

## DIMENSIONS

Units : mm



| Order No. | Model No. | Dimensions<br>(H) × (W) × (T) (mm) | Weight |
|-----------|-----------|------------------------------------|--------|
| 011022    | LP-360    | 130 × 125 × 25                     | 400g   |

ANGLE

LEVEL

PRECISION  
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LEVEL

PROTRACTOR

Horizontal, vertical, and 45° measurements in one level  
Magnetic measuring surface (ALM series)



ALM-600

**USE** • Horizontal, vertical, and 45° measurements

**MATERIAL**

- Aluminum

**FEATURES**

- V-grooved measuring surface for convenient measurement on round objects
- Can measure 1/100 and 2/100 gradient.
- Magnifying lens on horizontal bubble tube for easy reading
- ALM type with magnet
- With scale on both sides

**SPECIFICATIONS**

- Horizontal bubble tube Sensitivity: 0.35mm/m=0.0201°  
Accuracy:  $\pm 1.00\text{mm/m} = \pm 0.0573^\circ$
- Vertical bubble tube Sensitivity: 0.50mm/m=0.0286°  
Accuracy:  $\pm 1.50\text{mm/m} = \pm 0.0859^\circ$

| Order No. | Model No. | Type        | Bubble tube type        | Length (mm) | Height (mm) | Thickness (mm) | Weight |
|-----------|-----------|-------------|-------------------------|-------------|-------------|----------------|--------|
| 111200    | ALM-150   | with magnet | Horizontal              | 150         | 56          | 25             | 164g   |
| 111201    | ALM-230   | with magnet | Horizontal vertical     | 230         | 56          | 25             | 220g   |
| 111202    | ALM-300   | with magnet | Horizontal Vertical 45° | 300         | 56          | 25             | 340g   |
| 111203    | ALM-380   | with magnet | Horizontal Vertical 45° | 380         | 56          | 25             | 380g   |
| 111204    | ALM-450   | with magnet | Horizontal Vertical 45° | 450         | 56          | 25             | 410g   |
| 111205    | ALM-600   | with magnet | Horizontal Vertical 45° | 600         | 56          | 25             | 500g   |
| 111206    | ALM-750   | with magnet | Horizontal Vertical 45° | 750         | 56          | 25             | 630g   |
| 111207    | ALM-900   | with magnet | Horizontal Vertical 45° | 900         | 56          | 25             | 770g   |
| 111208    | ALM-1200  | with magnet | Horizontal Vertical 45° | 1200        | 56          | 25             | 930g   |
| 111209    | ALM-1500  | with magnet | Horizontal Vertical 45° | 1500        | 56          | 25             | 1200g  |
| 111210    | ALM-1800  | with magnet | Horizontal Vertical 45° | 1800        | 56          | 25             | 1340g  |
| 111211    | ALS-150   | —           | Horizontal              | 150         | 56          | 25             | 100g   |
| 111212    | ALS-300   | —           | Horizontal Vertical 45° | 300         | 56          | 25             | 194g   |
| 111213    | ALS-380   | —           | Horizontal Vertical 45° | 380         | 56          | 25             | 234g   |
| 111214    | ALS-450   | —           | Horizontal Vertical 45° | 450         | 56          | 25             | 270g   |
| 111215    | ALS-600   | —           | Horizontal Vertical 45° | 600         | 56          | 25             | 345g   |
| 111216    | ALS-900   | —           | Horizontal Vertical 45° | 900         | 56          | 25             | 492g   |
| 111217    | ALS-1200  | —           | Horizontal Vertical 45° | 1200        | 56          | 25             | 622g   |

ANGLE

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GRADE LEVEL



USE

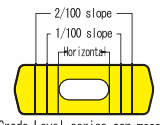
- Measuring horizontal, vertical

MATERIALS

- Body : Aluminum

FEATURES

- Luminous vial can be seen clearly, even in the dark
- Graduations at 1/100, 2/100 inclination value
- Vial has large lens for easy reading
- GLM type are with magnet



Grade Level series can measure 1/100 slope and 2/100 slope



Sensitivity is the amount of gradient required to make the bubble move.  
Precision [0° ± precision value] is the range of variation in the reading

| Order No. | Model No. | Length (mm) | Height (m) | Thickness (mm) | Sensitivity (mm/m) | Precision (mm/m) | Weight | Note        |
|-----------|-----------|-------------|------------|----------------|--------------------|------------------|--------|-------------|
| 011049    | GL-230    | 230         | 45         | 22             | 0.35               | ± 1.00           | 190g   |             |
| 011050    | GL-300    | 300         | 45         | 22             | 0.35               | ± 1.00           | 220g   |             |
| 011051    | GL-380    | 380         | 45         | 22             | 0.35               | ± 1.00           | 270g   |             |
| 011052    | GL-450    | 450         | 45         | 22             | 0.35               | ± 1.00           | 300g   |             |
| 011053    | GL-600    | 600         | 45         | 22             | 0.35               | ± 1.00           | 390g   |             |
| 011054    | GL-900    | 900         | 45         | 22             | 0.35               | ± 1.00           | 560g   |             |
| 011060    | GLM-300   | 300         | 50         | 20             | 0.35               | ± 1.00           | 320g   | with magnet |
| 011061    | GLM-380   | 380         | 50         | 20             | 0.35               | ± 1.00           | 360g   | with magnet |
| 011062    | GLM-450   | 450         | 50         | 20             | 0.35               | ± 1.00           | 400g   | with magnet |
| 011063    | GLM-600   | 600         | 50         | 20             | 0.35               | ± 1.00           | 460g   | with magnet |

MINI LEVEL



USE

- Horizontal measurements for construction, installation, and leveling machinery

MATERIALS

- Acrylic resin, aluminum, cast iron



Sensitivity is the amount of gradient required to make the bubble move.  
Precision [0° ± precision value] is the range of variation in the reading

| Order No. | Model    | Type                 | Length (mm) | Height (mm) | Thickness (mm) | Sensitivity (mm/m) | Precision (mm/m) | Weight |
|-----------|----------|----------------------|-------------|-------------|----------------|--------------------|------------------|--------|
| 011070    | CT-70    | Acrylic resin/ Cross | 70          | 25          | 15             | 0.5                | ± 1.5            | 40g    |
| 011071    | CS-70    | Acrylic resin/ Scale | 70          | 35          | 12             | 0.5                | ± 2.5            | 40g    |
| 011072    | CR-24    | Acrylic resin/ Round | ø 24        | —           | 10             | 0.5                | ± 2.5            | 10g    |
| 011077    | A-90-13  | Aluminum/ Hex        | 90          | 13          | —              | 0.5                | ± 1.5            | 20g    |
| 011078    | A-90-17  | Aluminum/ Hex        | 90          | 17          | —              | 0.5                | ± 1.5            | 50g    |
| 011079    | A-105-13 | Aluminum/ Hex        | 105         | 13          | —              | 0.5                | ± 1.5            | 20g    |
| 011080    | A-105-17 | Aluminum/ Hex        | 105         | 17          | —              | 0.5                | ± 1.5            | 50g    |
| 011081    | S-65     | Aluminum/ Straight   | 65          | 20          | 14             | 0.5                | ± 1.5            | 40g    |
| 011082    | S-90     | Aluminum/ Straight   | 90          | 20          | 14             | 0.5                | ± 1.5            | 50g    |
| 011083    | T-50     | Aluminum/ Flat       | 50          | 30          | 15             | 0.5                | ± 1.5            | 50g    |
| 011084    | T-100    | Aluminum/ Flat       | 100         | 30          | 15             | 0.5                | ± 1.5            | 120g   |
| 011085    | F-90     | Cast iron            | 90          | 20          | 30             | 0.5                | ± 1.5            | 180g   |





Twice as strong as our other magnetic levels



ML-100KB



ML-150KW

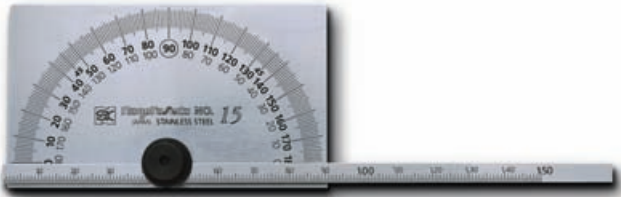
- USE** • Horizontal, vertical, and 45° measurements
- MATERIAL** • Plastic
- FEATURES**
  - Magnetic measuring surface (Attraction force: 118N)
  - V-grooved measuring surface for convenient measurement on round objects
- SPECIFICATIONS**
  - Bubble tube sensitivity: 0.50mm/m=0.0286°
  - Vial accuracy: within ± 1.50mm/m= ± 0.0859°
  - 4-line acrylic bubble tube with phosphorescent tape with 360° acrylic spot level (ML-100KB • ML-100KW)

| Order No. | Model No. | Color | Bubble tube type            | Length (mm) | Height (mm) | Thickness (mm) | Weight |
|-----------|-----------|-------|-----------------------------|-------------|-------------|----------------|--------|
| 111218    | ML-100KB  | Black | Horizontal - Vertical       | 100         | 47          | 20             | 80g    |
| 111219    | ML-100KW  | White | Horizontal - Vertical       | 100         | 47          | 20             | 80g    |
| 111220    | ML-150KB  | Black | Horizontal - Vertical - 45° | 150         | 47          | 20             | 110g   |
| 111221    | ML-150KW  | White | Horizontal - Vertical - 45° | 150         | 47          | 20             | 110g   |

MEMO



# PROTRACTOR No.15



**MATERIALS** • Stainless steel (SUS420J2)

## FEATURES

- Graduation on blade
- With rectangle head
- The blade is firmly set on the center of the protractor by a knurled nut and adjustable to any desired angle for use as a protractor
- Also can measure depth

## SPECIFICATIONS

- Protractor size: (H)52mm × (W)90mm × (T)1.2mm
- Graduation : 1 °
- Maximum angle : 180 °
- Accuracy : ± 20 '
- Blade size : (L)177mm × (T)1.2mm  
150mm scale ( Graduation: 0.5mm)

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 008000    | PRT-15    | 80g    |

# PROTRACTOR No.19



No.19 with two blades



## MATERIALS

- Stainless steel (SUS420J2)

## FEATURES

- With 2 blades
- Can measure acute angle down to 10°
- Satin finish

## SPECIFICATIONS

- Graduation : 1 °
- Maximum angle : 180 °
- Accuracy : ± 20 '
- Size: φ 90mm × (T)1.2mm
- Blade size: (L)204 × (T)1.2mm

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 008002    | PRT-19SW  | 110g   |

# PROTRACTOR No.19



No.19 Graduation on blade



For angle measurement

## MATERIALS

- Stainless steel (SUS420J2)

## FEATURES

- Graduation on blade
- Polished finish



## SPECIFICATIONS

- Protractor size : φ 90mm × (T)1.2mm
- Graduation : 1 °
- Maximum angle : 180 °
- Accuracy : ± 20 '
- Blade size : (L)204mm × (T)1.2mm  
100mm scale ( Graduation: 1mm)

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 008001    | PRT-19    | 81g    |

# PROTRACTOR No.19



No. 19 Satin finish



## MATERIALS

- Stainless steel (SUS420J2)

## FEATURES

- Graduation on blade
- Satin finish

## SPECIFICATIONS

- Graduation: 1 °
- Maximum angle : 180 °
- Accuracy : ± 20 '
- Size: φ 90mm × (T)1.2mm
- Blade size: (L)204mm × (T)1.2mm  
100mm scale ( Graduation: 1mm)

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 008003    | PRT-19S   | 81g    |

## PROTRACTOR No.19A



### MATERIALS

- Stainless steel (SUS420J2)

### FEATURES

- Cutout for measuring small angle
- Polished finish

### SPECIFICATIONS

- Protractor size :  $\phi$  90mm  $\times$  (T)1.2mm
- Graduation: 1°
- Maximum angle : 90°
- Accuracy  $\pm$  20'
- Blade : (L)204mm  $\times$  (T)1.2mm

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 008004    | PRT-19A   | 90g    |

## PROTRACTOR No.19B



### MATERIALS

- Stainless steel (SUS420J2)

### FEATURES

- Protractor blade contains stop for setting a baseline angle and measuring against that set point
- Polished finish

### SPECIFICATIONS

- Protractor size :  $\phi$  90mm  $\times$  (T)1.2mm
- Graduation : 1°
- Maximum angle : 180°
- Accuracy :  $\pm$  20'
- Blade : (L)204mm  $\times$  (T)1.2mm

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 008005    | PRT-19B   | 90g    |

## PROTRACTOR No.182



### MATERIALS

- Stainless steel (SUS420J2)

### FEATURES

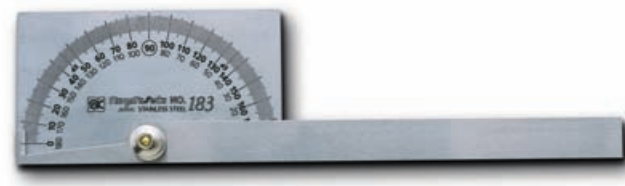
- Center lock nut has a built in needle for marking center point
- Satin finish

### SPECIFICATIONS

- Protractor size :  $\phi$  90mm  $\times$  (T)1.2mm
- Graduation : 1°
- Maximum angle : 180°
- Accuracy :  $\pm$  20'
- Blade : (L)204mm  $\times$  (T)1.2mm

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 008182    | PRT-182S  | 155g   |

## PROTRACTOR No.183



### MATERIALS

- Stainless steel (SUS420J2)

### FEATURES

- With rectangle head
- Satin finish

### SPECIFICATIONS

- Protractor size: (H)52mm  $\times$  (W)90mm  $\times$  (T)1.2mm
- Graduation : 1°
- Maximum angle : 180°
- Accuracy :  $\pm$  20'
- Blade : (L)204mm  $\times$  (T)1.2mm

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 008183    | PRT-183S  | 90g    |





# PROTRACTOR No.30



# PROTRACTOR No.101



## MATERIALS

- Stainless steel (SUS420J2)

## FEATURES

- Angle measurement
- Satin finish

## SPECIFICATIONS

- Protractor size :  $\phi$  120mm  $\times$  Thickness 1.5mm
- Graduation :  $1^{\circ}$
- Maximum angle :  $180^{\circ}$
- Accuracy :  $\pm 15'$
- Blade size : (L)315mm  $\times$  (T)1.5mm

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 008030    | PRT-30S   | 190g   |

## MATERIALS

- Stainless steel (SUS420J2)

## FEATURES

- Blade can be fixed. Ideal for work requiring high accuracy
- Satin finish

## SPECIFICATIONS

- Protractor size :  $\phi$  120mm  $\times$  (T)1.5mm
- Graduation :  $1^{\circ}$
- Maximum angle :  $180^{\circ}$
- Accuracy :  $\pm 15'$
- Blade size : 304mm  $\times$  (T)1.5mm

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 008101    | PRT-101S  | 158g   |

# PROTRACTOR No.300 • No.400 • No.600 • No.1000



PRT-400S



PRT-400SW

## MATERIALS

- Stainless steel (SUS420J2)

## FEATURES

- Large size protractors
- Satin finish

## SPECIFICATIONS

- Graduation :  $0.5^{\circ}$
- Maximum angle :  $180^{\circ}$
- Accuracy :  $\pm 15'$

| Order No. | Model No.  | Size   | Diameter (mm) | Thickness (mm) | Number of blade | Blade Length (mm) | Blade Thickness (mm) | Graduation on Blade | Weight |
|-----------|------------|--------|---------------|----------------|-----------------|-------------------|----------------------|---------------------|--------|
| 008300    | PRT-300S   | 300mm  | 210           | 2.0            | 1               | 500               | 2.0                  | 300mm (1mm step)    | 610g   |
| 008400    | PRT-400S   | 400mm  | 250           | 2.0            | 1               | 634               | 2.0                  | 400mm (1mm step)    | 700g   |
| 008600    | PRT-600S   | 600mm  | 320           | 2.5            | 1               | 823               | 2.5                  | 600mm (1mm step)    | 1.6kg  |
| 008700    | PRT-1000S  | 1000mm | 320           | 2.5            | 1               | 1260              | 2.5                  | 1000mm (1mm step)   | 2kg    |
| 008302    | PRT-300SW  | 300mm  | 210           | 2.0            | 2               | 489               | 2.0                  | 300mm (1mm step)    | 670g   |
| 008402    | PRT-400SW  | 400mm  | 250           | 2.0            | 2               | 634               | 2.0                  | 400mm (1mm step)    | 1.1kg  |
| 008602    | PRT-600SW  | 600mm  | 320           | 3.2            | 2               | 823               | 2.5                  | 600mm (1mm step)    | 2.45kg |
| 008702    | PRT-1000SW | 1000mm | 320           | 3.2            | 2               | 1260              | 2.5                  | 1000mm (1mm step)   | 3.15kg |

## INSIDE PROTRACTOR



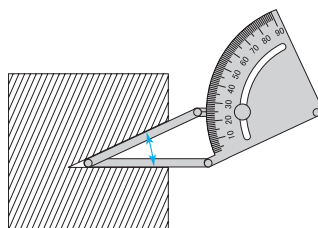
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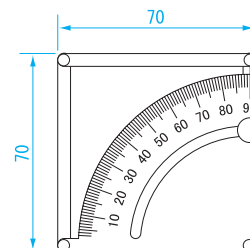
Measure interior angles in one step  
Measurements at a glance

### Example of use

### DIMENSIONS Units : mm



Measurement of interior angles



**USE** • Measurement of interior angles

### MATERIAL

- Stainless steel (SUS410)

### FEATURES

- Measure interior angles at a glance
- Silver matte finish for easy to read scale
- With plastic case for convenient transport

| Order No. | Model No. | Graduation | Angle measurement range | Accuracy | Weight |
|-----------|-----------|------------|-------------------------|----------|--------|
| 007517    | IP-90     | 1°         | 10° ~ 90°               | ± 0.5°   | 43g    |

## PROTRACTOR No.192



## PROTRACTOR No.193



PRT192-120S



PRT193-150

**USE** • Set attachment angle for machines and jigs

### MATERIALS

- Stainless steel (SUS420J2)

### FEATURES

- Polished finish : PRT192-90S
- Satin finish : PRT192-120S • PRT192-200S • PRT192-250S • PRT192-300S

| Order No. | Model No.   | Graduation | Maximum Angle | Diameter (mm) | Thickness (mm) | Accuracy | Weight | Note            |
|-----------|-------------|------------|---------------|---------------|----------------|----------|--------|-----------------|
| 008901    | PRT192-90S  | 1°         | 180°          | 90            | 1.2            | ±20'     | 40g    | Polished finish |
| 008903    | PRT192-120S | 1°         | 180°          | 120           | 1.5            | ±20'     | 80g    | Satin finish    |
| 008930    | PRT192-200S | 0.5°       | 180°          | 210           | 2.0            | ±15'     | 310g   | Satin finish    |
| 008940    | PRT192-250S | 0.5°       | 180°          | 250           | 2.0            | ±15'     | 440g   | Satin finish    |
| 008960    | PRT192-300S | 0.5°       | 180°          | 320           | 2.5            | ±15'     | 870g   | Satin finish    |

**USE** • Set attachment angle for machines and jigs

### MATERIALS

- Stainless steel (SUS420J2)

### FEATURES

- Satin finish
- A circle plate protractor

| Order No. | Model No.  | Graduation | Maximum angle | Diameter (mm) | Thickness (mm) | Accuracy | Weight |
|-----------|------------|------------|---------------|---------------|----------------|----------|--------|
| 009109    | PRT193-90  | 1°         | 360°          | 90            | 1.2            | ±20'     | 60g    |
| 009112    | PRT193-120 | 1°         | 360°          | 120           | 1.5            | ±20'     | 140g   |
| 009115    | PRT193-150 | 1°         | 360°          | 150           | 1.5            | ±20'     | 210g   |
| 009120    | PRT193-200 | 1°         | 360°          | 200           | 2.0            | ±20'     | 510g   |
| 009125    | PRT193-250 | 1°         | 360°          | 250           | 2.0            | ±20'     | 780g   |
| 009130    | PRT193-300 | 1°         | 360°          | 300           | 2.5            | ±20'     | 1.38kg |

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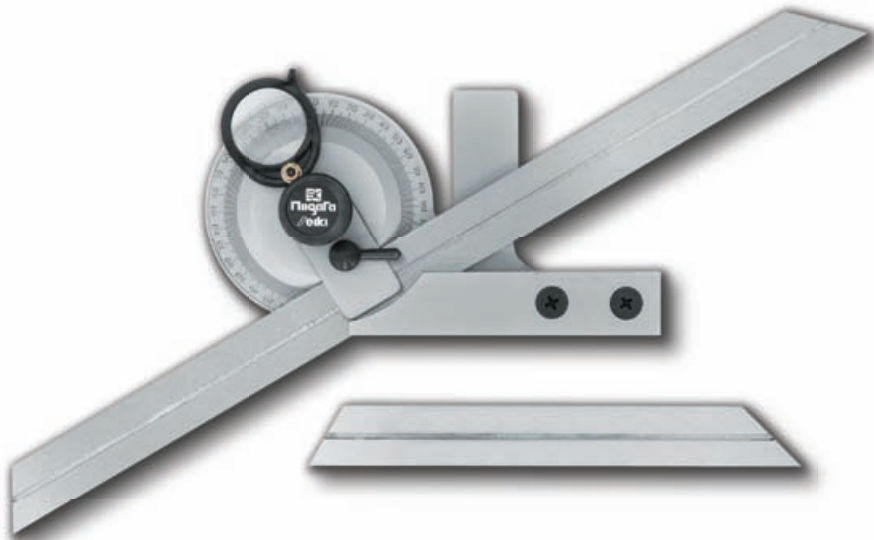




ANGLE

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## UNIVERSAL BEVEL PROTRACTOR



**USE** • Angle measurement

### MATERIALS

- Body: Carbon tool steel
- Blade: Stainless steel

### FEATURES

- Extremely fine measurement of accurate angles can be obtained from this protractor by simply rotating the ultra sensitive adjustment knob.
- Attached magnification lens on the front of the protractor permits reading and setting of angles accurately and easily.

