## LENGTH MEASURING MACHINE GENERAL CATALOG



IIESTOOL-KANON

LENGTH MEASURING MACHINE GENERAL CATALOG

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 Contact our company or your dealers,

Adequate for narrow space where the display is hard to see
REGISTEREDASUTILITYMODEL(Japan)


New

Maximum values and minimum values are automatically stored.

For measuring inner diameter, the maximum value (Max) mode


For measuring outer diameter at a dark location, the minimum value (Min) mode is convenient!

Reading at hand


21st century version of standard caliper!

## Flat-headverniercaliperseries

With "Flat head", measurement can be conducted easily from any corners.


E-PITA: Specifications

| Model | Measuring length | Resolution | Instrumental error | Overall length | Power supply | Weight | A | B | C | D | E | F | G | H |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| E-PITA10 | 100 | 0.01 | $\pm 0.02$ | 191 | $\begin{aligned} & \text { SR44 } \\ & 1 \text { piece } \end{aligned}$ | 160 g | 184 | 16 | 76 | 40 | 14 | 30 | 7 | 3.8 |
| E-PITA15 | 150 |  |  | 241 |  | 170 g | 234 | 16 | 76 | 40 | 14 | 30 | 7 | 3.8 |
| E-PITA20 | 200 |  |  | 291 |  | 190 g | 284 | 16 | 76 | 40 | 14 | 30 | 7 | 3.8 |
| E-PITA30 | 300 |  | $\pm 0.03$ | 396 |  | 280 g | 388 | 16 | 103 | 64 | 14 | 47 | 8 | 4.8 |
| E-PITA40 | 400 |  | $\pm 0.05$ | 496 |  | 400 g | 488 | 16 | 103 | 64 | 14 | 47 | 8 | - |

* E-PITA40 is not equipped with any depth bar.

| Model | Measuring length | Resolution | Instrumental error | Overall length | Power supply | Weight | A | B | C | D | E | F | G | H |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| E-PITA150 ${ }^{\prime \prime}{ }^{\prime \prime}$ | $150 \mathrm{~mm} \times 6^{\prime \prime}$ | $\begin{gathered} \frac{0.01 \mathrm{~mm}}{\times} \\ 0.0005^{\prime \prime} \end{gathered}$ | $\pm 0.02$ | 241 | SR44 <br> 1 piece | 170 g | 234 | 16 | 76 | 40 | 14 | 30 | 7 | 3.8 |
| E-PITA200 ${ }^{\prime \prime \prime}$ | $200 \mathrm{~mm} \times 8^{\prime \prime}$ |  |  | 291 |  | 190 g | 284 | 16 | 76 | 40 | 14 | 30 | 7 | 3.8 |
| E-PITA300 $\times 12{ }^{\prime \prime}$ | $300 \mathrm{~mm} \times 12^{\prime \prime}$ |  | $\pm 0.03$ | 396 |  | 280 g | 388 | 16 | 103 | 64 | 14 | 47 | 8 | 4.8 |


| PITA | Specifica | tions |  |  |  |  |  |  |  |  |  | (Unit : mm) |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Model | Measuring length | Minimum reading | Instrumental error | Overall length | Weight | A | B | C | D | E | F | G | H |
| PITA10 | 100 | $\left[\begin{array}{c} 0.05 \\ \text { Division of } 39 \mathrm{~mm} \\ \text { into } 20 \text { equal parts } \end{array}\right]$ | $\pm 0.05$ | 171 | 100 g | 166 | 13.5 | 65 | 34.5 | 11 | 25 | 5 | 2.4 |
| PITA15 | 150 |  |  | 237 | 140 g | 230 | 16 | 76 | 40 | 14 | 28 | 7 | 3.8 |
| PITA20 | 200 |  |  | 287 | 160 g | 280 | 16 | 76 | 40 | 14 | 28 | 7 | 3.8 |
| PITA30 | 300 |  |  | 409 | 340 g | 400 | 20 | 111 | 64 | 19 | 48 | 9 | 3.8 |
| PITA40 | 400 |  | $\pm 0.06$ | 515 | 420 g | 506 | 20 | 111 | 64 | 19 | 48 | 9 | - |

* PITA40 is not equipped with any depth bar. $\quad *$ Minimum reading of PITA10 is division of 19 mm into 20 equal parts.


With "Judgment function", instantaneous sorting of accepted products and rejected products is available.

"Circular center distance of holes measurement function" is added to the new multi-functional caliper.


Inside measurement
Outside measurement


Comparative measurement (ABS function)

Point measurement



Plus 10 provides further ...

Measurement on edge face height from a face (measurement with flat-head)


- In addition to normal measurement, a judgment function is provided.
- By mounting a hole pitch probe attachment to the inside of the outside jaw with screws, "circular hole center distance measurement" is available.
(*By adding 10 to the indicated value, the measured value is obtained.)


PLUS 10 : Specifications


| Model | Measuring length | Resolution | * Instumental error | Overall length | Power supply | Weight | A | B | C | D | E | F | G | H | I |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PLUS10-15 | 150 | 0.01 | $\pm 0.03$ | 241 | SR44 <br> 1 piece | 170 g | 234 | 16 | 76 | 40 | 14 | 30 | 7 | 3.8 | 10 |
| PLUS10-20 | 200 |  |  | 291 |  | 190 g | 284 | 16 | 76 | 40 | 14 | 30 | 7 | 3.8 | 10 |
| PLUS10-30 | 300 |  | $\pm 0.04$ | 396 |  | 280 g | 388 | 16 | 103 | 64 | 14 | 47 | 8 | 4.8 | 10 |

* This is not an instrument error of circular pitch measurement.

Digital caliper adequate for large scale measurement


## DMK-J

 Black scale on gold base provides easy-to-see display and is adequate for instantaneous reading.With "Scale dial", instantaneous reading is available. The caliper with dial allows quick reading of measurement.


## E-RX / E-RZ

"Digital direct reading system" for hole pitch through easy operation

For center distance measurement "between holes"

## E-RX30B


$\square$ E-RX : Specifications
(Unit : mm)

| Model | Measuring length | Resolution | Instrumental error | Minimum hole diameier | Maximum hole diameter | Power supply | Weight | A | B