### SPECIFICATIONS

- Graduation: 1°
- Minimum reading: 5' (or 1/12 degree)
- Interchangeable blade: 150mm and 300mm

| Order No. | Model No. | Product Dimensions (mm) | Weight |
|-----------|-----------|-------------------------|--------|
| 151052    | 495D      | 140 × 73 × 10           | 400g   |

## DIGITAL UNIVERSAL PROTRACTOR



With master speed square, precision measurement without reading error



**USE** • Precise angle measurement for tooling and fixtures, assembly, machining, mold making, and for use as a standard

### MATERIALS

- Body : Carbon tool steel
- Blade : Stainless steel

### FEATURES

- Quick display of the measured value
- One CR2032 (Lithium) battery included for testing

### SPECIFICATIONS

- Minimum reading: 30" (0.008°)
- Resolution: 10"
- Repeatability : 1' (0.0167°)
- Interchangeable blade : 150mm and 300mm

| Order No. | Model No. | Product Dimensions (mm) | Weight |
|-----------|-----------|-------------------------|--------|
| 151050    | DUP-360   | 135 × 71 × 34           | 350g   |

※ Quantization Error ( ± 1 digit ) not included

ANGLE

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204p



205p



205p



206p



206p



207p



207p



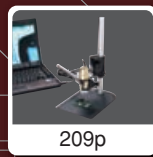
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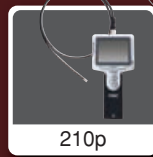
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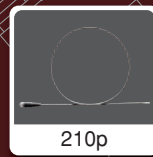
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209p



210p



210p



210p



211p



211p



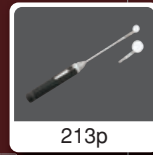
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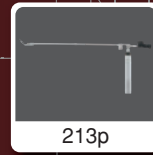
212p



212p



213p

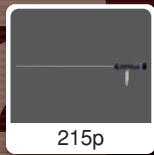


213p

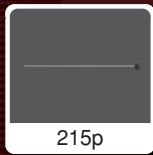


214p

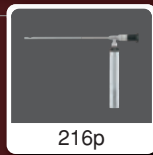
# MICROSCOPE



215p



215p



216p



217p



217p



218p



219p



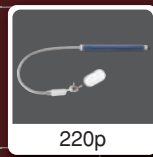
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219p



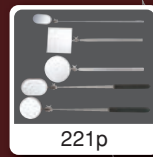
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220p



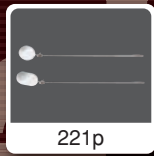
220p



221p



221p



221p



222p



222p



223p



223p



223p



224p



224p



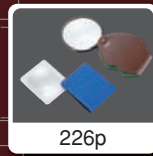
225p



225p



225p



226p



226p



226p



226p



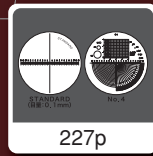
227p



227p



227p



227p



228p



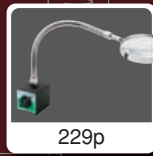
228p



229p



229p



229p



229p



230p



230p

STEREO  
MICROSCOPEFIBER  
SCOPETECHNO-  
ENDOSCOPECIRCLE  
SCOPEINSPECTION  
MIRROR

MAGNIFIER



## MICROSCOPE SPECIFICATION SUMMARY

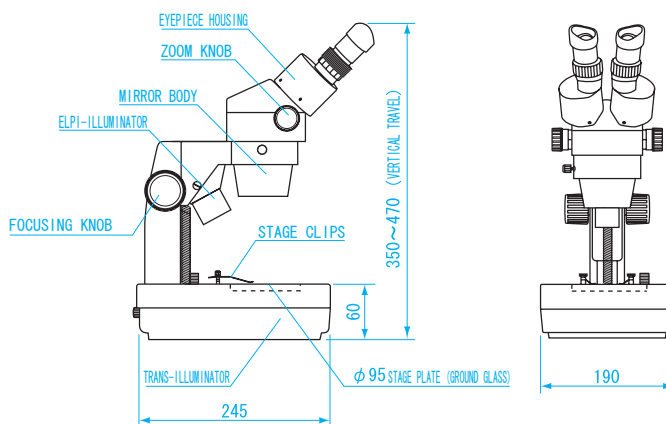
| Product Name                                  | Model No. | Magnification       | Objective                        | Eyepiece                                                       | Working Distance | Eyepiece Angle | Eyepiece Width adj. Range | Lighting                                                                                       | Base Dimensions | Diopter adj. Range | Stand                 |
|-----------------------------------------------|-----------|---------------------|----------------------------------|----------------------------------------------------------------|------------------|----------------|---------------------------|------------------------------------------------------------------------------------------------|-----------------|--------------------|-----------------------|
| ZOOM STEREO MICROSCOPE                        | XTS2021   | 6.5x~45x<br>13x~90x | 0.65x~4.5x<br>(Zoom Ratio 1:7)   | WF10x<br>(Field of View 20mm)<br>WF20x<br>(Field of View 10mm) | 95mm             | 45°            | 55~75mm                   | Epi-illumination<br>(Halogen Bulb:6V 15W)<br>Transmitted Illumination<br>(5W Fluorescent Bulb) | 245×190×60mm    | ±5°<br>diopter     | Rack and Pinion       |
|                                               | XTS-SP2   |                     |                                  |                                                                |                  |                |                           | RK-9 Ring Light Included<br>※Attachment Size:<br>φ48mm                                         | 245×170×40mm    |                    | Pole Stand<br>(φ25mm) |
|                                               | XZ-34     | 7.5x~34x            | 0.75x~3.4x<br>(Zoom Ratio 1:4.5) | WF10x<br>(Field of View 19mm)                                  | 90mm             |                |                           | Optional Ring Light Sold Separately<br>※Attachment Size:<br>φ50mm                              | 250×210×21mm    |                    |                       |
| VARIABLE POWER STEREO MICROSCOPE              | XT-2040   | 20x<br>40x          | 2x<br>4x                         |                                                                | 105mm            |                |                           | Optional Ring Light Sold Separately<br>※Attachment Size:48mm                                   | 280×270×28mm    |                    | Pole Stand<br>(φ30mm) |
| VARIABLE POWER TURRET STYLE STEREO MICROSCOPE | XTDB-SP2N | 10x<br>30x          | 1x<br>3x                         |                                                                | 100mm            |                |                           | RK-9 Ring Light Included                                                                       | 255×200×20mm    |                    | Pole Stand<br>(φ32mm) |

## ZOOM STEREO MICROSCOPE



### DIMENSIONS

Units : mm

STEREO  
MICROSCOPEFIBER  
SCOPETECHNO-  
ENDOSCOPECIRCLE  
SCOPEMICRO  
SCOPEINSPECTION  
MIRROR

MAGNIFIER

## FEATURES

- Ideal for inspection of semiconductors, electronics, and precision parts
- Zoom stereoscopic microscope

| Order No. | Model No. | Magnification     | Objective                    | Eye Piece                                | Working Distance | Focus Adjustment                 | Eye Width Adjustment | Eye Piece Inclination | Diopter Adjustment Range | Stand         | Lighting System                                            | Weight |
|-----------|-----------|-------------------|------------------------------|------------------------------------------|------------------|----------------------------------|----------------------|-----------------------|--------------------------|---------------|------------------------------------------------------------|--------|
| 140003    | XTS2021   | 6.5~45x<br>13~90x | 0.65~4.5x<br>(Zoom Ratio1:7) | WF10x<br>(FOV20mm)<br>WF20x<br>(FOV10mm) | 95mm             | Main body vert. position control | 55~75mm              | 45°                   | ±5 diopter               | Rack & Pinion | Epifluorescence<br>---6V·15W<br>Transillumination<br>---5W | 5.7kg  |

ZOOM STEREO MICROSCOPE



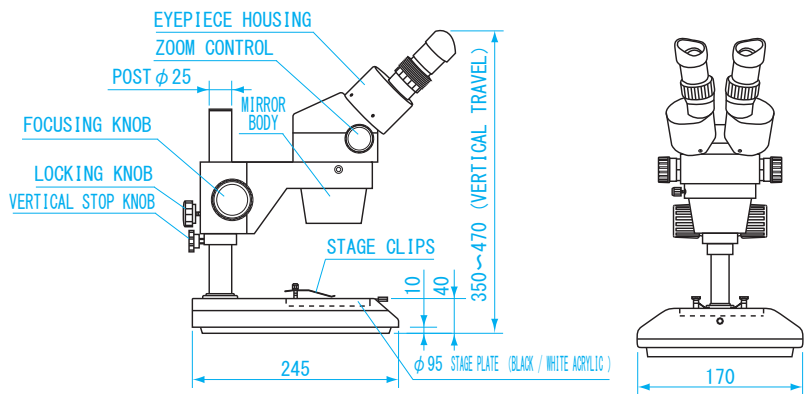
MICROSCOPE

08



DIMENSIONS

Units : mm



FEATURES

- Ideal for inspection of semiconductors, electronics, and precision parts
- Zoom stereoscopic microscope
- With Fluorescent ring epi-illuminator

| Order No. | Model No. | Magnification     | Objective                    | Eye Piece                                | Working Distance | Focus Adjustment                       | Eye Width Adjustment | Eye Piece Inclination | Diopter Adjustment Range | Stand         | Lighting System                                          | Weight |
|-----------|-----------|-------------------|------------------------------|------------------------------------------|------------------|----------------------------------------|----------------------|-----------------------|--------------------------|---------------|----------------------------------------------------------|--------|
| 140000    | XTS-SP2   | 6.5~45×<br>13~90× | 0.65~4.5×<br>(Zoom Ratio1:7) | WF10×<br>(FOV20mm)<br>WF20×<br>(FOV10mm) | 95mm             | Main body<br>vert. position<br>control | 55~75mm              | 45°                   | ±5 diopter               | Pole<br>Stand | Ring Illuminator<br>17W<br>Light flourescent<br>included | 5.4kg  |

ZOOM STEREO MICROSCOPE



STEREO  
MICROSCOPE

FIBER  
SCOPE

TECHNO-  
ENDOSCOPE

CIRCLE  
SCOPE

MICRO  
SCOPE

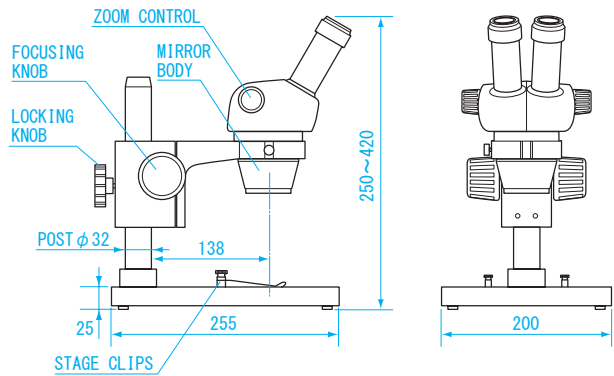
INSPECTION  
MIRROR

MAGNIFIER



DIMENSIONS

Units : mm



※ with optional lighting installed

FEATURES

- Ideal for inspection of semiconductors, electronics, and precision parts
- Zoom stereoscopic microscope
- Optional lighting unit available

| Order No. | Model No. | Magnification | Objective                   | Eye Piece           | Working Distance | Focus Distance                         | Eye Width Adjustment | Eye Piece Inclination | Diopter Adjustment Range | Stand      | Weight |
|-----------|-----------|---------------|-----------------------------|---------------------|------------------|----------------------------------------|----------------------|-----------------------|--------------------------|------------|--------|
| 140102    | XZ-45N    | 10-45x        | 1-4.5x<br>(Zoom Ratio1:4.5) | WF10×<br>(FOV 20mm) | 97mm             | Main body<br>vert. position<br>control | 52-75mm              | 45°                   | ±5 diopter               | Pole stand | 3.6kg  |

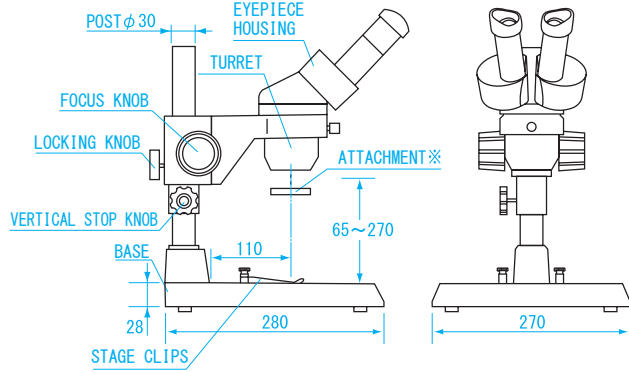


# VARIABLE POWER STEREO MICROSCOPE



## DIMENSIONS

Units : mm



※ with optional lighting installed

## FEATURES

- Ideal for continuous inspection of components of similar size
- Turret style zoom stereo microscope
- Optional lighting unit available

| Order No. | Model No. | Magnification | Objective | Eye Piece          | Working Distance | Focus Adjustment                    | Eye Width Adjustment | Eye Piece Inclination | Diopter Adjustment Range | Stand      | Weight |
|-----------|-----------|---------------|-----------|--------------------|------------------|-------------------------------------|----------------------|-----------------------|--------------------------|------------|--------|
| 140101    | XT-2040   | 20×<br>40×    | 2×<br>4×  | WF10×<br>(FOV19mm) | 105mm            | Main body vert.<br>position control | 55~75mm              | 45°                   | ±5 diopter               | Pole stand | 4.1kg  |



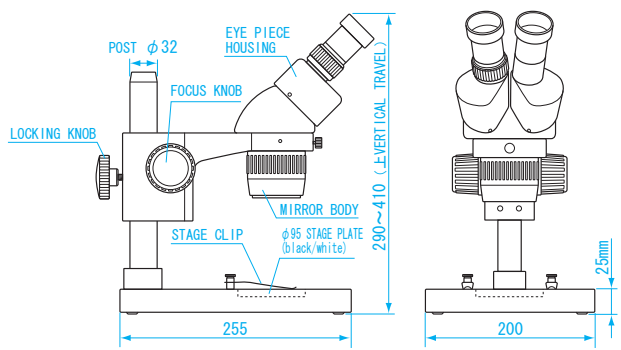
# VARIABLE POWER TURRET STYLE MICROSCOPE

Two magnifications with switchable objective lens!



## DIMENSIONS

Units : mm



USE • Ideal for continuous inspection of components of similar size

## FEATURES

- Binocular turret type stereo microscope with switchable objective lens.
- With fluorescent ring epi-illuminator

| Order No.  | Model No. | Magnification | Objective  | Eye Piece           | Working Distance | Focus Adjustment                    | Eye Width Adjustment | Eye Piece Inclination | Diopter Adjustment Range | Stand      | Lighting System      | Weight |
|------------|-----------|---------------|------------|---------------------|------------------|-------------------------------------|----------------------|-----------------------|--------------------------|------------|----------------------|--------|
| NEW 140007 | XTDB-SP2N | 10 ×<br>30 ×  | 1 ×<br>3 × | WF10×<br>(FOV 20mm) | 100mm            | Main body vert.<br>position control | 55~75mm              | 45°                   | ±5 diopter               | Pole Stand | Ring illuminator 17W | 3.6kg  |





**USE** • Small and light weight ring illuminator for microscope

## FEATURES

- Can be mounted on microscope with a bottom tube of 65mm or less
- $\phi$  87mm circular fluorescent lamp, electric start
- One spare replaceable bulb included
- Replaceable bulb (RL-10) sold separately

|                                                                                          |                 |              |               |
|------------------------------------------------------------------------------------------|-----------------|--------------|---------------|
| Order No.                                                                                | Model No.       | Lamp OD (mm) | Rated Voltage |
|  140018 | RK-10           | ϕ 87         | AC100V        |
| Rated Power                                                                              | Rated Frequency | Weight       |               |
| 17W                                                                                      | 50/60Hz         | 200g         |               |

**LED TYPE**



## FEATURES

- Compact and lightweight lighting for stereo microscope
- For mounting on microscopes with a bottom tube diameter of 60mm or less
- High intensity, long life LED light
- Variable output control

| Order No.      | Model No. | Rated Voltage | Rated Power    | Rated Frequency | Output Voltage |
|----------------|-----------|---------------|----------------|-----------------|----------------|
| 140200         | L-54      | AC100V ~ 240V | 6W             | 50-60Hz         | DC12V          |
| Output Current |           | Number of LED | LED Brightness |                 | Weight         |
| 280mA          |           | 54 pcs        | 2500mcd        |                 | 400g           |

### LED Type with light quadrant control

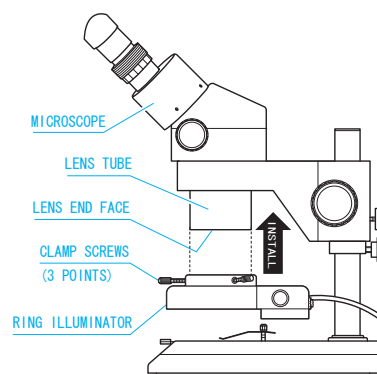


## FEATURES

- Compact and lightweight lighting for stereo microscope
- For mounting on microscopes with a bottom tube diameter of 60mm or less
- High intensity, long life LED light
- Variable output control
- LED mode switchable between four options (shown at right)

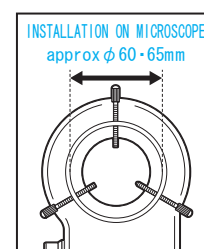
|                |           |               |                |                 |                |
|----------------|-----------|---------------|----------------|-----------------|----------------|
| Order No.      | Model No. | Rated Voltage | Rated Power    | Rated Frequency | Output Voltage |
| 140205         | L-60T     | AC100V ~ 120V | 6.5W           | 50-60Hz         | DC12V          |
| Output Current |           | Number of LED | LED Brightness |                 | Weight         |
| 400mA          |           | 60 pcs        | 1500mcd        |                 | 260g           |

### ■ Example of mounting



## How to mount

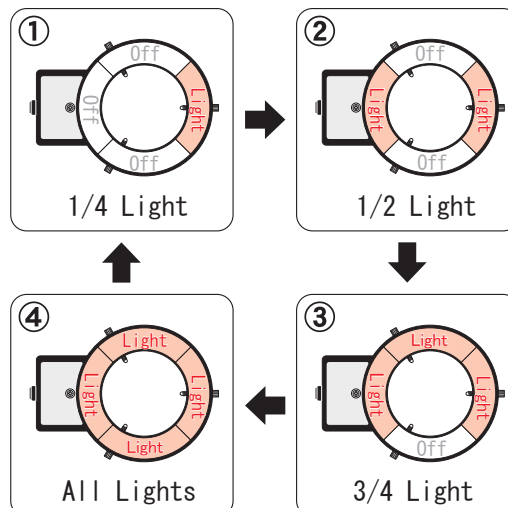
Tighten 3 screws to fix illuminator to microscope body  
※ Adapter is required if body tube is not a cylinder



Mounting dimensions applies to  
RK-10 :  $\phi 65\text{mm}$   
L-54、L-60T :  $\phi 60\text{mm}$

■ L-60T Illumination Pattern

Switchable between four types of Illumination depending on the application

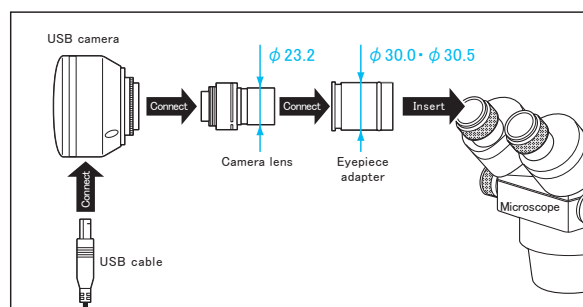




## USB CAMERA FOR MICROSCOPE



Easy installation! Image can be confirmed with your PC. Also can be mounted on any other microscope brand



**USE** • Camera can be inserted into microscope eyepiece

### FEATURES

- Low price USB camera for microscope
- 1,300,000 pixels
- OS support : Windows XP、Vista、7

### ACCESSORIES

- Viewer Software
- Eyepiece adapter  
( $\phi 23.2 \rightarrow \phi 30.0\text{mm} \cdots 1 \text{ pc}$   $\phi 23.2 \rightarrow \phi 30.5\text{mm} \cdots 1 \text{ pc}$ )

| Order No.  | Model No. | Image Sensor | No. of Pixels    | Frame Rate    | Output  | Power                  | Weight |
|------------|-----------|--------------|------------------|---------------|---------|------------------------|--------|
| NEW 140022 | MU-130    | 1/3.2CMOS    | 1,300,000 pixels | 30 frame/ sec | USB 2.0 | Provided from USB port | 175g   |

## MINI MICROSCOP WITH BASE



High performance at an affordable price



**USE** • Ideal for machine parts, metal, textiles, paper, plastic, biological tissues, cracks and corrosion inspection  
Still image picture and video image can be saved

### FEATURES

- Simple measurement functionality
- Included stand for easy focus and alignment
- OS support : Windows XP (SP2)、Vista、7、Mac OSX 10.4

| Order No.      | Model No.     | Imaging Sensor  | Resolution                                                                                                                 | Magnification              | Light                 |
|----------------|---------------|-----------------|----------------------------------------------------------------------------------------------------------------------------|----------------------------|-----------------------|
| 140172         | MMS-30        | 1/4 CMOS sensor | 640×480pixels(VGA)<br>approx. 300,000 pixels                                                                               | Approx. 10-230 x           | Internal LED<br>8 pcs |
| Frame Rate     | Exposure      | Interface       | Features                                                                                                                   | Weight                     |                       |
| 30 frame / sec | Auto Exposure | USB 2.0         | ●Still image picture (bmp)<br>●Video capture (AVI)<br>●Simple measurement (line, circle<br>radius, circle diameter, angle) | Body : 95g<br>Base: 1.1 kg |                       |

Resolution 1,300,000 pixels, high image quality! Still image picture and video image can be saved



STEREO  
MICROSCOPE

FIBER  
SCOPE

TECHNO-  
ENDOSCOPE

CIRCLE  
SCOPE

- USE**
- Ideal for machine parts, metal, textiles, paper, plastic, biological tissues, cracks and corrosion inspection
  - Still image picture and video image can be saved

## FEATURES

- Simple measurement functionality. With calibration correction function.
- Included stand for easy focus and alignment
- Shutter switch on body for taking pictures without using mouse.
- Polarized filter (PL) to prevent diffuse reflections and sharpen image (MMS-130PL)
- Supported OS: Windows XP (SP2)、Vista、7、Mac OSX 10.4

MICRO  
SCOPE

INSPECTION  
MIRROR

MAGNIFIER

| Order No. | Model No.   | Type           | Image Sensor    | Resolution                                       | Magnification    | Light              |
|-----------|-------------|----------------|-----------------|--------------------------------------------------|------------------|--------------------|
| 140173    | MMS-130     | —              | 1/4 CMOS sensor | 1280×1024 pixels (SXGA) approx. 1,300,000 pixels | Approx. 10-230 x | Internal LED 8 pcs |
| 140169    | MMS-130PLM2 | With PL filter |                 |                                                  |                  |                    |

| Frame Rate     | Exposure      | Interface | Features                                                                                                                                                                                 | Weight                     |
|----------------|---------------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| 30 frame / sec | Auto Exposure | USB2.0    | <ul style="list-style-type: none"> <li>● Still image picture (bmp)</li> <li>● Video capture (AVI)</li> <li>● Simple measurement (line, circle radius, circle diameter, angle)</li> </ul> | Body : 98g<br>Base: 1.1 kg |



## BORE SCOPE WITH MONITOR (MIS series)



**New Product! Borescope can shoot still images and movies. You can view images directly, or connect to your computer via USB.**

- USE** • Industrial bore scope can inspect inside holes and around corners
- MATERIAL**
  - Body : Plastic
- FEATURES**
  - Integrated monitor allows real time viewing and capture to memory. Can view images directly, or connect to PC with USB.
  - Video output
  - Cable is compliant to IP66
- SPECIFICATIONS**
  - Continuous use : approx. 3 hrs (without recording)
- ACCESSORIES**
  - $\phi$  5.5mm  $\times$  1m semi-hard type cable camera
  - View adapter 45°
  - AC adapter
  - Lithium-ion battery x 2 pcs



| Order No. | Model No.           | Cable Size                   | Monitor Size       | Resolution                              | View Angle               | Depth of Focus                          | Power  |
|-----------|---------------------|------------------------------|--------------------|-----------------------------------------|--------------------------|-----------------------------------------|--------|
| 140210    | MIS-5510G           | $\phi$ 5.5mm $\times$ (L) 1m | 3.5 inch           | 300,000 pixels                          | Approx. 67°              | Approx. 20-50mm                         | DC5V   |
| AV output | Light               | Still Image Pixels           | Video Image Pixels | File Format                             | Recording Media          | Dimensions (mm)                         | Weight |
| NTSC/PAL  | White LED (Dimming) | 640 x 480 pixels             | 640 x 480 pixels   | JPEG (still image)<br>AVI (video image) | SD card (less than 2 GB) | approx. L210 $\times$ W100 $\times$ H45 | 410g   |

## OPTIONAL ACCESSORIES for MIS series



## ■ Camera for MIS

- USE** • Optional camera for MIS series bore scope (IP66 equivalent)
- MATERIAL**
  - $\phi$  3.9 model : plastic cable
  - $\phi$  5.5 model : stainless cable
- FEATURES**
  - $\phi$  3.9 model : Thin and flexible cable is ideal for inspection of narrow places
  - $\phi$  5.5 model : High rigidity stainless cable is ideal for inspection of harsh places

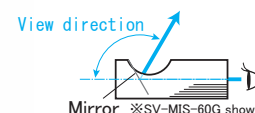


C-MIS-3910G

| Order No. | Model No.   | Cable size               | Cable type     | Resolution     | Number of Pixels | Focal Length (mm) |
|-----------|-------------|--------------------------|----------------|----------------|------------------|-------------------|
| 140211    | C-MIS-3910G | $\phi$ 3.9mm $\times$ 1m | Soft tube      | 300,000 pixels | 640 $\times$ 480 | Approx. 20~50     |
| 140212    | C-MIS-3920G | $\phi$ 3.9mm $\times$ 2m | Soft tube      | 300,000 pixels | 640 $\times$ 480 | Approx. 20~50     |
| 140213    | C-MIS-3930G | $\phi$ 3.9mm $\times$ 3m | Soft tube      | 300,000 pixels | 640 $\times$ 480 | Approx. 20~50     |
| 140214    | C-MIS-5520G | $\phi$ 5.5mm $\times$ 2m | Semi-hard tube | 300,000 pixels | 640 $\times$ 480 | Approx. 20~50     |
| 140215    | C-MIS-5530G | $\phi$ 5.5mm $\times$ 3m | Semi-hard tube | 300,000 pixels | 640 $\times$ 480 | Approx. 20~50     |

## ■ SIDE VIEW ADAPTER FOR MIS series

- USE** • Side view adapter for monitor type industrial bore scope
- MATERIAL** • Copper plated (excluding mirror)
- FEATURES** • Install on tip of bore scope to change viewing angle



| Order No. | Model No.  | Mirror Angle | View Direction | Weight |
|-----------|------------|--------------|----------------|--------|
| 140217    | SV-MIS-35G | Approx. 35°  | Approx. 70°    | 2g     |
| 140218    | SV-MIS-60G | Approx. 60°  | Approx. 120°   | 2g     |

## ■ LITHIUM BATTERY FOR MIS

- USE** • Lithium battery for monitor type industrial bore scope

| Order No. | Model No. | Rated Voltage | Rated Capacity | Weight |
|-----------|-----------|---------------|----------------|--------|
| 140216    | B-MIS-37G | DC3.7V        | 1,880mAh       | 42g    |





## FEATURES

- Ideal for inspecting inside wall of bent pipe for scratches and burrs, and visual inspection of cavities
- Body : Stainless steel
- Fiber : Plastic ( waterproof)
- Flexible plastic fiber
- Illuminates objects with bright halogen bulb (3.5V)
- 7,400 pixels, 120,000lx
- For direct viewing
- Halogen Bulb : 3.5V (HB-078)
- Power : Battery handle (BH-370) , holds 3 standard "C" size batteries (not included)

## Accessory

### ■ Battery Handle ---adapts for use with 2 batteries

( light output is reduced by about 2/3)



when using 3 batteries



when using 2 batteries

※ Batteries not included, please purchase separately

### ■ Hard case---storage, convenient to carry



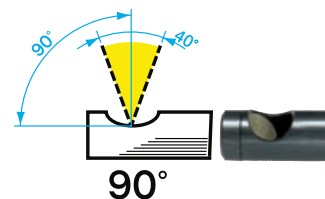
### ■ 3.5V Halogen bulb 1 pc

| Order No. | Model No. | Outside Diameter (mm) | Effective Length (mm) | Minimum Bend Radius (mm) | Light Intensity | No. of Pixels | Focal Length | View Direction | Battery                  | Weight                 |
|-----------|-----------|-----------------------|-----------------------|--------------------------|-----------------|---------------|--------------|----------------|--------------------------|------------------------|
| 128200    | SF6-1000  | 6                     | 1                     | 30                       | 120,000lx       | 7,400 pixels  | 10mm ~∞      | 0°             | Three "C" size batteries | 350g (Including fiber) |

## 90° side view adapter



- Body : Stainless steel
- Attach to the tip of fiber optic bore scope to view at 90 ° orientation
- OD : 6mm
- View direction : 90 °
- Viewing angle : 40 °



| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 128152    | TE-415    | 30g    |

STEREO MICROSCOPE

FIBER SCOPE

TECHNO-ENDOSCOPE

CIRCLE SCOPE

MICRO SCOPE

INSPECTION MIRROR

MAGNIFIER





## MINI BORE SCOPE SET-A



## FEATURES

- For viewing inside small diameter holes, inspection
- Body : Plastic
- Able to inspect inside holes of  $\phi$  0.3 mm or larger
- Built-in lens allows focusing at a distance from 5 to 250mm
- Halogen bulb for high brightness
- Small and light weight- pocket sized
- Maximum magnification : 10x
- Focal Length : 5 ~ 250mm
- Halogen bulb : 2.5V (HB-042)
- Power : Battery handle with 2 "AA" size batteries included for testing

## Set includes

| Order No. | Model No. | Item Name    | Specification | Weight |
|-----------|-----------|--------------|---------------|--------|
| 120000    | SET-A     | Set          | (L) 160mm     | 100g   |
| 129042    | HB-042    | Halogen Bulb | 2.5V          | 5g     |

## MINI BORE SCOPE SET-C



## FEATURES

- For viewing inside small diameter holes, inspection
- Body : Plastic
- Probe : Stainless steel (Satin finish)
- Able to inspect inside holes of  $\phi$  5mm or larger
- Mirror adapter allows viewing at 0° angle or with replacement, viewing at 90° angle
- Halogen bulb for high brightness
- Power : Battery handle with 2 "AA" size batteries included for testing

## Set includes

| Order No. | Model No. | Item Name       | Specification | Weight |
|-----------|-----------|-----------------|---------------|--------|
| 120003    | SET-C     | Set             | (L)163mm      | 150g   |
| 121104    | MVP-104   | Mini view probe | 4-5x          | 120g   |
| 121240    | FL-240    | Mirror probe    | $\phi$ 5×25mm | 10g    |
| 121241    | FL-241    | Mirror probe    | $\phi$ 6×30mm | 10g    |
| 129040    | HB-037    | Halogen bulb    | 2.5V          | 5g     |

## MINI BORE SCOPE SET-E



## FEATURES

- For viewing inside small diameter holes, inspection
- Body : Stainless steel
- Probe : Stainless steel (Satin finish)
- Able to inspect inside holes of  $\phi$  5mm or larger
- Mirror adapter allows viewing at 0° angle or with replacement, viewing at 90° angle
- 3.5V Halogen bulb for high brightness
- Maximum magnification : 3-4x
- Focal length : up to 70mm
- Halogen bulb:3.5V (HB-078)
- Power : Battery handle (BH-370)
- Three standard "C" type batteries



## Set includes

| Order No. | Model No. | Item Name      | Specification | Weight |
|-----------|-----------|----------------|---------------|--------|
| 120005    | SET-E     | Set            | (L) 240mm     | 350g   |
| 121200    | FL-200    | Head Loupe     | 3-4x          | 90g    |
| 121240    | FL-240    | Mirror Probe   | $\phi$ 5×25mm | 10g    |
| 121241    | FL-241    | Mirror Probe   | $\phi$ 6×30mm | 10g    |
| 121242    | FL-242    | Mirror Probe   | $\phi$ 6×50mm | 10g    |
| 129068    | HB-078    | Halogen bulb   | 3.5V          | 5g     |
| 130370    | BH-370    | Battery Handle | 3.5V          | 220g   |

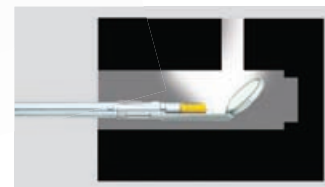
## MINI LIGHT AND MIRROR PROBE SET-D



**USE** • Mirror with light for inspecting work

### FEATURES

- Body : Plastic
- Probe : Stainless steel
- Glass mirrors ( $\phi 16 \cdot \phi 25\text{mm}$ ) for good visibility of hard-to-see parts
- Halogen bulb for high brightness
- Halogen bulb : 2.5V (HB-057)
- Power : Battery handle with two "AA" size batteries included for testing



Set includes

| Order No. | Model No. | Item Name        | Specification                | Weight |
|-----------|-----------|------------------|------------------------------|--------|
| 120004    | SET-D     | Set              | (L) 250mm                    | 150g   |
| 123142    | LP-142    | Mini Light Probe | $\phi 5 \times 110\text{mm}$ | 70g    |
| 126305    | GM-305    | Glass Mirror     | $\phi 16\text{mm}$           | 5g     |
| 126307    | GM-307    | Glass Mirror     | $\phi 25\text{mm}$           | 5g     |
| 129057    | HB-057    | Halogen Bulb     | 2.5V                         | 5g     |

## MIRROR PROBE SET-G



STEREO  
MICROSCOPE

FIBER  
SCOPE

TECHNO-  
ENDOSCOPE

CIRCLE  
SCOPE

MICRO  
SCOPE

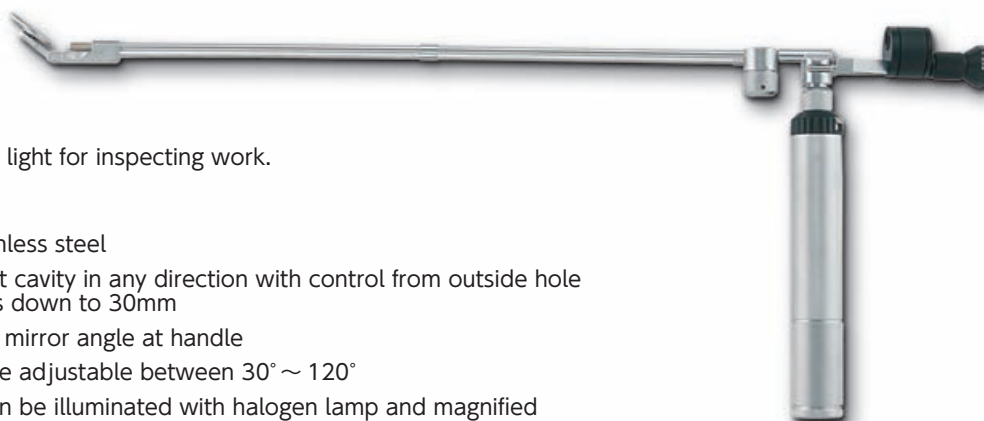
INSPECTION  
MIRROR

MAGNIFIER

**USE** • Mirror with light for inspecting work.

### FEATURES

- Body : Stainless steel
- Can inspect cavity in any direction with control from outside hole  
View holes down to 30mm
- Can adjust mirror angle at handle
- Mirror angle adjustable between  $30^\circ \sim 120^\circ$
- Objects can be illuminated with halogen lamp and magnified
- Halogen Bulb : 3.5V (HB-066)
- Power : Battery handle (BH-370) holds 3 standard "C" size batteries( not included)



Set includes:

| Order No. | Model No. | Item Name       | Specifications               | Weight |
|-----------|-----------|-----------------|------------------------------|--------|
| 120007    | SET-G     | SET             | —                            | 1.2kg  |
| 122200    | LP-200    | Universal Probe | $\phi 5 \times 400\text{mm}$ | 180g   |
| 126201    | GM-201    | Glass Mirror    | $\phi 20\text{mm}$           | 5g     |
| 126202    | GM-202    | Glass Mirror    | $\phi 25\text{mm}$           | 5g     |
| 126203    | GM-203    | Glass Mirror    | $\phi 30\text{mm}$           | 5g     |
| 128350    | PL-350    | Prism Telescope | 4-5 $\times$                 | 120g   |
| 129066    | HB-066    | Halogen Bulb    | 3.5V                         | 5g     |
| 130370    | BH-370    | Battery Handle  | 3.5V                         | 220g   |



## INTERCHANGEABLE MIRROR PROBE SET-J



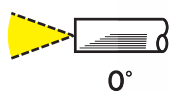
**USE** • Mirror with light for inspecting work

**FEATURES**

- Body : Stainless steel
- Inspection of inner walls of cavity or tube which can not be viewed directly. In addition, objects can be illuminated with halogen lamp and magnified (with loupe, or prism telescope installed)
- Inspect defects, corrosion, joints, welds, to determine workpiece quality
- Interchangeable probes can inspect up to 500mm deep and 8mm diameter mirror can be installed to inspect inside small holes
- Mirror rotates 360° for viewing in any direction
- Halogen bulb : 3.5V (HB-066)
- Power : Battery handle : (BH-370) holds three standard "C" type batteries (not included)

**Set includes**

| Order No. | Model No. | Item Name       | Specification | Weight |
|-----------|-----------|-----------------|---------------|--------|
| 120010    | SET-J     | Set             | —             | 1.3kg  |
| 121100    | HP-100    | Probe Head      | —             | 50g    |
| 122120    | LP-120    | Light Probe     | φ 5 × 100mm   | 17g    |
| 122121    | LP-121    | Light Probe     | φ 5 × 200mm   | 30g    |
| 122122    | LP-122    | Light Probe     | φ 5 × 300mm   | 40g    |
| 123123    | LP-123    | Light Probe     | φ 5 × 400mm   | 50g    |
| 123124    | LP-124    | Light Probe     | φ 5 × 500mm   | 57g    |
| 127003    | L-003     | Loupe           | 2 ×           | 5g     |
| 128350    | PL-350    | Prism Telescope | 4-5 ×         | 120g   |
| 125300    | SM-300    | Steel Mirror    | φ 8mm         | 5g     |
| 125301    | SM-301    | Steel Mirror    | φ 12mm        | 5g     |
| 126305    | GM-305    | Glass Mirror    | φ 16mm        | 5g     |
| 126306    | GM-306    | Glass Mirror    | φ 20mm        | 5g     |
| 126307    | GM-307    | Glass Mirror    | φ 25mm        | 5g     |
| 126308    | GM-308    | Glass Mirror    | φ 30mm        | 5g     |
| 129066    | HB-066    | Halogen Bulb    | 3.5V          | 5g     |
| 130370    | BH-370    | Battery Handle  | For 3.5V      | 220g   |



※ Shown with protection tube attached

※ Battery handle BH-370 not included

## FEATURES

- Inspect the walls of tubing and deep inside cavities which can not be viewed directly
- Stainless steel
- Near objects are magnified by fiber optic system ( up to 10x ) for focus distance of 5 to 250mm
- Tip protector included
- Illuminates objects with bright halogen bulb
- For direct viewing

## SPECIFICATIONS

- Length : 270mm
- OD : 4.5mm (with protection tube)
- Effective length : 158mm (with protection tube)
- Viewing angle : 0°
- Halogen bulb : 3.5V (HB-078)
- Dimensions :  $\phi$  4.5 × 270mm
- Power : Optional battery handle (BH-370) holds 3 standard "C" size batteries (not included)

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 128150    | TE-410    | 200g   |

# 70° SIDE VIEW ADAPTER



STEREO MICROSCOPE

FIBER SCOPE

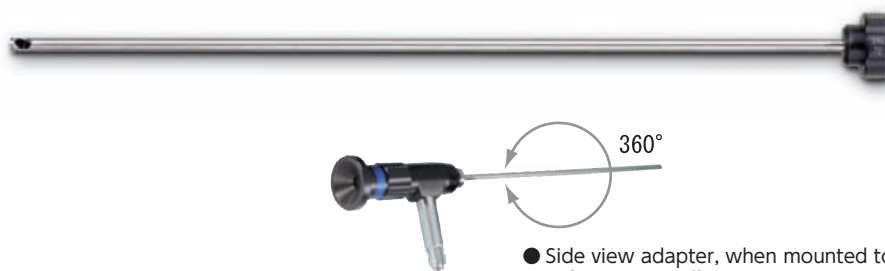
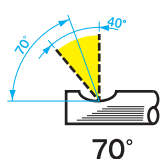
TECHNO-ENDOSCOPE

CIRCLE SCOPE

MICRO SCOPE

INSPECTION MIRROR

MAGNIFIER



● Side view adapter, when mounted to the techno scope, allows 360° rotation

## FEATURES

- Side adapter for use with Techno scope TE-410
- Stainless steel
- Replace standard protection tube on the TE-410 scope
- Provides 70° view angle

## SPECIFICATIONS

- OD : 4.5mm
- Effective length : 163mm
- View direction : 70°
- Field of view : 40°
- Dimensions :  $\phi$  4.5 × 163mm

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 128151    | TE-414    | 30g    |

**TE-110**

※ Battery handle BH-370 not included

STEREO  
MICROSCOPEFIBER  
SCOPETECHNO-  
ENDOSCOPECIRCLE  
SCOPEMICRO  
SCOPEINSPECTION  
MIRROR

MAGNIFIER

**FEATURES**

- Inspect the inner wall of tubing and inside cavities which can not be easily seen from the outside
- Stainless steel (Satin finish)
- Near objects are magnified by fiber optic system ( up to 10x ) for focus distance of 5 to 250mm
- Illuminates objects with bright halogen bulb
- Halogen bulb : 3.5V (HB-075)
- Power : Optional battery handle (BH-370) holds standard " C " size batteries(not included)

| Order No. | Model No. | Item Name           | Length (mm) | Effective Length (mm) | View Direction | Field of View | Diameter (mm) | Weight |
|-----------|-----------|---------------------|-------------|-----------------------|----------------|---------------|---------------|--------|
| 128101    | TE-101    | Techno Scope        | 330         | 230                   | 90°            | 35°           | 8             | 500g   |
| 128110    | TE-110    | Techno Scope        | 335         | 230                   | 70°            | 80°           | 8             | 500g   |
| 128100    | TE-100    | Techno Scope        | 485         | 385                   | 90°            | 35°           | 8             | 600g   |
| 128111    | TE-111    | Techno Scope        | 490         | 385                   | 70°            | 80°           | 8             | 600g   |
| 128123    | TE-123    | Techno Scope        | 270         | 165                   | 70°            | 80°           | 8             | 400g   |
| 129067    | HB-075    | Halogen Bulb 3.5V   | 22          | —                     | —              | —             | —             | 5g     |
| 130370    | BH-370    | Battery Handle 3.5V | 190         | —                     | —              | —             | —             | 220g   |





## FEATURES

- Can inspect 360 degree of pipe or cavity without changing position by rotating scope from the outside
- Stainless steel (Satin finish)
- Illuminates objects with bright halogen bulb
- View angle : 90°
- Connection cord(sold separately) can be used to attach battery handle to reduce interference where access is limited

## SPECIFICATIONS

- Length : 340mm
- OD : 8mm
- Effective length : 280mm
- Field of view : 35°
- Halogen bulb : 3.5V (HB-075)
- Power : Optional battery handle (BH-370) holds 3 standard "C" size batteries (not included)



| Order No. | Model No. | Item Name    | Specification               | Weight |
|-----------|-----------|--------------|-----------------------------|--------|
| 128235    | UK-35     | Techno scope | Angle length : 200mm • 120° | 700g   |

### Optional

| Order No. | Model No. | Item Name       | Specification | Weight |
|-----------|-----------|-----------------|---------------|--------|
| 139230    | CC-230    | Connection cord | 1.8m          | 80g    |
| 130370    | BH-370    | Battery handle  | 3.5V          | 220g   |
| 139522    | C-522     | Carrying case   | —             | —      |

# 60° ANGLE ADAPTER



STEREO  
MICROSCOPE

FIBER  
SCOPE

TECHNO-  
ENDOSCOPE

CIRCLE  
SCOPE

MICRO  
SCOPE

INSPECTION  
MIRROR

MAGNIFIER



For mounting on Techno scope TE-110



※Techno scope not included

## FEATURES

- Angle adapter for techno scope viewfinder
- Stainless steel (Satin finish)
- Adapts view finder angle ( 60° )
- Retaining ring fixes adapter to techno scope

| Order No. | Model No. | Angle | Lens Diameter (mm) | Length (mm) | Weight |
|-----------|-----------|-------|--------------------|-------------|--------|
| 128090    | AA-090    | 60°   | φ 8                | 120         | 200g   |



## INSPECTION SET



- For inspection and failure analysis( cracks, corrosion, wear, contamination, etc.)
- Testing, inspection of new equipment

## Set includes

| Order No. | Model No. | Item Name               | Specification               | Weight |
|-----------|-----------|-------------------------|-----------------------------|--------|
| 120523    | T-523     | SET                     | —                           | 1.85kg |
| 128110    | TE-110    | Techno scope            | 70° / 270mm                 | 500g   |
| 120000    | SET-A     | Short bore scope        | (L) 160mm                   | 100g   |
| 121104    | MVP-104   | Short view probe        | (L) 163mm                   | 120g   |
| 121240    | FL-240    | Mirror probe            | $\phi 5 \times 25\text{mm}$ | 10g    |
| 121241    | FL-241    | Mirror probe            | $\phi 6 \times 30\text{mm}$ | 10g    |
| 123142    | LP-142    | Short light probe       | (L) 250mm                   | 70g    |
| 126305    | GM-305    | Glass mirror            | $\phi 16\text{mm}$          | 5g     |
| 126308    | GM-308    | Glass mirror            | $\phi 30\text{mm}$          | 5g     |
| 125509    | MS-509    | Universal measure scale | $\phi 26\text{mm}$          | 5g     |
| 129067    | HB-075    | Halogen bulb            | 3.5V                        | 5g     |
| 129042    | HB-042    | Halogen bulb            | 2.5V                        | 5g     |
| 129040    | HB-037    | Halogen bulb            | 2.5V                        | 5g     |
| 129057    | HB-057    | Halogen bulb            | 2.5V                        | 5g     |
| 130370    | BH-370    | Battery handle          | 3.5V                        | 220g   |
| 139230    | CC-230    | Battery cord            | 1.8m                        | 80g    |
| 139523    | C-523     | Carrying case           | —                           | —      |



## STAND type MAGNIFIER with LED LIGHT

### Durable, long-life LED light!

**USE** • For precision assembly and inspection

**MATERIAL** • Lens : Glass  
• Body : Steel, plastic

### FEATURES

- Durable and long-life LED light
- Large lens for clear view with both eyes
- With protective cover for lens
- Clear glass lens does not affect color of items viewed

### SPECIFICATIONS

- Rated voltage : AC100V
- Rated frequency : 50/60Hz
- Luminous intensity : 3,700lx (with 250mm distance from lens to object)
- Number of LED : 84 pcs
- Power cable length : 1.8 m



| Order No. | Model No. | Product Dimensions (mm) | Lens Diameter (mm) | Magnification | Weight |
|-----------|-----------|-------------------------|--------------------|---------------|--------|
| 140122    | LS2-175S  | Total Height 430        | 178                | 2 x           | 5.2kg  |

## ARM type MAGNIFIER with LED LIGHT



### Durable, long-life LED light!

**USE** • For precision assembly and inspection

**MATERIAL** • Lens : Glass  
• Body : Steel, plastic

### FEATURES

- Durable and long-life LED light
- Large lens for clear view with both eyes
- With protective cover for lens
- Clear glass lens does not affect color or items viewed

### SPECIFICATIONS

- Rated voltage : AC100V
- Rated frequency : 50/60Hz
- Luminous intensity : 3,700lx (with 250mm distance from lens to object)
- Number of LED : 84 pcs
- Power cable length : 1.8 m



| Order No. | Model No. | Arm Length                           | Lens Diameter(mm) | Magnification | Weight |
|-----------|-----------|--------------------------------------|-------------------|---------------|--------|
| 140121    | LS2-175A  | Lower: 435<br>Upper: 425<br>Max: 870 | 178               | 2 x           | 2.5kg  |

## INTERCHANGEABLE LENS



### Additional lens for illuminated magnifier with LED light, total magnification becomes

**USE** • Additional lens for LS2-175S, LS2-175A. Total magnification becomes 4 x

**MATERIAL** • Glass

### FEATURES

- Additional lens for illuminated magnifier with LED light, total magnification becomes 4 x



| Order No. | Model No. | Lens Diameter(mm) | Magnification | Weight |
|-----------|-----------|-------------------|---------------|--------|
| 140123    | SL-4      | 150               | 4 x           | 1kg    |

STEREO  
MICROSCOPEFIBER  
SCOPETECHNO-  
ENDOSCOPECIRCLE  
SCOPEMICRO  
SCOPEINSPECTION  
MIRROR

MAGNIFIER



## INSPECTION MIRROR WITH LED LIGHT

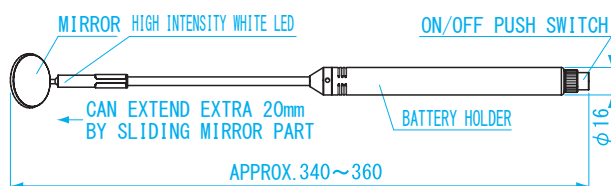


## FEATURES

- Inspection around and behind obstacles and in poorly lit areas
- LED light for high visibility
- Inspection mirror : 2 pcs (  $\phi$  20mm,  $\phi$  30mm )
- Power : Two "AA" size batteries included for testing
- Stalk : Stainless steel
- Grip : Brass ( Silver finish )

## DIMENSIONS

Units : mm



| Order No. | Model No. | Operating Temperature | Luminance | Weight |
|-----------|-----------|-----------------------|-----------|--------|
| 011105    | LM-340    | - 10 ~ 40°C           | 10000mcd  | 126g   |

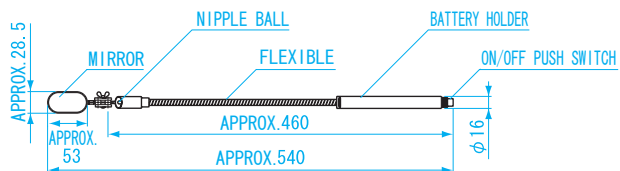
## INSPECTION MIRROR WITH LIGHT

## M type



## DIMENSIONS

Units : mm



## FEATURES

- Inspection solution for dark tight spaces
- Flexible stem can be bent to any angle
- Mirror can be removed for use as flexible light
- Power : two "AA" size batteries included for testing

| Order No. | Model No. | Ball nipple bulb | Weight |
|-----------|-----------|------------------|--------|
| 011100    | LMF-M     | 2.2V<br>0.25A    | 200g   |

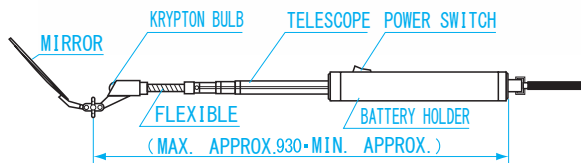
## INSPECTION MIRROR WITH LIGHT

## L type



## DIMENSIONS

Units : mm

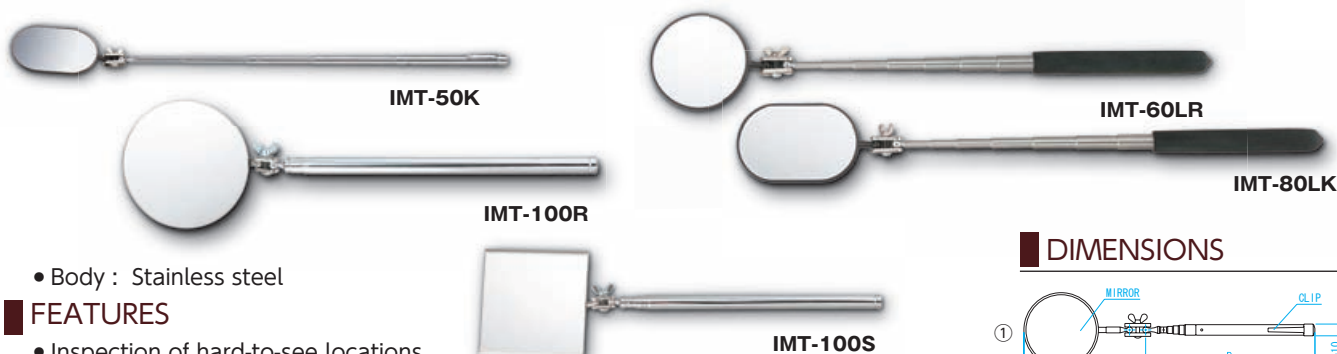


## FEATURES

- Inspection solution for dark tight spaces
- Brass ( Silver finish )
- Telescoping stalk with flexible end mirror angle adjustable for any requirement
- $\phi$  100 planar mirror
- Krypton bulb for high intensity light
- Power : two "AA" size batteries included for testing

| Order No. | Model No. | Krypton bulb  | Weight |
|-----------|-----------|---------------|--------|
| 011103    | LMF-L     | 2.5V<br>0.75A | 500g   |

## TELESCOPING INSPECTION MIRROR

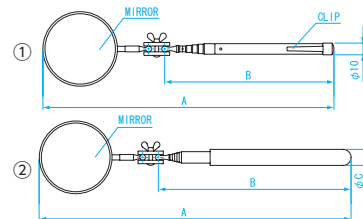


- Body : Stainless steel

### FEATURES

- Inspection of hard-to-see locations
- Body : Brass (IMT-60LR, IMT-80LR : Stainless steel)
- Mirror : Glass
- Extendable reach and easy to carry
- Replacement mirror (Round type 60, oval type 80) also sold separately

### DIMENSIONS

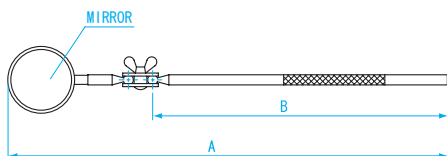


| Order No. | Model No. | Mirror Shape (mm) | A : Maximum Length (mm) | B : Telescope Length (mm) | C (mm) | Dimensions | Weight | Note      |
|-----------|-----------|-------------------|-------------------------|---------------------------|--------|------------|--------|-----------|
| 011140    | IMT-20R   | Round $\phi 20$   | Approx. 525             | Approx. 130~475           | 10     | ①          | 40g    | with clip |
| 011150    | IMT-30R   | Round $\phi 30$   | Approx. 535             | Approx. 130~475           | 10     | ①          | 40g    | with clip |
| 011170    | IMT-50K   | Oval 50×25        | Approx. 555             | Approx. 130~475           | 10     | ①          | 45g    | with clip |
| 011185    | IMT-85S   | Square 100×85     | Approx. 745             | Approx. 245~610           | 13     | ①          | 200g   | with clip |
| 011186    | IMT-100S  | Square 100×100    | Approx. 745             | Approx. 245~610           | 13     | ①          | 200g   | with clip |
| 011187    | IMT-100R  | Round $\phi 100$  | Approx. 745             | Approx. 245~610           | 13     | ①          | 200g   | with clip |
| 011181    | IMT-80LK  | Oval 80×50        | Approx. 945             | Approx. 160~840           | 14     | ②          | 100g   | Long type |
| 011161    | IMT-60LR  | Round $\phi 60$   | Approx. 925             | Approx. 160~840           | 14     | ②          | 100g   | Long type |

## INSPECTION MIRROR



### DIMENSIONS



### FEATURES

- For inspection in hard-to-see location
- Body : Steel
- Mirror : Grass
- Mirror firmly held for easy inspection

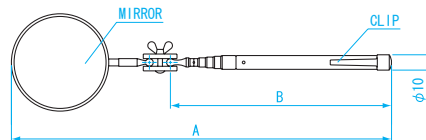
| Order No. | Model No. | Mirror shape (mm) | A (mm)      | B (mm)      | Weight |
|-----------|-----------|-------------------|-------------|-------------|--------|
| 011120    | IM-20R    | Round $\phi 20$   | Approx. 200 | Approx. 145 | 50g    |
| 011130    | IM-30R    | Round $\phi 30$   | Approx. 210 | Approx. 145 | 50g    |
| 011110    | IM-50K    | Oval 50×25        | Approx. 230 | Approx. 145 | 50g    |

## MAGNIFYING INSPECTION MIRROR WITH TELESCOPING

NEW ITEM  
IMTR-80K



### DIMENSIONS



### FEATURES

- For inspection in hard-to- see location
- Body : Brass
- Mirror: Glass
- Extendable reach and easy to carry
- Mirror magnifies objects for better visibility

| Order No. | Model No. | Mirror shape (mm) | A:Max Length (mm) | B:Telescope Length (mm) | Magnification | Weight |
|-----------|-----------|-------------------|-------------------|-------------------------|---------------|--------|
| 011195    | IMTR-20R  | Round $\phi 20$   | Approx. 525       | Approx. 130~475         | 2             | 40g    |
| 011196    | IMTR-30R  | Round $\phi 30$   | Approx. 535       | Approx. 130~475         | 2             | 40g    |
| 011197    | IMTR-60R  | Round $\phi 60$   | Approx. 560       | Approx. 130~475         | 1.5           | 60g    |
| 011198    | IMTR-50K  | Oval 50×25        | Approx. 555       | Approx. 130~475         | 2             | 45g    |
| 011199    | IMTR-80K  | Oval 80×50        | Approx. 575       | Approx. 130~475         | 1.5           | 60g    |

STEREO  
MICROSCOPE

FIBER  
SCOPE

TECHNO-  
ENDOSCOPE

CIRCLE  
SCOPE

MICRO  
SCOPE

INSPECTION  
MIRROR

MAGNIFIER





## MAGNETIC LIGHT STAND

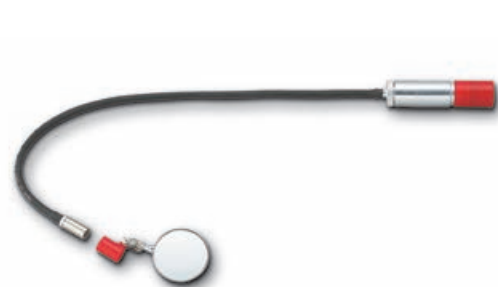


### FEATURES

- Auxiliary lighting improves visibility and quality
- Ferrite magnet
- Holding force : 800N (180 lb)
- Strong magnet with ON/OFF lever for easy removal
- Light is concentrated on workpiece
- Flexible stem directs light where needed
- Includes light guard
- Bulb : AC100V、100Watt or less
- ※ Bulb sold separately

| Order No. | Model No. | Base Dimension (mm) | Height (mm) | Rated voltage | Rated Frequency | Weight |
|-----------|-----------|---------------------|-------------|---------------|-----------------|--------|
| 011090    | MFR-100   | 50 × 60 × 55        | 440         | AC100V        | 50-60Hz         | 1.7kg  |

## FLEXIBLE LIGHT WITH MAGNET

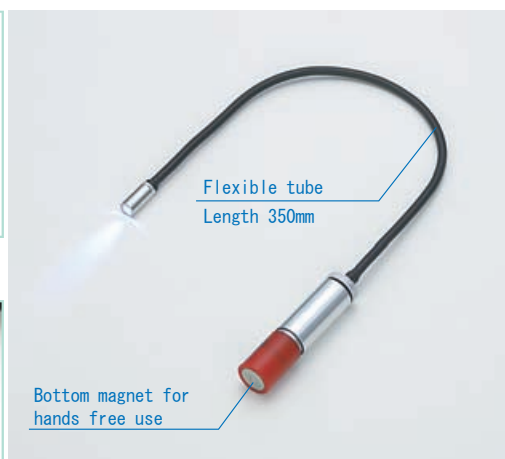


Inspection mirror  
( $\phi 38\text{mm}$ ) can be  
inserted on end  
for inspection.



White LED for  
high intensity  
and long life

Magnet tip to  
pick up small parts



Flexible tube  
Length 350mm

Bottom magnet for  
hands free use

### FEATURES

- Locate and pick up small fasteners, temporary lighting for test, maintenance
- Flexible stem : Stainless steel
- With attached inspection mirror ( $\phi 38\text{mm}$ )
- LED for long usage life
- Adheres to steel surfaces for hands free operation
- Flexible stem conforms to any shape
- Magnet can also be used as pick-up tool
- Power : Three LR44 batteries included for testing

● Vehicle maintenance



● Microscope light



| Order No. | Model No. | Continuous Lighting | Magnetic Force         | Weight |
|-----------|-----------|---------------------|------------------------|--------|
| 011092    | MFL-350M  | Approx. 12 hrs      | Tip 0.5N<br>Bottom 10N | 150g   |



## CLIP ON HOBBY MAGNIFIER



RX-4825

RX-4835

**USE** • Assembly of small parts, inspection

### FEATURES

- Lens : Acrylic resin
- Body : ABS resin
- One touch mounting on glasses
- Small size

| Order No. | Model No. | Magnification | Lens dimension (mm) | Weight |
|-----------|-----------|---------------|---------------------|--------|
| 011255    | RX-4825   | 2.5 x         | 25×50               | 40g    |
| 011256    | RX-4835   | 3.5 x         | 25×50               | 40g    |

## MAGNIFIER WITH BAND



RX-59

**USE** • Assembly of small parts, inspection

### FEATURES

- Lens : Acrylic resin
- Body : ABS resin
- Adjustable belt tightens to stay secure on head freeing both hands for detailed work
- Light weight frame with velcro strap

| Order No. | Model No. | Magnification                      | Lens dimension (mm) | Weight |
|-----------|-----------|------------------------------------|---------------------|--------|
| 011252    | RX-58     | 2.5 x                              | 190×260×45          | 100g   |
| 011253    | RX-59     | 1.5x · 2 x · 3 x<br>Three lens set | 190×260×45          | 100g   |

## HEAD LOUPE

STEREO  
MICROSCOPEFIBER  
SCOPETECHNO-  
ENDSCOPECIRCLE  
SCOPEMICRO  
SCOPEINSPECTION  
MIRROR

MAGNIFIER

**Both hands free! Loupe with light for best efficiency and ease!**

**USE** • Assembly of small parts and inspection

**MATERIAL** Lens : • Acrylic resin

### FEATURES

- Adjustable belt tightens to stay secure on head freeing both hands for detailed work
- The attached light can move up, down, left, right to shine on workpiece
- With 4 interchangeable lenses to adjust magnification.

### SPECIFICATIONS

- Battery life : approx. 3.5 hr with Alkaline battery
- Bulb life : approx. 800hr

**POWER** • 2 AAA battery (2pc)

### ACCESSORIES

- Lens (4 pcs)
- Cleaning cloth
- Bulb cap
- Light bulb (already attached)



| Order No. | Model No. | Product Name                | Magnification         | Lens Diameter (mm) | Weight |
|-----------|-----------|-----------------------------|-----------------------|--------------------|--------|
| 111230    | HMG-4L    | Head loupe                  | 1.2 · 1.8 · 2.5 · 3.5 | 50 × 103           | 116g   |
| 111231    | HMG-4LB   | Replacement bulb for HMG-4L | —                     | —                  | 2g     |
| 111232    | 1.2 x     | Replacement lens for HMG-4G | 1.2                   | 50 × 103 × 4       | 17g    |
| 111233    | 1.8 x     | Replacement lens for HMG-4G | 1.8                   | 50 × 103 × 6       | 26g    |
| 111234    | 2.5 x     | Replacement lens for HMG-4G | 2.5                   | 50 × 103 × 8       | 30g    |
| 111235    | 3.5 x     | Replacement lens for HMG-4G | 3.5                   | 50 × 103 × 12      | 42g    |



## ILLUMINATED MAGNIFIER WITH LED LIGHT



## 10x magnification loupe with power-saving LED light



**USE** • Lighted magnifier

**MATERIAL**

- Lens (external): Glass
- Lens (Internal): Acrylic

**FEATURES**

- Magnifier with LED light for convenient inspection

**POWER**

- 2pcs, C size cells (not included)

| Order No. | Model No. | Lens Diameter (mm) | Magnification | Length (mm) | Weight |
|-----------|-----------|--------------------|---------------|-------------|--------|
| 111238    | M-100II   | 30                 | 10            | 180         | 90g    |

## ILLUMINATED MAGNIFIER WITH LED LIGHT



## 2x magnification loupe with power-saving LED light



**USE** • Magnifying glass with light

**MATERIAL**

- Lens : glass

**FEATURES**

- With long-life LED light

**POWER**

- 2 pcs, AAA batteries (not included)

| Order No. | Model No. | Lens Diameter (mm) | Magnification | Length (mm) | Weight |
|-----------|-----------|--------------------|---------------|-------------|--------|
| 111239    | M-320II   | 80                 | 2             | 235         | 194g   |



## ILLUMINATED MAGNIFIER WITH LED LIGHT

**Durable 10x & 15x high magnification lens with LED light! A high performance magnifier.**

**USE** • Lighted magnifier

### MATERIAL

- Lens: glass
- Body: ABS resin

### FEATURES

- Magnifier with LED light for convenient inspection
- With protective carrying case

### SPECIFICATIONS

- Battery life: Approx. 40 hrs with alkaline battery [LED part specifications]
- Diameter : approx. 5mm
- Voltage: 3V
- Luminosity: 8,000 ~ 10,000mcd
- LED Life: approx. 40,000 hrs
- Directional angle: approx. 30°
- 3 pcs, AAA cells (not included)



LFL-10



LFL-15

| Order No. | Model No. | Lens Diameter (mm) | Magnification | Length (mm) | Weight |
|-----------|-----------|--------------------|---------------|-------------|--------|
| 111236    | LFL-10    | 30                 | 10            | 105         | 41g    |
| 111237    | LFL-15    | 20                 | 15            | 105         | 49g    |

## WOOD HANDLE MAGNIFIER



No.1430

### FEATURES

- Scratch resistant glass lens
- Check edge of knife, use to examine many small parts
- Lens : Glass

| Order No. | Model No. | Lens Diameter (mm) | Magnification | Length (mm) | Weight |
|-----------|-----------|--------------------|---------------|-------------|--------|
| 011264    | No.1430   | 75                 | 2.5 x         | 185         | 129g   |
| 011265    | No.1450   | 100                | 2 x           | 235         | 256g   |

## PLASTIC HANDLE MAGNIFIER



No.7507

### FEATURES

- Bifocal lens
- Lens : Acrylic resin
- One piece frame of smooth, durable
- Lightweight lens

| Order No. | Model No. | Lens Diameter (mm) | Magnification | Length (mm) | Weight |
|-----------|-----------|--------------------|---------------|-------------|--------|
| 011266    | No.7507   | 75                 | 2x•4x         | 185         | 55g    |
| 011267    | No.7515   | 90                 | 2x•4x         | 210         | 86g    |

STEREO  
MICROSCOPEFIBER  
SCOPETECHNO-  
ENDOSCOPECIRCLE  
SCOPEMICRO  
SCOPEINSPECTION  
MIRROR

MAGNIFIER





## POCKET MAGNIFIER



No.3150



No.3122-P

- USE**
- Slide into handle for convenient storage
  - Lens : Acrylic resin
  - with protective carrying case
  - Bifocal lens

| Order No. | Model No. | Lens Dimensions | Magnifications | Weight |
|-----------|-----------|-----------------|----------------|--------|
| 011268    | No.3150   | 60×50           | 3.5x·5x        | 24g    |
| 011269    | No.3122-P | φ65             | 2.5x·4x        | 21g    |

## POCKET MAGNIFIER

STEREO  
MICROSCOPEFIBER  
SCOPETECHNO-  
ENDOSCOPECIRCLE  
SCOPEMICRO  
SCOPEINSPECTION  
MIRROR

MAGNIFIER



No.7910



No.7920



No.7930

- USE**
- Slide into handle for convenient storage
  - Lens : Acrylic resin

| Order No. | Model No. | Lens Dimensions | Magnifications | Weight |
|-----------|-----------|-----------------|----------------|--------|
| 011270    | No.7910   | 36              | 4x             | 30g    |
| 011271    | No.7920   | 36              | 4x 2pcs        | 50g    |
| 011272    | No.7930   | 36              | 4x 3pcs        | 50g    |



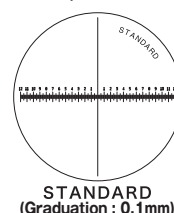
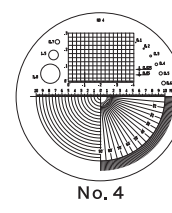


LSL-26

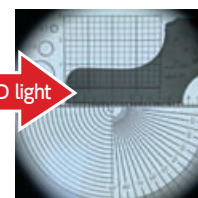
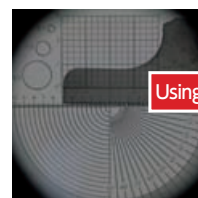


LSL-35

(Scale plate)

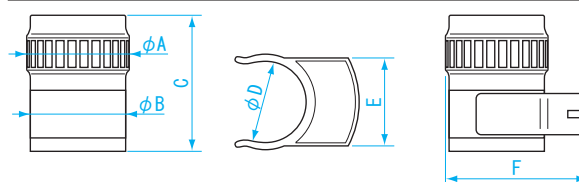
STANDARD  
(Graduation : 0.1mm)

No. 4



Using LED light

## DIMENSIONS



Unit : mm

| Model No. | $\phi A$ | $\phi B$ | C (Adjustable) | $\phi D$ | E    | F    |
|-----------|----------|----------|----------------|----------|------|------|
| LSL-26    | 37.2     | 30.6     | 46.5~55.5      | 30       | 30.5 | 51.5 |
| LSL-35    | 45       | 40       | 45 ~54         | 39.5     | 30.5 | 60   |

## FEATURES

- With LED light to improve visibility for reading scale
- Lens : Glass
- Reticle with full width scale, can be used to measure dimensions and diameter of objects.
- Three LR41 batteries included for testing

## ACCESSORIES

- 2 reticles (1 installed)
- 1 eyepiece cap
- 1 cleaning cloth

| Order No. | Model No. | Magnification | Weight |
|-----------|-----------|---------------|--------|
| 140141    | LSL-26    | 10 x          | 45g    |
| 140142    | LSL-35    | 10 x          | 73g    |

## SCALE LOUPE LIGHT



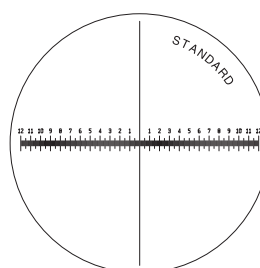
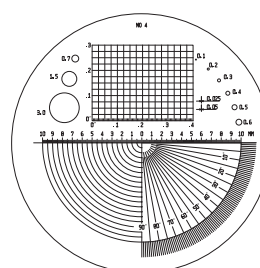
L-26

## FEATURES

- Accessory light for scale loupe
- Light supplied with lighted scale loupe set (LSL-26, LSL-35) as separate item.

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 140143    | L-26      | 10g    |
| 140144    | L-35      | 11g    |

## SCALE PLATE FOR LOUPE

STANDARD  
(Graduation: 0.1mm)

No. 4

## USE • Reticle for scale loupe

## FEATURES

- Reticle for scale loupe (LSL-26, LSL-35) with pattern shown above.

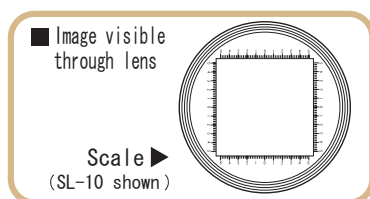
| Order No.  | Model No. | Pattern  | Applicable Model | Weight |
|------------|-----------|----------|------------------|--------|
| NEW 140146 | S-26-4    | No.4     | LSL-26           | 3g     |
| NEW 140147 | S-26-S    | STANDARD | LSL-26           | 3g     |
| NEW 140148 | S-35-4    | No.4     | LSL-35           | 4g     |
| NEW 140149 | S-35-S    | STANDARD | LSL-35           | 4g     |

STEREO  
MICROSCOPEFIBER  
SCOPETECHNO-  
ENDOSCOPECIRCLE  
SCOPEMICRO  
SCOPEINSPECTION  
MIRROR

MAGNIFIER



## SCALE LOUPE



**USE** • Precision work, check edge of knife, use to examine many small parts

**FEATURES**

- Lens : Glass
- Case : Plastic
- Reticle with full width scale, can be used to measure dimensions and diameter of objects
- Reticle can be removed to use as standard loupe



SL-10



SL-15

| Order No. | Model No. | Lens Diameter (mm) | Magnifications | Scale Graduation | Measurement Range (mm) | Weight |
|-----------|-----------|--------------------|----------------|------------------|------------------------|--------|
| 011274    | SL-10     | 28                 | 10 x           | 0.2mm            | ±5                     | 20g    |
| 011275    | SL-15     | 20                 | 15 x           | 0.1mm            | ±3                     | 15g    |

## LOUPE



**For precision work. Use to examine many small parts**



L-10



L-15

**USE** • For precision work

**MATERIAL**

- Lens : Glass

**FEATURES**

- Support allows use to place loupe directly on specimen to set focus distance
- Acrylic support for bright viewing

| Order No. | Model No. | Lens Diameter (mm) | Magnification | Weight |
|-----------|-----------|--------------------|---------------|--------|
| 011284    | L-10      | 30                 | 10            | 23g    |
| 011285    | L-15      | 21                 | 15            | 20g    |

## HIGH POWER MAGNIFIER



HL-10

- USE**
- Check edge of knife, use to examine microfilm, jewelry appraisal etc.

### FEATURES

- Lens : Glass
- Case : Plastic
- High magnification for precision work

| Order No. | Model No. | Lens Dimension (mm) | Magnification | Weight |
|-----------|-----------|---------------------|---------------|--------|
| 011276    | HL-10     | 28                  | 10x           | 38g    |
| 011277    | HL-15     | 21                  | 15x           | 30g    |

## MAGNETIC STAND MAGNIFIER



- USE**
- For detailed work and inspection at factory

### FEATURES

- Lens : Glass
- Flexible arm can be positioned as required
- Holding force : 800N ( 180 lb)

| Order No. | Model No. | Lens Diameter (mm) | Magnifications | Base Dimension (mm) | Weight |
|-----------|-----------|--------------------|----------------|---------------------|--------|
| 012876    | SB-80K    | 100                | 2 x            | 50×60×55            | 1.4kg  |

## METAL MAGNIFIER

(No.7020-W)



No.7070

No.7020-W

- USE**
- Examining minerals, insects, plant etc.

### FEATURES

- Lens : Glass
- Case : Stainless steels (Silver finish)
- Useful tool for factory and office
- Slide into case for storage

| Order No. | Model No. | Lens Dimension (mm) | Magnification | Weight |
|-----------|-----------|---------------------|---------------|--------|
| 011279    | No.7070   | 20                  | 3x•4x•5x      | 40g    |
| 011280    | No.7020-W | 8•13                | 10x•20x       | 60g    |

## STAND MAGNIFIER



- USE**
- For detailed work and inspection at factory

### FEATURES

- Lens : Glass
- Base : Cast iron
- Convenient to use with both hands free
- Flexible arm can be positioned as required

| Order No. | Model No. | Lens Diameter (mm) | Magnifications | Weight |
|-----------|-----------|--------------------|----------------|--------|
| 011281    | No.1650   | 90                 | 2.5 x          | 890g   |



MICROSCOPE

08

STEREO  
MICROSCOPE

FIBER  
SCOPE

TECHNO-  
ENDOSCOPE

CIRCLE  
SCOPE

MICRO  
SCOPE

INSPECTION  
MIRROR

MAGNIFIER



## STAND MAGNIFIER with Clips



**USE** • Check edge of knife etc., use to examine many small parts

### FEATURES

- Lens : Glass
- Base : Cast iron

| Order No. | Model No. | Lens Diameter (mm) | Magnification | Weight |
|-----------|-----------|--------------------|---------------|--------|
| 601264    | CS-65     | 65                 | 2.5 x         | 520g   |

## STAND MAGNIFIER

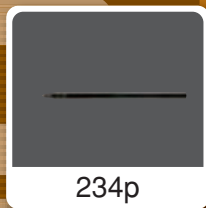
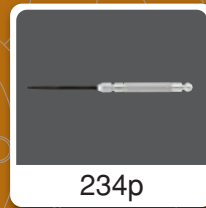
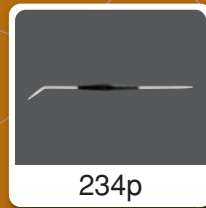
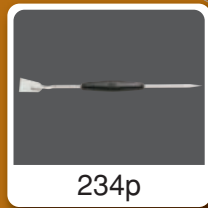
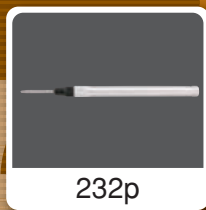


**USE** • Check edge of knife, use to examine many small parts

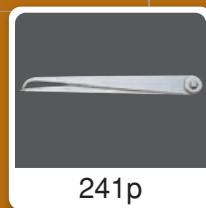
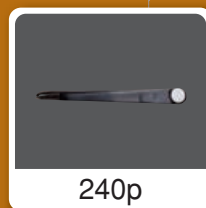
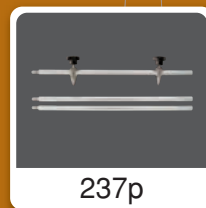
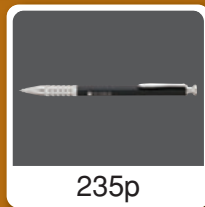
### FEATURES

- Lens : Glass
- Base : Cast iron
- Convenient to use with both hands free
- Flexible arm can be positioned as required

| Order No. | Model No. | Lens Diameter (mm) | Magnification | Weight |
|-----------|-----------|--------------------|---------------|--------|
| 011282    | No.1630   | 75                 | 2.5x          | 450g   |



# SCRIBE



PUNCH

SCRIBER

POWER  
SCRIBE

DIVIDERS

CALIPERS

TOOLMAKER  
SURFACE  
GAUGES



## COMBINATION CARBIDE TIP SCRIBER AND AUTOMATIC PUNCH (S TYPE)



**USE** • For center punch and marking work

### MATERIALS

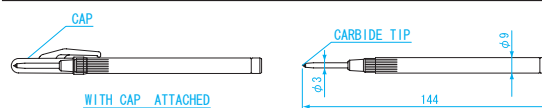
- Body : Aluminum (anodized)
- Tip : Carbide tip (G5)
- Tip hardness : HRA87

### FEATURES

- Spring loaded, no need to use a hammer
  - Can be used as center punch and as a scribe
  - Strength of the driving force can be adjustable by rotating the rear cap
- ※ Parts diagram is available at the end of this section

### DIMENSIONS

Unit : mm



Punching work



Scribing work

| Order No. | Model No. | Punch Force | Weight |
|-----------|-----------|-------------|--------|
| 000001    | AP-S      | 98N         | 33g    |

## CARBIDE TIP AUTOMATIC PUNCH (M TYPE)



**USE** • For center punch

### MATERIALS

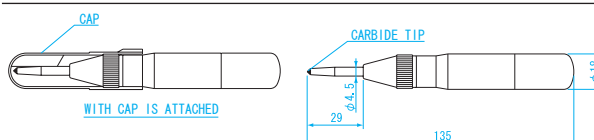
- Body : Plastic
- Tip : Carbide tip (G5)
- Tip hardness : HRA87

### FEATURES

- Spring loaded, no need to use a hammer
  - Strength of the driving force can be adjustable by rotating the rear cap
- ※ Parts diagram is available at the end of this section

### DIMENSIONS

Unit : mm



Punching work



Piercing empty spray can for safe disposal

| Order No. | Model No. | Punch Force | Weight |
|-----------|-----------|-------------|--------|
| 000002    | AP-M      | 294N        | 65g    |

## CARBIDE TIP AUTOMATIC PUNCH (M2 TYPE)



**USE** • For center punch

### MATERIALS

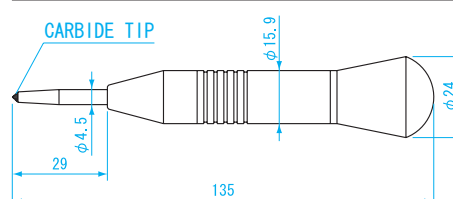
- Body : Brass (nickel plated)
- Tip : Carbide tip (G5)
- Tip hardness : HRA87

### FEATURES

- Spring loaded, no need to use a hammer
- Strength of the driving force can be adjustable by rotating the rear cap

### DIMENSIONS

Unit : mm



| Order No. | Model No. | Punch Force | Weight |
|-----------|-----------|-------------|--------|
| 000004    | AP-M2     | 294N        | 155g   |

## CARBIDE TIP AUTOMATIC PUNCH



**USE** • For center Punch

### MATERIALS

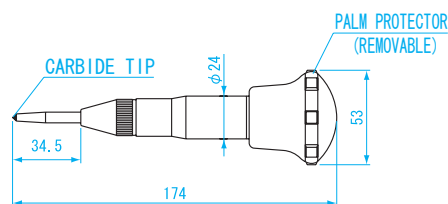
- Body : Plastic
- Tip : Carbide tip (G5)
- Tip hardness : HRA87

### FEATURES

- Spring loaded, no need to use a hammer
  - Strength of the driving force can be adjustable by rotating the rear cap
  - Wide grip for palm protection. Can be used continuously without impact on hand
- ※ Parts diagram is available at the end of this section

### DIMENSIONS

Unit : mm



| Order No. | Model No. | Punch Force | Weight |
|-----------|-----------|-------------|--------|
| 000003    | AP-L      | 490N        | 114g   |

## CARBIDE TIP CENTER PUNCH

### Pocket size

**USE** • For punch work

### MATERIALS

- Body : Sulfur free cutting steel
- Tip : Carbide tip (G5)

### FEATURES

- Ideal for work with small parts. with clip

| Order No. | Model No. | Length (mm) | Knurled part Diameter (mm) | Tip angle | Weight |
|-----------|-----------|-------------|----------------------------|-----------|--------|
| 000020    | PS        | 100         | φ 6                        | 60°       | 20g    |

## CARBIDE TIP CENTER PUNCH



TCP-M

**USE** • For punch work

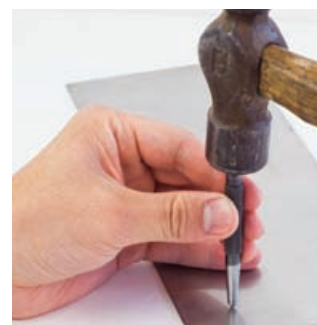
### MATERIALS

- Body : Sulfur free cutting steel
- Tip : Carbide tip (G5)

### FEATURES

- Black oxide knurled grip

| Order No. | Model No. | Length (mm) | Knurled part Diameter (mm) | Tip angle | Weight |
|-----------|-----------|-------------|----------------------------|-----------|--------|
| 000021    | TCP-S     | 77          | φ 8                        | 85°       | 36g    |
| 000022    | TCP-M     | 100         | φ 10                       | 85°       | 59g    |
| 000023    | TCP-L     | 110         | φ 15                       | 85°       | 137g   |
| 000024    | TCP-LL    | 125         | φ 17                       | 85°       | 190g   |
| 000025    | TCP-XL    | 177         | φ 20                       | 85°       | 320g   |



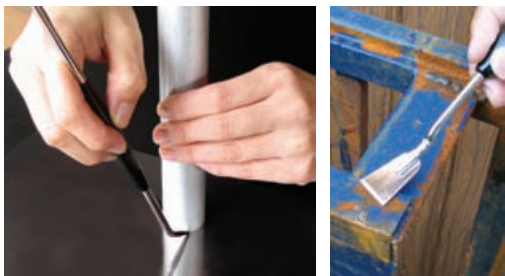
# SCRIBER



**USE** • For scribing work

- MATERIALS**
- Body : Carbon tool steel for machine use(nickel plated)
  - Grip : Plastic
  - Hardened tip
  - Tip hardness : HV520 ~ 590

**FEATURES** • Plated for rust resistance



| Order No. | Model No. | Length (mm) | Diameter (mm) | Grip Length (mm) | Grip Diameter (mm) | Spatula Width (mm) | Weight |
|-----------|-----------|-------------|---------------|------------------|--------------------|--------------------|--------|
| 000150    | K         | 240         | 5             | 82               | 15                 | —                  | 46g    |
| 000151    | N         | 240         | 5             | 82               | 15                 | 20                 | 48g    |

## CARBIDE TIP SCRIBER

PUNCH

SCRIBER

POWER SCRIBE

DIVIDERS

CALIPERS

TOOLMAKER SURFACE GAUGES



**USE** • For scribing/drawing on steel, brass, plastic and glass

- MATERIALS**
- Tip : carbide tip (G2)
  - Tip hardness : HRA87

**FEATURES**

- Carbide tip for use on hard steel or marking glass
- Low wear. The marking point is durable and will not burr
- Tip angle: 55°

| Order No. | Model No. | Length (mm)     | Diameter (mm) | Grip Length (mm) | Grip Diameter (mm) | Material                          | Weight |
|-----------|-----------|-----------------|---------------|------------------|--------------------|-----------------------------------|--------|
| 000160    | KW        | 224             | 4.5           | —                | —                  | Sulphur free-cutting steel        | 54g    |
| 000170    | PKW       | 235             | 7             | 80               | φ11                | Carbon tool steel for machine use | 70g    |
| 000180    | A         | 170(Stored-110) | 5             | 97               | φ10                | Carbon steel                      | 40g    |
| 000190    | H         | 150             | (HEX)6        | —                | —                  | Carbon tool steel                 | 50g    |
| 000200    | S         | 156             | 6             | —                | —                  | Carbon tool steel                 | 40g    |

## CARBIDE TIP SCRIBER (HANDY POCKET TYPE)

**USE** • Scribing/drawing work on steel, brass, plastic and glass

**MATERIALS** • Body : ABS resin  
• Tip : Carbide tip (G2)

**FEATURES** • Carbide tip for use on hard steel or marking glass  
• Low wear. The marking point is durable and will not burr  
• Cap with clip for storage and carrying

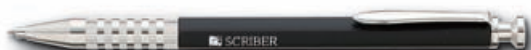
SC-P10



| Order No. | Model No. | Size            | Length (mm) | Diameter (mm) | Carbide tip Dia. (mm) | Carbide tip Angle | Weight |
|-----------|-----------|-----------------|-------------|---------------|-----------------------|-------------------|--------|
| 000260    | SC-P05    | 0.5mm           | 125         | 10            | 0.5                   | 50°               | 10g    |
| 000262    | SC-P10    | 1.0mm           | 125         | 10            | 1.0                   | 50°               | 10g    |
| 000264    | SC-P20    | 2.0mm           | 125         | 10            | 2.0                   | 50°               | 10g    |
| 000261    | SC-PE05   | Spare tip 0.5mm | —           | —             | 0.5                   | 50°               | 5g     |
| 000263    | SC-PE10   | Spare tip 1.0mm | —           | —             | 1.0                   | 50°               | 5g     |
| 000265    | SC-PE20   | Spare tip 2.0mm | —           | —             | 2.0                   | 50°               | 5g     |

## CARBIDE TIP SCRIBER (HANDY POCKET TYPE)

SC-P



SC-PDX



**USE** • For scribing work

**MATERIALS** • Body : Plastic (DX- metal)  
• Tip : Carbide tip (G2)

**FEATURES**  
• Clip for convenient carrying  
• Scriber tip retracts into body  
• Low wear. The marking point is durable and will not burr  
• Tip angle : 50°

| Order No. | Model No. | Standard | Tip Angle (mm) | Length (mm) | Diameter (mm) | Weight |
|-----------|-----------|----------|----------------|-------------|---------------|--------|
| 000210    | SC-P      | —        | 1              | 145         | 7.2           | 26g    |
| 000215    | SC-PDX    | DX       | 1              | 132         | 8             | 30g    |

## Replacement tip for Pencil scribers



**MATERIALS**

- Tip holder : Brass
- Tip : Carbide tip (G2)

※ Minimum order quantity : 5pcs

| Order No. | Model No. | Tip Diameter (mm) | Length (mm) | Weight |
|-----------|-----------|-------------------|-------------|--------|
| 000211    | SC-PE     | 1                 | 40          | 10g    |

## DIAMOND TIP SCRIBER



**USE** • For scribing work

**MATERIALS** • Body : Aluminum  
• Tip : Diamond tip

**FEATURES**  
• Durable diamond tip for scribing on glass etc  
• Scriber tip retracts into body

| Order No. | Model No. | Length (mm) | Diameter (mm) | Tip Diameter (mm) | Weight |
|-----------|-----------|-------------|---------------|-------------------|--------|
| 000256    | SC-PDXD   | 134         | 8             | 2.2               | 25g    |

## Replacement tip for Diamond tip scriber



**MATERIALS**

- Body : Carbon tool steel
- Tip : Diamond tip

| Order No. | Model No. | Length (mm) | Diameter (mm) | Tip Diameter (mm) | Weight |
|-----------|-----------|-------------|---------------|-------------------|--------|
| 000256    | SC-PDXDE  | 90          | 3.5           | 2                 | 10g    |

PUNCH

SCRIBER

POWER SCRIBER

DIVIDERS

CALIPERS

TOOLMAKER SURFACE GAUGES

SCRIBE

# CARBIDE TOOL SET



- USE**
  - For scribing materials such as glass, brass, plastic, copper
  - For punch work
  - For scribing circles and dividing distances
- FEATURES**
  - Plastic carrying case
- CONTENTS**
  - Carbide tipped scribe KW
  - Carbide tipped center punch M
  - Carbide tipped dividers 150mm (one each)

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 000303    | CTS-3     | 280g   |

# CARBIDE TOOL SET

PUNCH

SCRIBER

POWER  
SCRIBE

DIVIDERS

CALIPERS

TOOLMAKER  
SURFACE  
GAUGES

SCRIBE

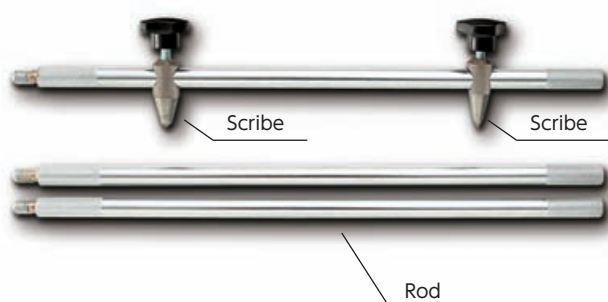


- USE**
  - For scribing work
- FEATURES**
  - Metal case holds 8 tools
- CONTENTS**
  - Stainless scale 150mm
  - Carbide tipped scribe KW
  - Carbide tipped center punch S
  - Carbide tipped center punch M
  - Carbide tipped dividers 100mm TFD-100
  - Carbide tipped dividers 150mm TFD-150
  - Carbide tipped dividers 250mm TFD-250
  - Hermaphrodite caliper 150mm FHC-150 (one each)

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 000308    | CTS-8     | 1.5kg  |



## BEAM TRAMMELS WITH CARBIDE TIP



**USE** • For scribing steel

### FEATURES

- Rod : Carbon tool steel (nickel plated)
- Scriber : Stainless steel
- Three rods will scribe a circle of approx. 1.5m
- Includes three bars
- Additional rods available (up to four rods can be combined )

| Order No. | Model No. | Outside Diameter (mm) | Weight |
|-----------|-----------|-----------------------|--------|
| 000100    | BT-13     | 10                    | 800g   |

## ATTACHEMENT SCRIBER FOR CALIPERS



※ Calipers are not included

**USE** • Mounting on caliper for scribing

### FEATURES

- Body : Carbon steel (black oxide coated)
- Tip : Carbide tipped (G2)
- Attach to the jaw of calipers for accurate scribing

| Order No. | Model No. | Applicable caliper size | Length (mm) | Groove Width (mm) | Weight |
|-----------|-----------|-------------------------|-------------|-------------------|--------|
| 000111    | N-10      | 100mm                   | 36          | 3.5               | 100g   |
| 000112    | N-20      | 150-200mm               | 43          | 4                 | 200g   |
| 000113    | N-30      | 250-300mm               | 72          | 4.5               | 500g   |
| 000116    | N-60      | 500-600mm               | 98          | 7                 | 1.1kg  |

## DIGITAL SCRIBING CALIPERS



※ Please refer to Page 33 for dimensions or detailed specifications for this item

**USE** • Outside diameter, inside diameter, step and depth measurement, and also scribing

### FEATURES

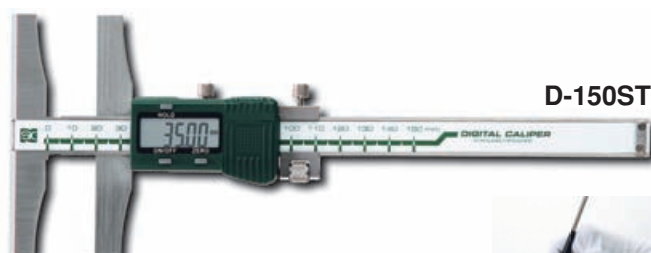
- Measuring and accurate marking work can be performed with this caliper
- Made of stainless steel
- Auto power off function(after 20min.)
- Carbide-tipped measuring faces
- One SR44 battery included for testing

| Order No. | Model No. | Measuring Range (mm) | Resolution (mm) | Weight |
|-----------|-----------|----------------------|-----------------|--------|
| 152005    | D-150S    | 0-150                | 0.01            | 160g   |

## DIGITAL SCRIBING CALIPERS



Enables stable and high-accuracy scribing work



※ Please refer to Page33 for dimensions or detailed specifications for this item

**USE** • Measures distance from caliper base to scribe edge

**MATERIAL** • Stainless steel

### FEATURES

- Measuring and accurate marking work can be performed with this caliper
- Hold function

### POWER

- One CR2032 (Lithium) battery included for testing

| Order No.  | Model No. | Measuring Range (mm) | Resolution (mm) | Weight |
|------------|-----------|----------------------|-----------------|--------|
| NEW 151277 | D-150ST   | 0-150                | 0.01            | 240g   |
| NEW 151278 | D-300ST   | 0-300                | 0.01            | 330g   |

# ELECTRIC MARKING PENCIL

09



**USE** • Iron, steel, hard metal marking

**FEATURES**

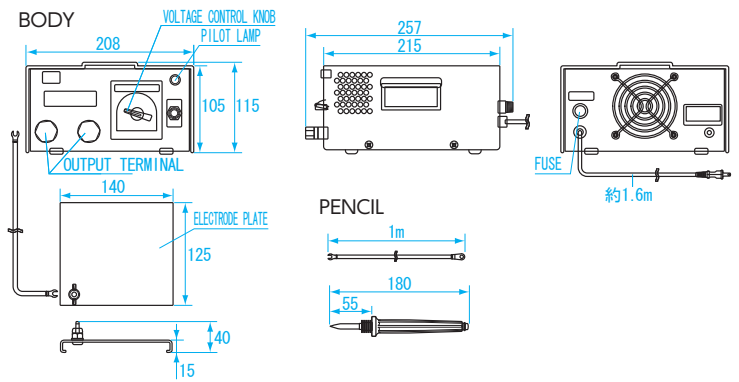
- Body : steel
- Capable of marking conductive metals( iron, steel, stainless steel) Hard clean surface can be marked (Copper, aluminum, carbide can not be marked because of poor conductance
- Tip alloy has superior abrasion resistance and electrical conductance

**SPECIFICATIONS**

- Rated voltage : 100V
- Rated frequency : 50-60Hz
- Rated current : 4.2A
- Fuse : 5A (Diameter 6.4mm × Length 30mm)
- Power cord : 1.6m
- Product dimensions : (W) 115 × (D) 208 × (H)257mm
- Accessories includes :  
 Cable with marking pen(approx. 1m)  
 Cable with fine marking pen (approx. 1m)  
 Grounding plate, Ground cable(approx. 1m)

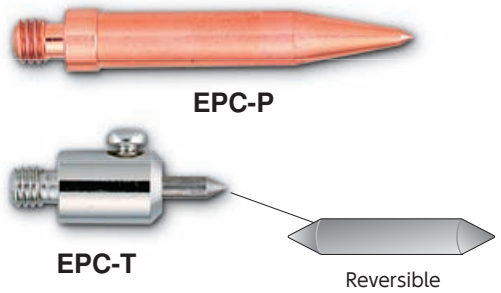
**DIMENSIONS**

Unit : mm



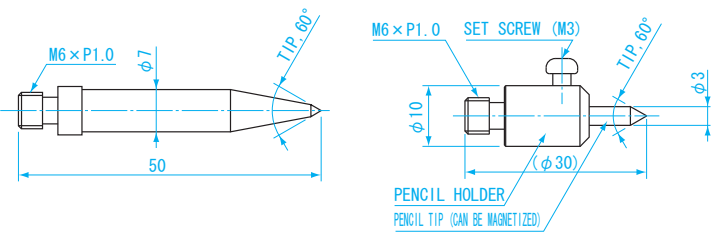
| Order No. | Model No. | Weight                      |
|-----------|-----------|-----------------------------|
| 011716    | EP-A3     | 9.5kg(includes accessories) |

## ELECTRIC MARKING PENCIL TIP



**DIMENSIONS**

Unit : mm



- Replacement for A3 Electric Marking Pencil
- EPC-P : Standard tip supplied with A3
- EPC-T : Excellent abrasion resistance, tip insert has two usable points

| Order No. | Model No. | Material     | Weight |
|-----------|-----------|--------------|--------|
| 011720    | EPC-P     | Copper alloy | 13g    |
| 011724    | EPC-T     | Tungsten     | 10g    |

## HANDY ELECTRIC MARKING PEN



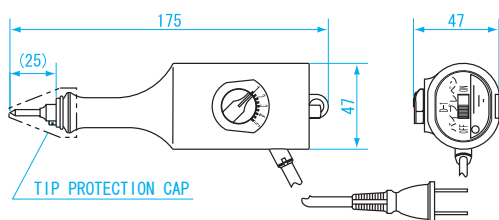
**USE** • Marking on steel, aluminum, brass, plastic, copper, glass, stone, wood

### FEATURES

- Body : Nylon resin
- Tip : Hard metal (G2)  
(Optional tip available)
- Adjustable vibration (5 steps)
- With Template
- Rated voltage : AC100V
- Rated frequency : 50-60Hz
- Rated power consumption : 7W
- Tip angle : 60°
- Hardness limit of marking object : Less than HV510

### DIMENSIONS

Unit : mm



【Application Table】 (○...possible to mark / ×...will not mark)

| Plastic | Glass | Non ferrous metal | Iron | Hardened steel | Stainless steel | Carbide alloy |
|---------|-------|-------------------|------|----------------|-----------------|---------------|
| ○       | ○     | ○                 | ○    | ×              | ○               | ×             |

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 011700    | D-1       | 295g   |

## PNEUMATIC ENGRAVING PERFORATOR

**NEW ITEM**

Engraving tool powered by compressed air



**USE** • Excellent for engraving metal, processed goods, cutlery, glass etc.  
• Engraving patterns on non ferrous metals.  
• Removing debris from fine details in castings.

**MATERIAL** • Bit : Carbide

### FEATURES

- 500 pulses per sec. for deep, clear engraving
- Can engrave hardened products (less than HV510)

### SPECIFICATIONS

- Air pressure : 0.4 ~ 0.7 MPa



for metal



for glass

【Marking Table】 (○...possible ×...will not mark)

| Plastic | Glass | Non ferrous metal | Iron | Hardened steel (Less than HV510) | Stainless steel | Carbide |
|---------|-------|-------------------|------|----------------------------------|-----------------|---------|
| ○       | ○     | ○                 | ○    | ○                                | ○               | ×       |

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 011751    | AP-03     | 250g   |

### PENCIL TIP for AP-03

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 011752    | AP-PH3    | 4g     |

SCRIBE

09

PUNCH

SCRIBER

POWER SCRIBE

DIVIDERS

CALIPERS

TOOLMAKER SURFACE GAUGES

SCRIBE

## CARBIDE TIP FIRM JOINT HERMAPHRODITE CALIPERS

**USE** • Transferring dimension off edge

### FEATURES

- Body : Carbon steel (black oxide coated)
- Tip : Carbide tipped (G2)
- Carbide tips for scribing on glass or hardened steel
- Riveted construction



FHC-150

| Order No. | Model No. | Nominal Size (mm) | Length (mm) | Thickness (mm) | Weight |
|-----------|-----------|-------------------|-------------|----------------|--------|
| 000705    | FHC-150   | 150               | 161         | 2              | 70g    |
| 000707    | FHC-200   | 200               | 212         | 2.2            | 100g   |

## CARBIDE TIP FIRM JOINT DIVIDER



TFD-150

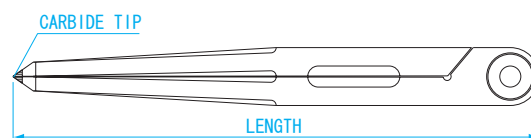


**USE** • Scribing circles and dividing distance

### FEATURES

- Body : Carbon steel (black oxide coated)
- Tip : Carbide tip (G2)
- Carbide tips for scribing on glass or hardened steel
- Riveted construction with pin and washer

### DIMENSIONS



※ Compass circle is approx. diameter of circle transcribed with jaws open 45° angle.

| Order No. | Model No. | Nominal Size (mm) | Length (mm) | Compass Circle (mm) | Weight |
|-----------|-----------|-------------------|-------------|---------------------|--------|
| 000403    | TFD-100   | 100               | 100         | 150                 | 70g    |
| 000405    | TFD-150   | 150               | 150         | 230                 | 140g   |
| 000407    | TFD-200   | 200               | 200         | 300                 | 260g   |
| 000408    | TFD-250   | 250               | 250         | 380                 | 350g   |
| 000409    | TFD-300   | 300               | 300         | 460                 | 510g   |

## FIRM JOINT DIVIDER



FD-150

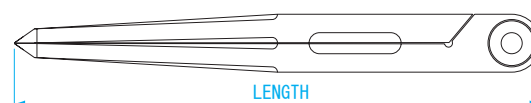


**USE** • For scribing circles, and dividing distances

### FEATURES

- Body : Carbon tool steel for machine use
- Tip : Hardened tip
- Hardened tip for crisp scribing
- Construction : Riveted with washer (FD-100 ~ FD-600) ; Bolted (FD-750, FD-1000)

### DIMENSIONS



※ Compass circle is approx. diameter of circle transcribed with jaws open 45° angle

| Order No. | Model No. | Nominal Size (mm) | Length (mm) | Compass Circle (mm) | Weight |
|-----------|-----------|-------------------|-------------|---------------------|--------|
| 000503    | FD-100    | 100               | 100         | 150                 | 58g    |
| 000505    | FD-150    | 150               | 150         | 230                 | 135g   |
| 000507    | FD-200    | 200               | 200         | 300                 | 239g   |
| 000508    | FD-250    | 250               | 250         | 380                 | 340g   |
| 000509    | FD-300    | 300               | 300         | 460                 | 440g   |

## INSIDE CALIPER



IC-150



**USE** • Transfer inside diameter and groove dimensions

### FEATURES

- Cold rolled steel
- Smooth opening and closing enable correct size transfers for measurement

| Order No. | Model No. | Length (mm) | Thickness (mm) | Weight |
|-----------|-----------|-------------|----------------|--------|
| 001103    | IC-100    | 100         | 1.6            | 40g    |
| 001105    | IC-150    | 150         | 1.6            | 50g    |
| 001107    | IC-200    | 200         | 1.6            | 70g    |
| 001109    | IC-300    | 300         | 2.0            | 150g   |

## OUTSIDE CALIPERS



OC-150

**USE** • Transfer diameters and measure round stock

### FEATURES

- Cold rolled steel
- Smooth opening and closing enable accurate size transfers for measurement



| Order No. | Model No. | Length (mm) | Thickness (mm) | Weight |
|-----------|-----------|-------------|----------------|--------|
| 001203    | OC-100    | 100         | 1.6            | 40g    |
| 001205    | OC-150    | 150         | 1.6            | 50g    |
| 001207    | OC-200    | 200         | 1.6            | 70g    |
| 001209    | OC-300    | 300         | 2.0            | 150g   |
| 001211    | OC-400    | 400         | 2.5            | 250g   |
| 001213    | OC-500    | 500         | 3.2            | 440g   |
| 001214    | OC-600    | 600         | 3.2            | 520g   |

## HERMAPHRODITE CALIPERS



HC-150



**USE** • Transfer dimensions off edge of material

### FEATURES

- Cold rolled steel
- Smooth opening and closing  
Can scribe brass and aluminum

| Order No. | Model No. | Length (mm) | Thickness (mm) | Weight |
|-----------|-----------|-------------|----------------|--------|
| 001303    | HC-100    | 100         | 1.6            | 30g    |
| 001305    | HC-150    | 150         | 1.6            | 50g    |
| 001307    | HC-200    | 200         | 1.6            | 70g    |
| 001309    | HC-300    | 300         | 2.0            | 150g   |



# DIVIDER (SPRING TYPE)

**USE** • Scribing circles, and dividing distance

## FEATURES

- Body : Carbon tool steel (SK steel)
- Hardened tip
- Opening/closing screw is centrally located in the legs to assure sensitive and smooth action



SD-150

| Order No. | Model No. | Nominal Size (mm) | Length (Tip to Pivot Center) | Thickness (mm) | Weight |
|-----------|-----------|-------------------|------------------------------|----------------|--------|
| 000805    | SD-150    | 150               | 150mm                        | 3.2            | 80g    |
| 000807    | SD-200    | 200               | 200mm                        | 3.2            | 120g   |

# INSIDE CALIPERS (SPRING TYPE)

**USE** • Transfer inside diameter and groove dimensions

## FEATURES

- Body : Carbon tool steel
- Set to proper dimension, and move to scale for measurement
- Opening/closing screw is centrally located in the legs to assure sensitive and smooth action



SI-150

| Order No. | Model No. | Nominal Size (mm) | Length (Tip to Pivot Center) | Thickness (mm) | Weight |
|-----------|-----------|-------------------|------------------------------|----------------|--------|
| 000905    | SI-150    | 150               | 150mm                        | 3.2            | 80g    |
| 000907    | SI-200    | 200               | 200mm                        | 3.2            | 120g   |

# OUTSIDE CALIPER (SPRING TYPE)

**USE** • Transfer dimensions and measure round stock

## FEATURES

- Body : Carbon tool steel
- Set to proper dimension, and move to scale for measurement
- Opening/closing screw is centrally located in the legs to assure sensitive and smooth action



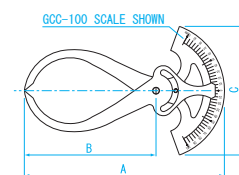
SO-200

| Order No. | Model No. | Nominal Size (mm) | Length (Tip to Pivot Center) | Thickness (mm) | Weight |
|-----------|-----------|-------------------|------------------------------|----------------|--------|
| 001005    | SO-150    | 150               | 150mm                        | 3.2            | 80g    |
| 001007    | SO-200    | 200               | 200mm                        | 3.2            | 120g   |



GCC-150

## DIMENSIONS



Unit : mm

| Model No. | A   | B   | C   | Thickness |
|-----------|-----|-----|-----|-----------|
| GCC-100   | 152 | 100 | 98  | 1.5       |
| GCC-130   | 196 | 130 | 125 | 1.5       |
| GCC-150   | 225 | 150 | 143 | 1.5       |
| GCC-200   | 300 | 200 | 190 | 2.0       |
| GCC-250   | 367 | 250 | 210 | 2.5       |
| GCC-300   | 450 | 300 | 268 | 2.5       |
| GCC-350   | 500 | 350 | 272 | 2.5       |
| GCC-400   | 600 | 400 | 360 | 2.5       |
| GCC-500   | 900 | 600 | 545 | 3.0       |
| GCC-600   | 900 | 600 | 545 | 3.0       |

## FEATURES

- OD, ID, Thickness and groove measurement

## FEATURES

- Stainless steel (Hardened tip)
- Graduated in millimeters from the center by photo etching on the head of the calipers
- Combination calipers are engineered for measuring both inner and outer diameters.

| Order No. | Model No. | Nominal Size (mm) | Graduation (mm) | Accuracy (mm) | Weight |
|-----------|-----------|-------------------|-----------------|---------------|--------|
| 002003    | GCC-100   | 100               | 1               | ± 0.5         | 100g   |
| 002004    | GCC-130   | 130               | 1               | ± 0.5         | 180g   |
| 002005    | GCC-150   | 150               | 1               | ± 0.5         | 250g   |
| 002007    | GCC-200   | 200               | 1               | ± 0.5         | 500g   |
| 002008    | GCC-250   | 250               | 1               | ± 0.5         | 720g   |
| 002009    | GCC-300   | 300               | 1               | ± 0.5         | 1.0kg  |
| 002010    | GCC-350   | 350               | 1               | ± 0.5         | 1.3kg  |
| 002011    | GCC-400   | 400               | 1               | ± 0.5         | 1.7kg  |
| 002013    | GCC-500   | 500               | 1               | ± 0.5         | 3.8kg  |
| 002014    | GCC-600   | 600               | 1               | ± 0.5         | 4.0kg  |

## TOOL MARKER SURFACE GAUGE



PUNCH

SCRIBER

POWER  
SCRIBE

DIVIDERS

CALIPERS

TOOLMAKER  
SURFACE  
GAUGES

SCRIBE



TSG-150C



- USE** • Alignment work, scribing on steel

## MATERIAL

- Scribe : Carbon tool steel (Hardened scribe tip)
- Base : Cast iron

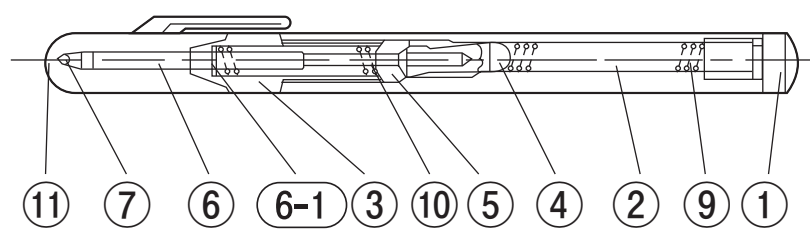
## FEATURES

- Scribe height can be easily adjusted by sliding up or down in slotted hole.

| Order No.  | Model No. | Nominal Size (mm) | Scribe Length (mm) | Length (mm) | Base Length (mm) | Base Width (mm) | Base Height (mm) | Weight |
|------------|-----------|-------------------|--------------------|-------------|------------------|-----------------|------------------|--------|
| NEW 151188 | TSG-150C  | 150               | 130                | 150         | 70               | 45              | 23               | 460g   |
| NEW 151189 | TSG-200C  | 200               | 170                | 200         | 70               | 45              | 23               | 490g   |
| NEW 151190 | TSG-300C  | 300               | 265                | 300         | 80               | 55              | 25               | 690g   |

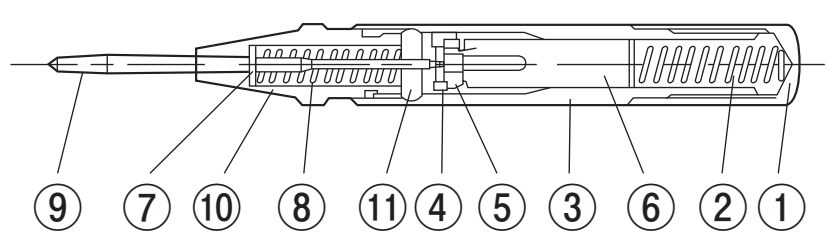
# AUTOMATIC PUNCH PARTS DRAWINGS

## Automatic Center Punch S

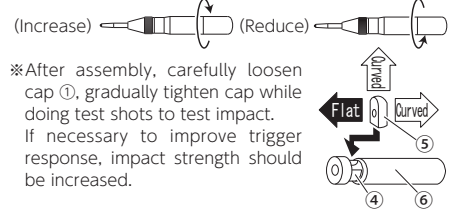


| Parts No. | Parts Name   | Parts No. | Parts Name      | Parts No. | Parts Name    |
|-----------|--------------|-----------|-----------------|-----------|---------------|
| ①         | PORT CAP     | ⑤         | ECCENTRIC GUIDE | ⑨         | MAIN SPRING   |
| ②         | HAMMER GUIDE | ⑥         | MARKER ROD      | ⑩         | RETURN SPRING |
| ③         | PILOT CAP    | ⑥-1       | E-RING          | ⑪         | CAP           |
| ④         | HAMMER       | ⑦         | CENTER POINT    |           |               |

## Automatic Center Punch M

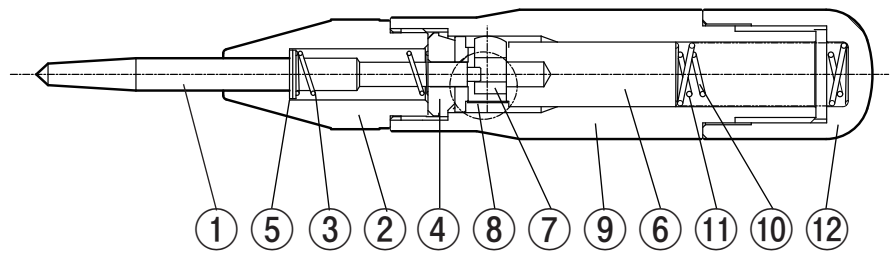


●Impact strength adjustment.  
(AP-S, AP-M, AP-L)

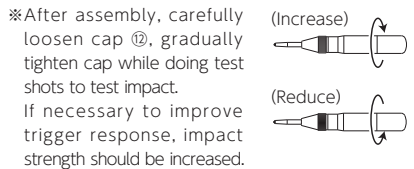


| Parts No. | Parts Name     | Parts No. | Parts Name    | Parts No. | Parts Name |
|-----------|----------------|-----------|---------------|-----------|------------|
| ①         | CAP            | ⑤         | TRIGGER       | ⑨         | MARKER ROD |
| ②         | MAIN SPRING    | ⑥         | HAMMER        | ⑩         | PILOT CAP  |
| ③         | TRIGGER GUIDE  | ⑦         | STOP RING     | ⑪         | GUIDE      |
| ④         | SPRING TRIGGER | ⑧         | RETURN SPRING |           |            |

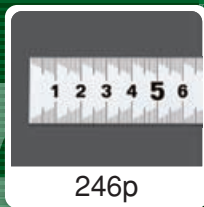
## Automatic Center Punch L



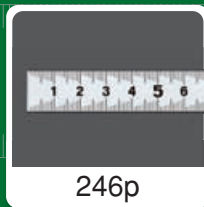
●Impact strength adjustment



| Parts No. | Parts Name    | Parts No. | Parts Name     | Parts No. | Parts Name    |
|-----------|---------------|-----------|----------------|-----------|---------------|
| ①         | MARKING ROD   | ⑤         | STOP RING      | ⑨         | TRIGGER GUIDE |
| ②         | PILOT CAP     | ⑥         | HAMMER         | ⑩         | MAIN SPRING   |
| ③         | RETURN SPRING | ⑦         | TRIGGER        | ⑪         | SUB SPRING    |
| ④         | GUIDE LOCK    | ⑧         | SPRING TRIGGER | ⑫         | CAP           |



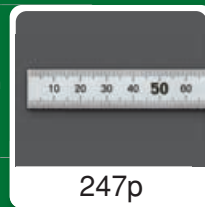
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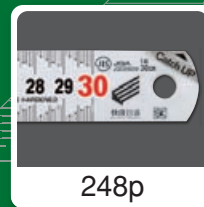
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247p



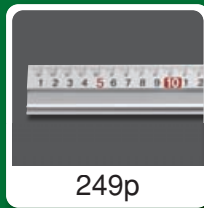
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248p



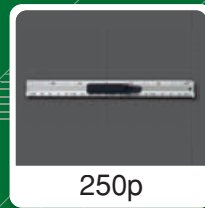
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249p



249p



250p

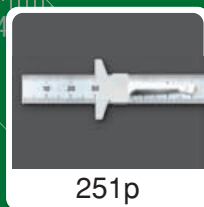


250p

# SCALE



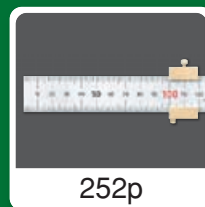
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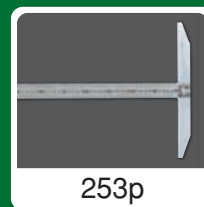
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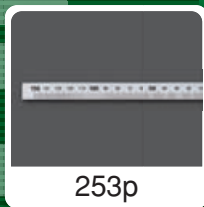
252p



252p



253p



253p



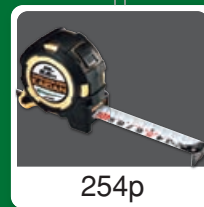
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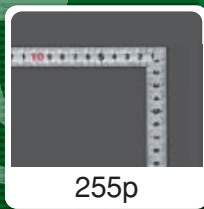
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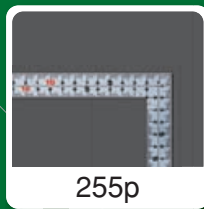
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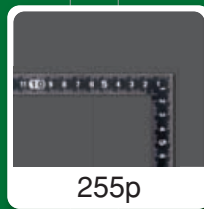
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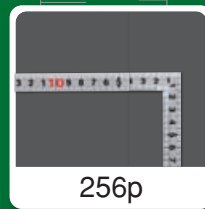
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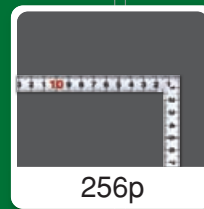
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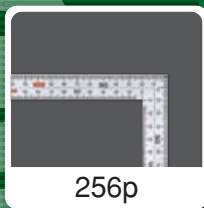
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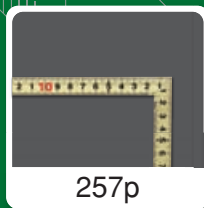
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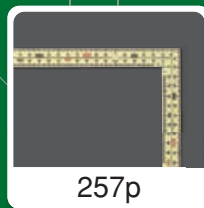
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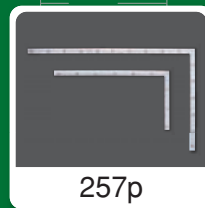
256p



257p



257p



257p

RULES

CARPENTER'S  
SQUARES

ANGLE  
SQUARES

## SATIN SCALE -- KAIDAN (Ziggurat) scale

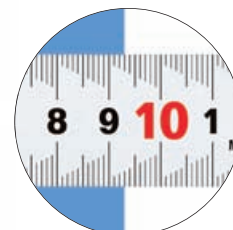
New stepped millimeter graduations prevents misreading



SV-15KD



SV-30KD



**USE** • For measuring dimensions, drawing a straight line and/or scribing

### MATERIAL

- Stainless steel(SUS420J2)

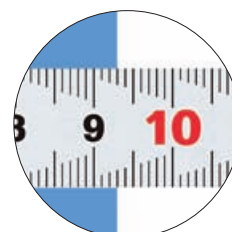
### FEATURES

- Increasing height of each mark makes it easier for eye to distinguish 1mm steps
- Repeating number style
- Edges are finished smooth to prevent marring surfaces
- JIS B7516
- Satin finish

| Order No.  | Model No. | Size (mm) | Finish | Accuracy (mm) | Length (mm) | Width (mm) | Thickness (mm) | Weight |
|------------|-----------|-----------|--------|---------------|-------------|------------|----------------|--------|
| NEW 111097 | SV-15KD   | 150       | Satin  | ±0.15         | 175         | 15         | 0.5            | 10g    |
| NEW 111098 | SV-30KD   | 300       | Satin  | ±0.15         | 335         | 25         | 1              | 65g    |
| NEW 111099 | SV-60KD   | 600       | Satin  | ±0.20         | 640         | 30         | 1.2            | 181g   |
| NEW 111100 | SV-100KD  | 1000      | Satin  | ±0.20         | 1050        | 35         | 1.5            | 425g   |

## SATIN SCALE -- KAIDAN (Ziggurat) Scale, Narrow Type

New stepped millimeter graduations prevents misreading



**USE** • For measuring dimensions, drawing a straight line and/or scribing

### MATERIAL

- Stainless steel(SUS420J2)

### FEATURES

- Increasing height of each mark makes it easier for eye to distinguish 1mm steps
- Repeating number style
- Thin, Narrow type, can also be mounted on machine
- Edges are finished smooth to prevent marring surfaces
- Satin finish

| Order No.  | Model No. | Size (mm) | Finish | Accuracy (mm) | Length (mm) | Width (mm) | Thickness (mm) | Weight |
|------------|-----------|-----------|--------|---------------|-------------|------------|----------------|--------|
| NEW 111164 | HS-30KD   | 300       | Satin  | ±0.15         | 325         | 15         | 0.5            | 18g    |





SV-300

**USE** • For measuring distance, drawing a straight line and/or scribing

**MATERIAL**

- Stainless steel (SUS420J2)

**FEATURES**

- JIS B7516

| Order No. | Model No. | Nominal Size (mm) | Finish   | Accuracy (mm) | Length (mm) | Width (mm) | Thickness (mm) | Weight |
|-----------|-----------|-------------------|----------|---------------|-------------|------------|----------------|--------|
| 111101    | ST-150    | 150               | Polished | ± 0.15        | 175         | 15         | 0.5            | 10g    |
| 111102    | ST-300    | 300               | Polished | ± 0.15        | 335         | 25         | 1              | 65g    |
| 111103    | ST-600    | 600               | Polished | ± 0.20        | 640         | 30         | 1.2            | 180g   |
| 111104    | ST-1000   | 1000              | Polished | ± 0.20        | 1050        | 35         | 1.5            | 425g   |
| 506108    | ST-1500   | 1500              | Polished | ± 0.25        | 1565        | 40         | 2              | 950g   |
| 506109    | ST-2000   | 2000              | Polished | ± 0.30        | 2065        | 40         | 2              | 1250g  |
| 111106    | SV-150    | 150               | Satin    | ± 0.15        | 175         | 15         | 0.5            | 10g    |
| 111107    | SV-300    | 300               | Satin    | ± 0.15        | 335         | 25         | 1              | 65g    |
| 111108    | SV-600    | 600               | Satin    | ± 0.20        | 640         | 30         | 1.2            | 180g   |
| 111109    | SV-1000   | 1000              | Satin    | ± 0.20        | 1050        | 35         | 1.5            | 425g   |
| 111160    | SV-1500   | 1500              | Satin    | ± 0.25        | 1565        | 40         | 2              | 950g   |
| 111161    | SV-2000   | 2000              | Satin    | ± 0.30        | 2065        | 40         | 2              | 1250g  |

## METAL RULES- NARROW TYPE



**USE** • For measuring distance, drawing a straight line and/or scribing

**MATERIAL**

- Stainless steel (SUS420J2)

**FEATURES**

- Conforms to measured surface, can also be mounted on machine
- Thin and narrow ruler
- Satin finish

| Order No. | Model No. | Nominal Size (mm) | Accuracy (mm) | Length (mm) | Width (mm) | Thickness (mm) | Weight |
|-----------|-----------|-------------------|---------------|-------------|------------|----------------|--------|
| 111110    | HS-300    | 300               | ± 0.15        | 325         | 15         | 0.5            | 18g    |

## KAIDAN(Ziggurat) CATCH-UP SCALE

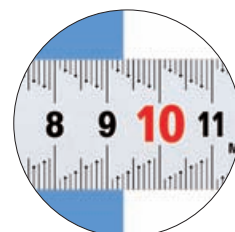
Easy to pick up with on hand  
New stepped millimeter graduations prevents misreading



CU-15KD



CU-30KD



**USE** • For measuring dimensions, drawing a straight line and/or scribing

### MATERIAL

- Stainless steel (SUS420J2)

### FEATURES

- Increasing height of each mark makes it easier for eye to distinguish 1mm steps
- Sequential number style can be read directly without checking the surrounding numbers. 2mm point markings
- Bent up edge makes scale easy to pick up with one hand.
- Edges are finished smooth to prevent marring surfaces
- JIS B7516
- Satin finish

| Order No.               | Model No. | Size (mm) | Finish | Accuracy (mm) | Length (mm) | Width (mm) | Thickness (mm) | Weight |
|-------------------------|-----------|-----------|--------|---------------|-------------|------------|----------------|--------|
| N <sub>ETV</sub> 111158 | CU-15KD   | 150       | Satin  | ±0.15         | 175         | 15         | 0.5            | 10g    |
| N <sub>ETV</sub> 111159 | CU-30KD   | 300       | Satin  | ±0.15         | 335         | 25         | 1              | 65g    |

## CATCH-UP SCALE

Press on edge to lift. Easy to pick up with on hand



CU-30



**USE** • For measuring dimensions, drawing a straight line and/or scribing

### MATERIAL

- Stainless steel (SUS420J2)

### FEATURES

- Bent up edge makes scale easy to pick up with one hand.
- Edges are finished smooth to prevent marring surfaces
- JIS B7516

| Order No. | Model No. | Size (mm) | Finish | Accuracy (mm) | Length (mm) | Width (mm) | Thickness (mm) | Weight |
|-----------|-----------|-----------|--------|---------------|-------------|------------|----------------|--------|
| 111170    | CU-15     | 150       | Satin  | ± 0.15        | 175         | 15         | 0.5            | 10g    |
| 111171    | CU-30     | 300       | Satin  | ± 0.15        | 335         | 25         | 1              | 65g    |
| 111172    | CU-60     | 600       | Satin  | ± 0.20        | 640         | 30         | 1.2            | 180g   |
| 111173    | CU-100    | 1000      | Satin  | ± 0.20        | 1050        | 35         | 1.5            | 425g   |

## ALUMINUM RULER--KAIDAN(Ziggurat)



Increasing height of each mark makes it easier for eye to distinguish 1mm steps



AS-30

**USE** • For measuring distance, cutting and/or scribing

**MATERIAL**  
• Aluminum

**FEATURES**

- Increasing height of each mark makes it easier for eye to distinguish 1mm steps
- Two color printing (Navy & Red), easy to distinguish the lines and graduations when drawing
- Centered-zero secondary markings on some models (AS-30 • AS-60 • AS-100)
- With anti-slip sheet (except AS-15), and grip groove.

| Order No. | Model No. | Size (mm) | Center-zero secondary marking (Yes/No) | Accuracy (mm) | Length (mm) | Width (mm) | Thickness (mm) | Weight |
|-----------|-----------|-----------|----------------------------------------|---------------|-------------|------------|----------------|--------|
| 111165    | AS-15     | 150       | None                                   | ± 0.16        | 180         | 35         | 5              | 36g    |
| 111166    | AS-30     | 300       | Yes                                    | ± 0.20        | 330         | 35         | 5              | 65g    |
| 111167    | AS-45     | 450       | None                                   | ± 0.25        | 480         | 35         | 5              | 95g    |
| 111168    | AS-60     | 600       | Yes                                    | ± 0.28        | 630         | 35         | 5              | 124g   |
| 111169    | AS-100    | 1000      | Yes                                    | ± 0.40        | 1030        | 35         | 5              | 203g   |

## ALUMINUM CUTTING RULER--KAIDAN(Ziggurat)



Optimal for cutting with no-slip backing and Stainless plate



ACS-60



With Stainless steel plate to protect blade when used as cutting guide

RULES

CARPENTER'S SQUARES

ANGLE SQUARES

**USE** • For measuring dimensions, drawing a straight line, cutting and/or scribing

**MATERIAL**  
• Aluminum

**FEATURES**

- Increasing height of each mark makes it easier for eye to distinguish 1mm steps
- Two color printing (Navy & Red), easy to distinguish the lines and graduations when drawing
- Centered-zero secondary markings.
- Anti-slip back sheet and Stainless steel back plate.

| Order No.  | Model No. | Size (mm) | Center-zero secondary marking (Yes/No) | Accuracy (mm) | Length (mm) | Width (mm) | Thickness (mm) | Weight |
|------------|-----------|-----------|----------------------------------------|---------------|-------------|------------|----------------|--------|
| NEW 006851 | ACS-60    | 600       | Yes                                    | ± 0.28        | 630         | 61         | 9              | 330g   |
| NEW 006852 | ACS-100   | 1000      | Yes                                    | ± 0.40        | 1030        | 61         | 9              | 530g   |
| NEW 006853 | ACS-150   | 1500      | Yes                                    | ± 0.55        | 1530        | 61         | 9              | 770g   |
| NEW 006854 | ACS-200   | 2000      | Yes                                    | ± 0.70        | 2030        | 61         | 9              | 1020g  |

SCALE

## ALUMINUM CUTTING RULER WITH HANDLE--KAIDAN(Ziggurat)



Optimal for cutting with no-slip backing and Stainless plate. Handle to help stabilize work



ACS-60H



Handle has slot for blade removal



With Stainless steel plate to protect blade when used as cutting guide.

**USE** • For measuring dimensions, drawing a straight line, cutting and/or scribing

**MATERIAL**

- Aluminum

**FEATURES**

- Increasing height of each mark makes it easier for eye to distinguish 1mm steps
- Handle to help stabilize work while cutting
- Slot in handle for snapping off utility knife blade
- Two color printing (Navy & Red), easy to distinguish the lines and graduations when drawing
- Centered-zero secondary markings.
- Anti-slip back sheet and Stainless steel back plate.

| Order No. | Model No. | Size (mm) | Center-zero secondary marking (Yes/No) | Accuracy (mm) | Length (mm) | Width (mm) | Thickness (mm) | Weight |
|-----------|-----------|-----------|----------------------------------------|---------------|-------------|------------|----------------|--------|
| 006855    | ACS-60H   | 600       | Yes                                    | ±0.28         | 630         | 61         | 58             | 500g   |
| 006856    | ACS-100H  | 1000      | Yes                                    | ±0.40         | 1030        | 61         | 58             | 700g   |
| 006857    | ACS-150H  | 1500      | Yes                                    | ±0.55         | 1530        | 61         | 58             | 940g   |
| 006858    | ACS-200H  | 2000      | Yes                                    | ±0.70         | 2030        | 61         | 58             | 1190g  |

## KAIDAN(Ziggurat) TRIANGLE SCALE



New stepped millimeter graduations prevents misreading.



TSB-30KD

TSB-15KD

**USE** • Drafting, for reading scaled drawing.

**MATERIAL**

- ABS

**FEATURES**

- Increasing height of each mark makes it easier for eye to distinguish 1mm steps

**Scale specification**

- Scale : 1/20, 1/50, 1/100, 1/200, 1/250, 1/300

| Order No. | Model No. | Length (mm) | Width (mm) | Thickness (mm) | Weight |
|-----------|-----------|-------------|------------|----------------|--------|
| 111148    | TSB-15KD  | 170         | 18         | 16             | 15g    |
| 111149    | TSB-30KD  | 325         | 27         | 24             | 60g    |

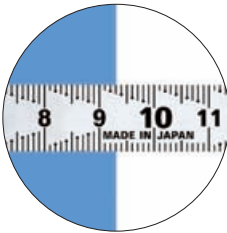
RULES

CARPENTER'S  
SQUARESANGLE  
SQUARES

SCALE

# KAIDAN(Ziggurat) CLIP SCALE

New stepped millimeter graduations prevents misreading



**USE** • For measuring dimensions, drawing and marking work

**MATERIAL**  
• Stainless steel (SUS420J2)

- FEATURES**
- Increasing height of each mark makes it easier for eye to distinguish 1mm steps
  - Sequential number style can be read directly without checking the surrounding numbers.
  - 2mm point markings
  - Can be used as depth gauge by sliding clip along scale.
  - With clip for easy carrying
  - Edges are finished smooth to prevent marring surfaces
  - Satin finish



With clip for easy carrying

| Order No. | Model No. | Size (mm) | Finish | Length (mm) | Width (mm) | Thickness (mm) | Weight |
|-----------|-----------|-----------|--------|-------------|------------|----------------|--------|
| 009903    | SVC-15KD  | 150       | Satin  | 160         | 12         | 0.5            | 8g     |

# METAL SCALE WITH CLIP



SVC-150

**USE** • For measuring distance, drawing a straight line and/ or scribing

**MATERIAL**  
• Stainless steel (SUS420J2)

- FEATURES**
- Clip for easy carrying
  - Slide is helpful for measure depth and steps
  - Satin finish (SVC-150)
  - Polished finish (STC-150)

| Order No. | Model No. | Nominal Size (mm) | Length (mm) | Width (mm) | Thickness (mm) | Weight |
|-----------|-----------|-------------------|-------------|------------|----------------|--------|
| 009902    | SVC-150   | 150               | 160         | 12         | 0.5            | 8g     |
| 009901    | STC-150   | 150               | 160         | 12         | 0.5            | 8g     |

RULES

CARPENTER'S SQUARES

ANGLE SQUARES

SCALE



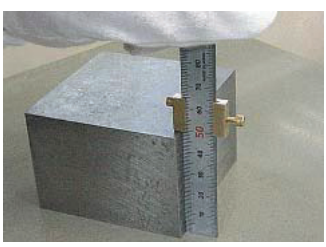
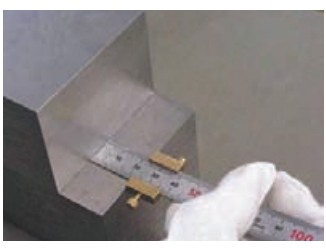
# SCALE DEPTH GAUGE Attachment



SD-300



SD-6010



**USE** • For accurate marking and measurement for width, height and depth

**MATERIAL**  
• Brass (SD-150、SD-300) • Aluminum (SD-6010)

**FEATURES**  
• Slide to any position on scale. Screw tightens for setting  
• Convenient size for metal and woodworking use  
• Attachable to JIS rules

| Order No. | Model No. | Type                 | Length (mm) | Thickness (mm) | Weight |
|-----------|-----------|----------------------|-------------|----------------|--------|
| 006843    | SD-150    | For 150mm Scale      | 15          | 5              | 20g    |
| 006844    | SD-300    | For 300mm Scale      | 20          | 6              | 90g    |
| 006845    | SD-6010   | For 600・1000mm Scale | 30          | 13             | 26g    |

## DEPTH SCALE



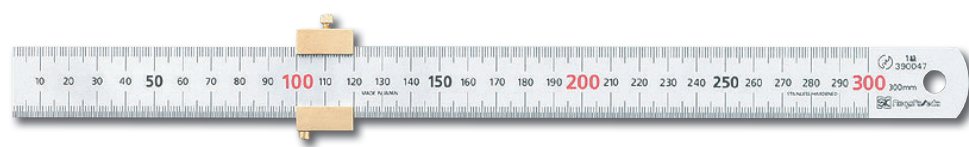
Scale with depth gauge attachment! Repeated marking with efficiency!

RULES

CARPENTER'S SQUARES

ANGLE SQUARES

FRONT



BACK



SD-300S

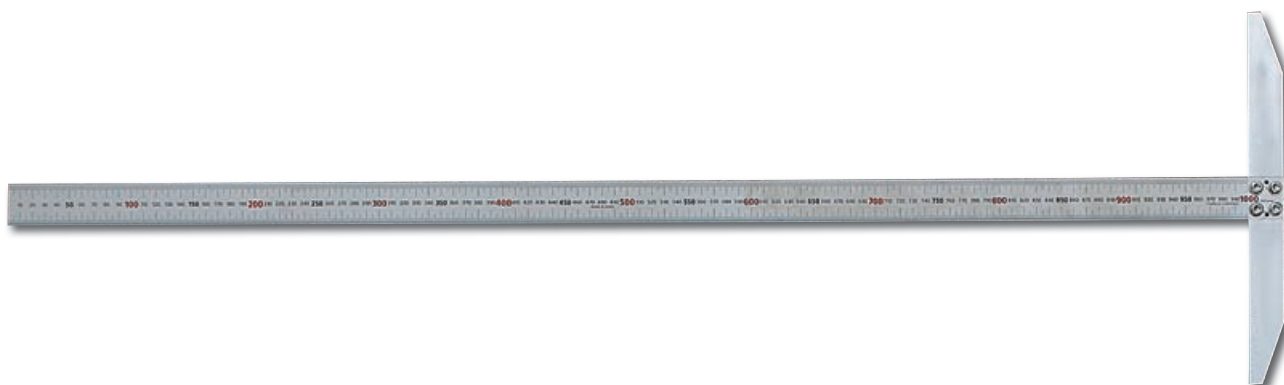
**USE** • Accurate marking, and measuring if component depth, height, width.

**MATERIAL**  
• Scale: Stainless Steel (SUS420J2)  
• Depth attachment: Brass

**FEATURES**  
• Scale with depth gauge attachment  
• Edges are finished smooth to prevent marring surfaces

| Order No. | Model No. | Size (mm) | Length (mm) | Width (mm) | Thickness (mm) | Weight |
|-----------|-----------|-----------|-------------|------------|----------------|--------|
| 006846    | SD-150S   | 150       | 175         | 32         | 5              | 20g    |
| 006847    | SD-300S   | 300       | 335         | 45         | 6              | 86g    |

## T-SQUARE



TT-100

**USE** • Measurement and marking dimensions relative to an end face.

### MATERIAL

- Base: Aluminum
- Scale: Stainless Steel (SUS420J2)

### FEATURES

- Make measurements or markings relative to an end face.

| Order No. | Model No. | Size | Accuracy (mm) | Length (mm) | Width (mm) | Thickness (mm) | Weight |
|-----------|-----------|------|---------------|-------------|------------|----------------|--------|
| 111228    | TT-100    | 1m   | ± 0.20        | 1300        | 300        | 16             | 640g   |
| 111229    | TT-200    | 2m   | ± 0.30        | 2400        | 300        | 16             | 1530g  |

## MACHINE SCALE - custom

Custom Designs  
with Fast Delivery!

Please contact us with request



Center '0' scale



Standard scale

※ Sample of custom design

### APPLICATIONS

- Size measurements
- For attaching to fixtures and machines

### MATERIALS

- Stainless steel ( SUS420J2)
- Satin finish

### 〈SPECIFICATIONS〉

Units : mm

| Size      | 50         | 100 | 150 | 200 | 300 | 600 | 1000 | 1500 | 2000 |
|-----------|------------|-----|-----|-----|-----|-----|------|------|------|
| Width     | 15         |     |     |     |     |     |      |      |      |
| Thickness | 0.5        |     |     |     |     |     |      |      |      |
| Width     | 20         |     |     |     |     |     |      |      |      |
| Thickness | 0.5 or 1.0 |     |     |     |     |     |      |      |      |

※ Scales are available with "0" on end , or "0" at center

Custom sizes can be provided in addition to the standard sizes listed.

RULES

CARPENTER'S  
SQUARES

ANGLE  
SQUARES

SCALE

## Pro K Aidan(Ziggurat) -- TAPE MEASURE

New stepped millimeter graduations prevents misreading.



ALCP-1955KD



ALCP-2555KD



ALCP-1620KD



ALCP-1635KD



### RULES

Increasing height of each mark makes it easier for eye to distinguish 1mm steps

### CARPENTER'S SQUARES

### ANGLE SQUARES

### SCALE

**USE** • Measure dimensions

### MATERIAL

- Body: ABS, Rubber
- Tape: SK4 tool steel (Nylon coated)

### FEATURES

- Increasing height of each mark makes it easier for eye to distinguish 1mm steps
- Repeating digit type for large, easy to read numbers.
- Auto-lock engages when tape is pulled to prevent retraction
- Water resistant Nylon-coated tape
- Tape standard: JIS class 1
- Non-slip rubber grip



With belt clip and strap for easy carrying

| Order No. | Model No.   | Max measuring length (m) | Tape width (mm) | Weight |
|-----------|-------------|--------------------------|-----------------|--------|
| 111196    | ALCP-1620KD | 2.0                      | 16              | 110g   |
| 111197    | ALCP-1635KD | 3.5                      | 16              | 140g   |
| 111198    | ALCP-1955KD | 5.5                      | 19              | 270g   |
| 111199    | ALCP-2555KD | 5.5                      | 25              | 340g   |

## SATIN STEEL SQUARE -- KAIDAN(Ziggurat), Single Marking

New stepped millimeter graduations prevents misreading.

**USE** • Measure dimensions and marking for stone or metal work.

**MATERIAL**  
• Stainless (SUS420J1)

**FEATURES**

- Increasing height of each mark makes it easier for eye to distinguish 1 mm steps
- Repeating digit type for large, easy to read numbers.
- Same graduations on both edges for easy marking

| Order No.  | Model No. | Size | Type               | Graduations | Length (mm) | Length (mm) | Width (mm) | Thickness (mm) | Weight |
|------------|-----------|------|--------------------|-------------|-------------|-------------|------------|----------------|--------|
| NEW 111188 | SDD-30CKD | 30cm | Constant thickness | four edge   | 320         | 160         | 15         | 1.3            | 50g    |
| NEW 111189 | SDD-50CKD | 50cm | Constant thickness | four edge   | 520         | 260         | 15         | 1.3            | 90g    |

## SATIN STEEL SQUARE -- KAIDAN(Ziggurat), Wide type

New stepped millimeter graduations prevents misreading.

**USE** • Measure dimensions and marking for stone or metal work.

**MATERIAL**  
• Stainless steel

**FEATURES**

- Increasing height of each mark makes it easier for eye to distinguish 1 mm steps
- Repeating digit type for large, easy to read numbers.
- Wide, scale for inner and outer measurements

| Order No.  | Model No. | Size | Type | Graduations | Length (mm) | Length (mm) | Width (mm) | Thickness (mm) | Weight |
|------------|-----------|------|------|-------------|-------------|-------------|------------|----------------|--------|
| NEW 111190 | MT-30KD   | 30cm | Wide | four edge   | 320         | 160         | 20         | 2.0            | 145g   |
| NEW 111191 | MT-50KD   | 50cm | Wide | four edge   | 520         | 260         | 20         | 2.0            | 235g   |

## STEEL CARPENTER SQUARE -- KAIDAN(Ziggurat) Type

New stepped millimeter graduations prevents misreading.

**USE** • Measure dimensions and marking for carpentry work.

**MATERIAL**  
• Steel

**FEATURES**

- Increasing height of each mark makes it easier for eye to distinguish 1 mm steps
- Sequential number style can be read directly without checking the surrounding numbers. 2mm point markings

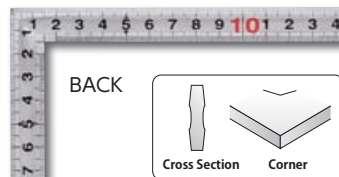
| Order No.  | Model No. | Size | Type               | Graduations                    | Length (mm) | Length (mm) | Width (mm) | Thickness (mm) | Weight |
|------------|-----------|------|--------------------|--------------------------------|-------------|-------------|------------|----------------|--------|
| NEW 111192 | CB-15KD   | 30cm | Constant thickness | top - 4 edge/ reverse - 2 edge | 325         | 165         | 15         | 1.2            | 68g    |



## SATIN CARPENTER'S SQUARE [OURYU]



Sheet metal workshop essential!



**USE** • Measure dimensions and marking for carpentry and sheet metal work.

**MATERIAL** • Stainless (SUS420J1)

**FEATURES** • Pliable and sturdy for long life.

Accuracy

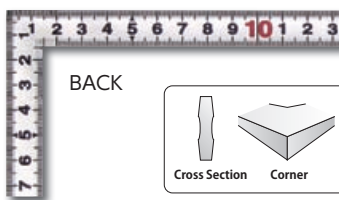
| Model No. | Squareness                 | Length Tolerance  |
|-----------|----------------------------|-------------------|
| FSDD-50C  | less than 0.07mm per 100mm | 500mm $\pm$ 0.2mm |
| SDD-50C   | less than 0.1mm per 100mm  | 500mm $\pm$ 0.2mm |
| SDD-30C   | less than 0.1mm per 100mm  | 300mm $\pm$ 0.2mm |

| Order No. | Model No. | Size | Type               | Graduations | Length (mm) | Length (mm) | Width (mm) | Thickness (mm) | Weight |
|-----------|-----------|------|--------------------|-------------|-------------|-------------|------------|----------------|--------|
| 111185    | FSDD-50C  | 50cm | High precision     | four edge   | 520         | 260         | 15         | 1.3            | 90g    |
| 111184    | SDD-50C   | 50cm | Constant thickness | four edge   | 520         | 260         | 15         | 1.3            | 90g    |
| 111183    | SDD-30C   | 30cm | Constant thickness | four edge   | 320         | 160         | 15         | 1.3            | 50g    |

## SATIN CARPENTER'S SQUARE -- Metalworker's [SEIRYU]



Metal workshop essential!



**USE** • Measure dimensions and marking for carpentry and metal work.

**MATERIAL** • Stainless (SUS420J1)

**FEATURES** • Pliable and sturdy for long life.

Accuracy

| Model No. | Squareness                | Length Tolerance  |
|-----------|---------------------------|-------------------|
| M-50      | less than 0.1mm per 100mm | 500mm $\pm$ 0.2mm |
| M-30      | less than 0.1mm per 100mm | 300mm $\pm$ 0.2mm |

| Order No. | Model No. | Size | Type          | Graduations | Length (mm) | Length (mm) | Width (mm) | Thickness (mm) | Weight |
|-----------|-----------|------|---------------|-------------|-------------|-------------|------------|----------------|--------|
| 111176    | M-50      | 50cm | Rolled corner | four edge   | 520         | 260         | 15         | 1.3            | 90g    |
| 111177    | M-30      | 30cm | Rolled corner | four edge   | 320         | 160         | 15         | 1.3            | 50g    |

RULES

CARPENTER'S SQUARES

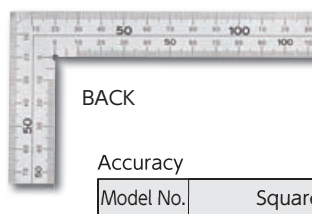
ANGLE SQUARES

SCALE

## SATIN CARPENTER'S SQUARE - Thick / Thin Types [GINRYU]



Metal workshop essential! Wide, with thick or thin blade.



**USE** • Measure dimensions and marking for carpentry and metal work.

**MATERIAL** • Thick type: Stainless steel  
• Thin Type: Hardened Stainless Steel

**FEATURES** • Wide, same graduations on both edges for easy marking

Accuracy

| Model No. | Squareness                | Length Tolerance  |
|-----------|---------------------------|-------------------|
| MT-50     | less than 0.1mm per 100mm | 500mm $\pm$ 0.2mm |
| MT-30     | less than 0.1mm per 100mm | 300mm $\pm$ 0.2mm |
| MT-15     | less than 0.1mm per 100mm | 150mm $\pm$ 0.2mm |
| TH-50     | less than 0.1mm per 100mm | 500mm $\pm$ 0.2mm |
| TH-30     | less than 0.1mm per 100mm | 300mm $\pm$ 0.2mm |

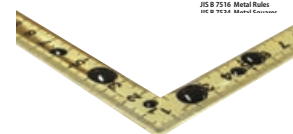
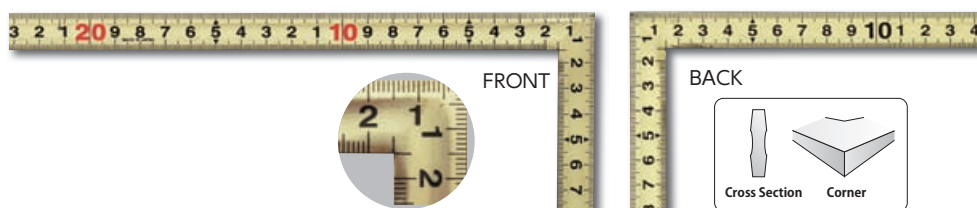
| Order No. | Model No. | Size | Type        | Graduations | Length (mm) | Length (mm) | Width (mm) | Thickness (mm) | Weight |
|-----------|-----------|------|-------------|-------------|-------------|-------------|------------|----------------|--------|
| 111178    | MT-50     | 50cm | Wide, thick | four edge   | 520         | 260         | 20         | 2.0            | 235g   |
| 111179    | MT-30     | 30cm | Wide, thick | four edge   | 320         | 160         | 20         | 2.0            | 145g   |
| 111180    | MT-15     | 15cm | Wide, thick | four edge   | 170         | 90          | 20         | 2.0            | 78g    |
| 111181    | TH-50     | 50cm | Wide, thin  | four edge   | 520         | 260         | 20         | 1.0            | 120g   |
| 111182    | TH-30     | 30cm | Wide, thin  | four edge   | 320         | 160         | 20         | 1.0            | 75g    |



## CARPENTER'S SQUARE - Ironworker's [TOBI]



Oil repelling coating makes scale easy to read!



Oil repelling coating



Lanyard hole for safety rope

**USE** • Measuring dimensions, checking right angles, marking work.

**MATERIAL** • Stainless (SUS420J1)

**FEATURES** • Lanyard hole for safety rope

Accuracy

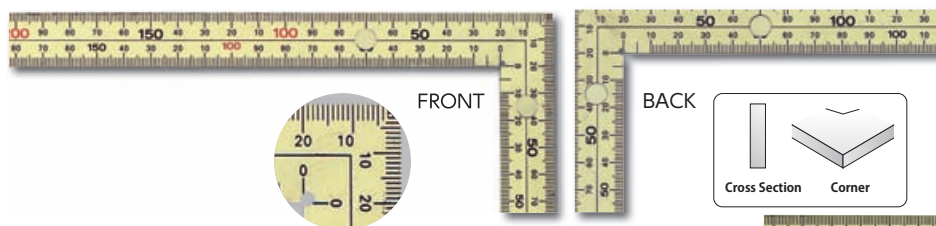
| Model No. | Squareness                | Length Tolerance  |
|-----------|---------------------------|-------------------|
| GCT-30C   | less than 0.1mm per 100mm | 300mm $\pm$ 0.2mm |

| Order No. | Model No. | Size | Type      | Graduations | Length (mm) | Length (mm) | Width (mm) | Thickness (mm) | Weight |
|-----------|-----------|------|-----------|-------------|-------------|-------------|------------|----------------|--------|
| 111186    | GCT-30C   | 30cm | Gold-coat | four edges  | 320         | 160         | 15         | 1.3            | 60g    |

## WIDE CARPENTER'S SQUARE - Ironworker's, Magnetized [TOBI]



Oil repelling coating makes scale easy to read!



Oil repelling coating



Lanyard hole for safety rope

**USE** • Measuring dimensions, checking right angles, marking work.

**MATERIAL** • Stainless steel

**FEATURES** • Powerful magnet firmly holds to metal. Position at right angle with one hand.

Powerful magnet  
Accuracy

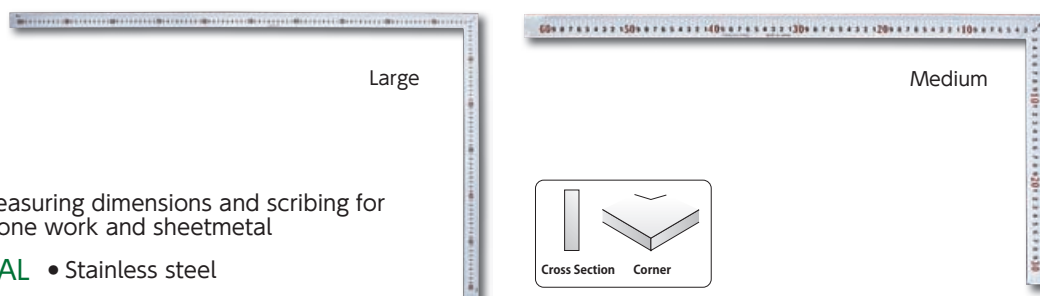
| Model No. | Squareness                | Length Tolerance  |
|-----------|---------------------------|-------------------|
| GWT-30CMG | less than 0.1mm per 100mm | 300mm $\pm$ 0.2mm |

| Order No. | Model No. | Size | Type      | Graduations | Length (mm) | Length (mm) | Width (mm) | Thickness (mm) | Weight |
|-----------|-----------|------|-----------|-------------|-------------|-------------|------------|----------------|--------|
| 111187    | GWT-30CMG | 30cm | Gold-coat | four edge   | 320         | 160         | 20         | 2.0            | 142g   |

## Medium/Large Metal



Sheet metal workshop essential! Measure dimensions, check right angles, and marking work.



**USE** • Measuring dimensions and scribing for stone work and sheetmetal

**MATERIAL** • Stainless steel

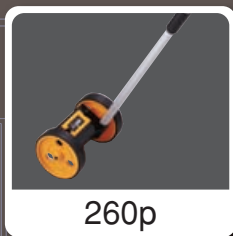
**FEATURES** • For working with large material

| Order No. | Model No. | Size  | Type   | Graduations         | Length (mm) | Length (mm) | Width (mm) | Thickness (mm) | Weight |
|-----------|-----------|-------|--------|---------------------|-------------|-------------|------------|----------------|--------|
| 111175    | MT-100    | 100cm | Large  | both side, two edge | 1026        | 629         | 35         | 3.6            | 1090g  |
| 111174    | MT-60     | 60cm  | Medium | both side, two edge | 631         | 325         | 30         | 2.0            | 420g   |

This image shows a full page of blank graph paper. The grid consists of small, uniform squares formed by thin, light gray dashed lines. The lines are evenly spaced both horizontally and vertically, creating a continuous pattern across the entire white background. There are no margins, text, or other markings on the page.



260p



260p



261p



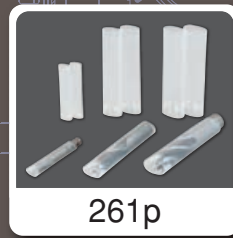
261p



261p



261p



261p



261p



262p



262p



262p



262p

# OTHERS



263p



263p



263p



263p



264p



264p



265p



265p



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266p

SURVEYOR'S  
WHEEL

COUNTER

DRILL  
CASE

TOOLING

ELECTRIC  
TOOLS

WORKING  
TOOLS

SUCTION  
LIFTER

## ROAD COUNTER



**Measure distance by simply rolling! Equipped with a convenient stand to support in an upright position**

- **Maximum measurement distance: 9999.9m**  
**Minimum display: 10cm**



With carrying bag

- **USE** • Distance measurement in road construction or on building site, land measurement, or ground maintenance.
- **FEATURES**
  - Distance measurement by simply rolling
  - Equipped with a convenient stand to hold in an upright position.
  - With carrying bag

| Order No. | Model No. | Minimum Display | Maximum Measurement Distance | Counter Display                                                               | Measurement Error | Weight |
|-----------|-----------|-----------------|------------------------------|-------------------------------------------------------------------------------|-------------------|--------|
| 111226    | RM-4      | 10cm            | 9999.9m                      | First digit on right : 10cm dist. display<br>4 digits on left: meters display | within 0.15%      | 590g   |

## ROAD COUNTER



**Measure distance by simply rolling! Equipped with a convenient stand to support in an upright position**

- **Maximum measurement distance: 999.99m / Minimum display: 1cm**



With carrying bag

- **USE** • Distance measurement in road construction or on building site, land measurement, or ground maintenance.
- **FEATURES**
  - Distance measurement by simply rolling
  - Double wheel for a stable measurement
  - With carrying bag

| Order No. | Model No. | Minimum Display | Maximum Measurement Distance | Counter Display                                                   | Measurement Error | Weight |
|-----------|-----------|-----------------|------------------------------|-------------------------------------------------------------------|-------------------|--------|
| 111227    | RM-3MW    | 1cm             | 999.99m                      | 2 digits on right: cm display<br>3 digits on left: meters display | within 0.15%      | 480g   |



## COUNTER

**There is no doubt for the correct count!**

- USE** • For checking product quantity, traffic volume, headcount or other counting tasks.
- MATERIAL** • Steel  
• Plastic (C-4PC)
- FEATURES**
  - 1 count per push. Various type available for every application.
  - 4 digit counter
- POWER (DC-4WS)**
  - 2pcs of LR44 (for testing)



| Order No.  | Model No. | TYPE       | Weight |
|------------|-----------|------------|--------|
| 151740     | C-4B      | Stand type | 77g    |
| 151741     | C-4H      | hand-held  | 53g    |
| 151742     | C-4PC     | Plastic    | 33g    |
| NEW 151744 | DC-4WS    | Digital    | 45g    |

## SAFETY CAP FOR ENDMILLS

- USE** • Protects tips of endmills
- FEATURES**
  - Polypropylene
  - Easy to distinguish endmills with clear case
  - Suitable for protecting tip of endmills kept on tooling rack
  - Designed to prevent slipping out



| Order No. | Model No. | Shaft Dia. (mm) | Length (mm) | Protection Length (mm) | 1 Set contains | Weight |
|-----------|-----------|-----------------|-------------|------------------------|----------------|--------|
| 111130    | AMS-06    | 6               | 45          | 40                     | 100 pcs        | 60g    |
| 111131    | AMS-08    | 8               | 45          | 40                     | 100 pcs        | 80g    |
| 111132    | AMS-10    | 10              | 77          | 70                     | 100 pcs        | 180g   |
| 111133    | AMS-12    | 12              | 77          | 70                     | 100 pcs        | 210g   |
| 111134    | AMS-16    | 16              | 122         | 110                    | 50 pcs         | 250g   |
| 111135    | AMS-20    | 20              | 122         | 111                    | 50 pcs         | 350g   |
| 111136    | AMS-25    | 25              | 170         | 117                    | 50 pcs         | 380g   |
| 111137    | AMS-32    | 32              | 170         | 150                    | 20 pcs         | 400g   |
| 111138    | AMS-42    | 42              | 215         | 190                    | 20 pcs         | 700g   |
| 111139    | AMS-55    | 55              | 215         | 190                    | 20 pcs         | 950g   |

## DRILL BIT CASE



- USE** • Arranging drill bits
- FEATURES**
  - Plastic
  - Arranging drill bits for easy access with size marking
  - Rotary type

storage size

|       |                     |           |           |           |           |              |
|-------|---------------------|-----------|-----------|-----------|-----------|--------------|
| R-113 | 1.0~10.0 (0.1 step) | 1.0 ~9.8  | 1.1 9.9   | 1.2 10.0  | 91pcs     | TOTAL 100pcs |
|       | Other size          | 10.5 12.0 | 10.9 12.5 | 11.0 12.9 | 11.5 13.0 | 9pcs         |

| Order No. | Model No. | Type   | Dimension (mm)         | Weight |
|-----------|-----------|--------|------------------------|--------|
| 013010    | R-113     | Rotary | Diameter×Height 180×82 | 300g   |



# STYLUS CENTER



SR-10



SR-104



SR-104L

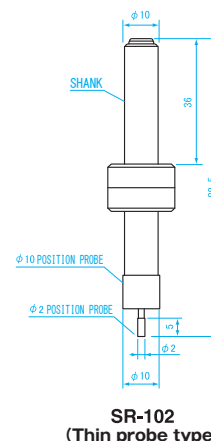
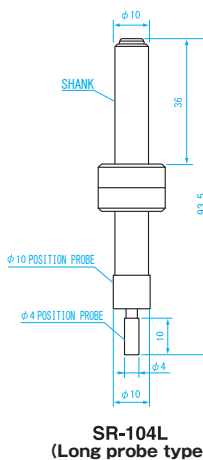
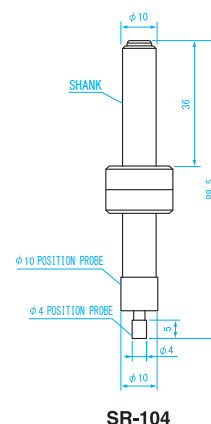
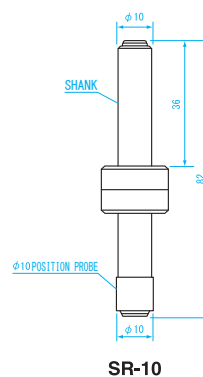


SR-102



## DIMENSIONS

Units: mm



### USE

- High precision centering X and Y axis

### FEATURES

- High carbon chromium steel
- Position detection within  $\pm 2 \mu\text{m}$
- Working face is lapped finish
- General, NC milling machine, MC origin positioning, high accuracy positioning
- Position probe on workpiece edge

| Order No. | Model No. | Probe (mm)                       | Shank Diameter (mm) | X-Z Repeatability          | Operating Speed (rpm) | Weight |
|-----------|-----------|----------------------------------|---------------------|----------------------------|-----------------------|--------|
| 013310    | SR-10     | $\phi 10$                        | 10                  | Within $\pm 2 \mu\text{m}$ | 450 ~ 600             | 55g    |
| 013314    | SR-104    | $\phi 4 \times 5 \cdot \phi 10$  | 10                  | Within $\pm 2 \mu\text{m}$ | 450 ~ 600             | 56g    |
| 013320    | SR-104L   | $\phi 4 \times 10 \cdot \phi 10$ | 10                  | Within $\pm 2 \mu\text{m}$ | 450 ~ 600             | 57g    |
| 013325    | SR-102    | $\phi 2 \times 5 \cdot \phi 10$  | 10                  | Within $\pm 2 \mu\text{m}$ | 450 ~ 600             | 56g    |

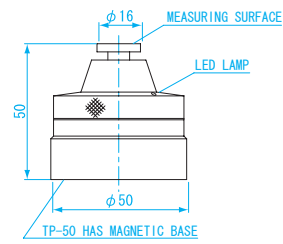
## TOOL POINT GAUGE



TP-50

### DIMENSIONS

Units: mm



USE • High accuracy position detection

### FEATURES

- Alloy tool steel
- Zero point with light sensor(electr)
- Zero point setting (NC lathe, Machining Center)

POWER • One LR44 (lithium) battery included for testing

| Order No. | Model No. | Nominal Size (mm) | Accuracy (mm)   | Repeatability      | Measuring Force |
|-----------|-----------|-------------------|-----------------|--------------------|-----------------|
| 013205    | TP-50     | 50                | $50^{+0.005}_0$ | $\pm 1\mu\text{m}$ | 2.5N            |
| 013206    | TP-50M    | 50                | $50^{+0.005}_0$ | $\pm 1\mu\text{m}$ | 2.5N            |

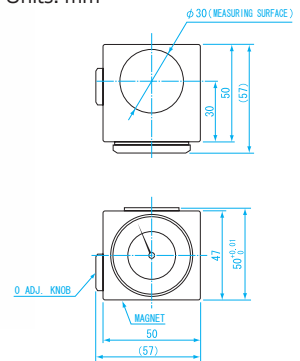
| Stroke | Magnetic Force | Weight |
|--------|----------------|--------|
| 3mm    | —              | 300g   |
| 3mm    | 29N            | 300g   |

## TOOL POINT GAUGE WITH DIAL GAUGE



### DIMENSIONS

Units: mm



USE • Position detection with dial gauge

### FEATURES

- Measuring surface: SKD11
- Body : S45C
- Easy zero setting with dial gauge
- With magnet on the bottom surface

| Order No. | Model No. | Nominal Size (mm) | Accuracy (mm)  | Repeatability (m)   | Measuring Force less than | Dial gauge Graduation (mm) |
|-----------|-----------|-------------------|----------------|---------------------|---------------------------|----------------------------|
| 013207    | DTP-50M   | 50                | $50^{+0.01}_0$ | $\pm 10\mu\text{m}$ | 5N                        | 0.01                       |

| Stroke | Magnetic Force | Weight |
|--------|----------------|--------|
| 2mm    | 100N           | 840g   |

## POINT MASTER WITH CARBIDE TIP



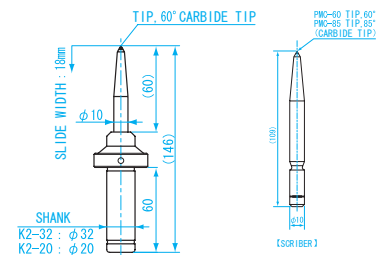
K2-32



K2-20

### DIMENSIONS

Units: mm



USE • Marking for milling operation

### FEATURES

- Body • Scriber: Carbon tool steel
- Tip: Carbide tip
- High accuracy marking operation can be performed
- 60° carbide tip comes with standard

### SPECIFICATION

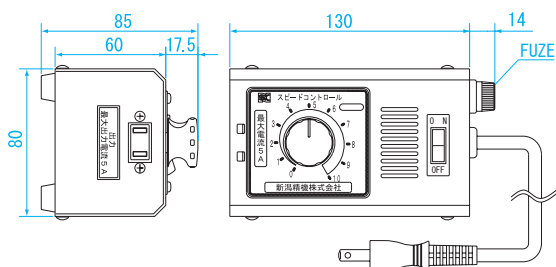
- Slide width: 18mm
- Spring strength: 3.5-4N (for 10mm spring compression)
- Concentricity: 0.02mm
- Steel ball diameter: 5mm

| Order No. | Model No.       | Point Angle | Length (mm) | Scriber Diameter (mm) | Weight |
|-----------|-----------------|-------------|-------------|-----------------------|--------|
| 013420    | K2-32           | 60°         | 146         | 10                    | 510g   |
| 013425    | K2-20           | 60°         | 146         | 10                    | 280g   |
| 013421    | PMC-60(Scriber) | 60°         | 109         | 10                    | 58g    |
| 013422    | PMC-85(Scriber) | 85°         | 109         | 10                    | 54g    |

## SPEED CONTROLLER

### DIMENSIONS

Units: mm



### FEATURES

- Useful for: Electric drills, Hand grinders, Belt sanders, Jig-saws, Disc grinders, Drivers, Heating equipment, Soldering irons & Incandescent lights
- Body: Steel
- Energy saving model reduces power and eliminates wasteful energy use
- With power switch
- Noise (interference) protection (TV, radio etc.)
- Control for reduced speed

### SPECIFICATIONS

- Single phase
- Rated voltage: AC100V
- Rated frequency: 50-60Hz
- Operating temperature range: 0-45°C
- Control: Triac phase control
- Load current: 5A



Comparison of level control settings



Level set to 5



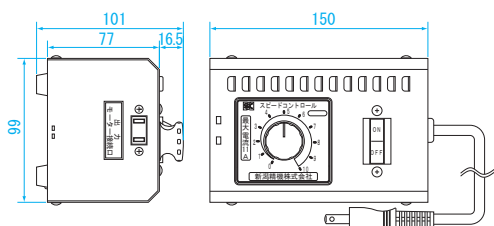
Level set to 10

| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 011305    | SP-105    | 600g   |

## SPEED CONTROLLER

### DIMENSIONS

Units: mm



### FEATURES

- Control speed of power tools(single phase commutator motors) and dimming of incandescent lights
- Body: Steel
- Energy saving model reduces power and eliminates wasteful energy use
- With power switch
- Circuit protection: circuit breaker
- Control for reduced speed

### SPECIFICATIONS

- Single phase
- Rated voltage: AC100V
- Rated frequency: 50-60Hz
- Operating temperature range: 0 ~ 45°C
- Control: Triac phase control
- Load current: 11A



| Order No. | Model No. | Weight |
|-----------|-----------|--------|
| 011311    | SP-110    | 1kg    |

SURVEYOR'S  
WHEEL

COUNTER

DRILL  
CASE

TOOLING

ELECTRIC  
TOOLS

WORKING  
TOOLS

SUCTION  
LIFTER

OTHERS

## MINI PUMP

Update on classic tool! Hand drill becomes a mini pump with easy installation onto drill chuck. Now with hex shank for use on standard drill or on driver.



Attached to hand drill Easily lifts water to 2nd floor

■ **USE** • Water supply and drainage of waste water

■ **MATERIAL**

- Main body: Plastic
- Rotor: Oil-resistant rubber

■ **FEATURES**

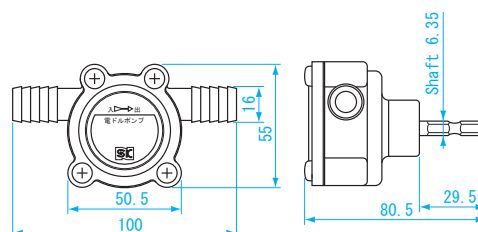
- Corrosion resistant pump is self contained. Operated by a standard electric hand drill

■ **SPECIFICATIONS**

- Hose diameter: 16mm
- Max water rise: 12m
- Pumping capacity: 10 ~ 12L/min
- Operating speed: 1600min<sup>-1</sup>
- Shaft diameter: 6.35mm
- Accessories: hose band 2pc

## DIMENSIONS

Units: mm



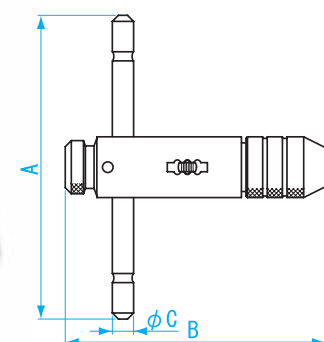
| Order No. | Model No. | Drive shaft             | Weight |
|-----------|-----------|-------------------------|--------|
| 011771    | RDP-01    | 1/4" hex shaft (6.35mm) | 160g   |

## T-HANDLE RATCHET TAP WRENCH

### DIMENSIONS



RTH-M



Units: mm

| Model No. | A   | B   | C |
|-----------|-----|-----|---|
| RTH-M     | 100 | 85  | 7 |
| RTH-L     | 120 | 110 | 8 |

■ **USE** • Tapping

■ **FEATURES**

- Body: Carbon tool steel
- Chuck: Sintered metal
- Sliding T-shaped handle
- Can work with one hand
- Tapping easily in narrow spaces
- Three switch position (left, right and fixed)

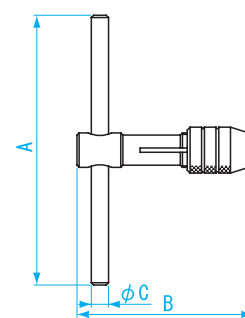
| Order No. | Model No. | Size | Tap Range | Weight |
|-----------|-----------|------|-----------|--------|
| 013002    | RTH-M     | M    | M3 ~ M8   | 200g   |
| 013003    | RTH-L     | L    | M8 ~ M12  | 330g   |

## TAP WRENCH

### DIMENSIONS



TRS-1



Units: mm

| Model No. | A   | B  | C |
|-----------|-----|----|---|
| TRS-1     | 94  | 60 | 6 |
| TRS-2     | 103 | 74 | 6 |
| TRS-3     | 124 | 90 | 8 |

■ **USE** • Tapping

■ **FEATURES**

- Carbon tool steel
- Sliding T-shaped handle
- Can work with one hand
- Tapping easily in narrow spaces

| Order No. | Model No. | Tap Range | Weight |
|-----------|-----------|-----------|--------|
| 012995    | TRS-1     | M3 ~ M6   | 90g    |
| 012996    | TRS-2     | M4 ~ M10  | 130g   |
| 012997    | TRS-3     | M8 ~ M12  | 210g   |

SURVEYOR'S WHEEL

COUNTER

DRILL CASE

TOOLING

ELECTRIC TOOLS

WORKING TOOLS

SUCTION LIFTER

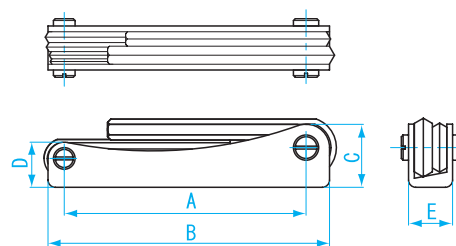
OTHERS



## FOLDING HEX WRENCH SET



### DIMENSIONS



Units: mm

| Model No. | A  | B   | C    | D    | E  |
|-----------|----|-----|------|------|----|
| HKS-1     | 67 | 78  | 17.5 | 12.5 | 12 |
| HKS-2     | 86 | 105 | 28   | 21   | 20 |
| HKS-02    | 86 | 105 | 28   | 21   | 20 |
| HKS-B2    | 86 | 105 | 28   | 21   | 20 |

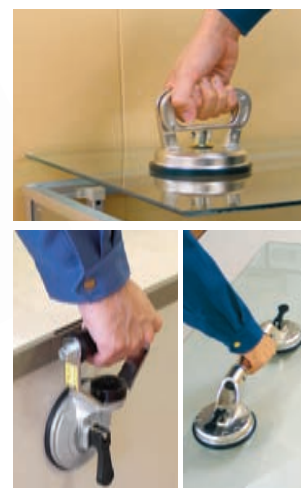
**USE** • For use on Hex head bolt and screws

### FEATURES

- Chrome molybdenum steel
- Hardness: HV510 ~ 600
- Operates at oblique angle (Max angle 30°)

| Order No. | Model No. | Type            | Size |     |      |      |     |      | Weight |
|-----------|-----------|-----------------|------|-----|------|------|-----|------|--------|
| 013101    | HKS-1     | mm              | 1.5  | 2   | 2.5  | 3    | 4   | 5    | 80g    |
| 013102    | HKS-2     | mm              | 2.5  | 3   | 4    | 5    | 6   | 8    | 230g   |
| 013120    | HKS-02    | inch            | 3/32 | 1/8 | 5/32 | 3/16 | 1/4 | 5/16 | 240g   |
| 013130    | HKS-B2    | mm (ball point) | 2.5  | 3   | 4    | 5    | 6   | 8    | 230g   |

## SUCTION LIFTER



**USE** • For lifting and transporting material with no handle, such as metal sheet and glass.

### FEATURES

- Strong suction with one lever operation
- Easy to grasp handle for lifting and carrying cumbersome objects.

| Order No. | Model No. | Suction Face (mm) | Maximum load capacity                              | Weight |
|-----------|-----------|-------------------|----------------------------------------------------|--------|
| 160200    | SL-A20    | φ 123             | 20kg                                               | 340g   |
| 160201    | SL-A30    | φ 123             | 30kg                                               | 480g   |
| 160202    | SL-B25    | φ 115             | 25kg                                               | 820g   |
| 160203    | SL-W40    | φ 123 × 2         | Horizontal Direction 40kg/ Vertical Direction 80kg | 1230g  |





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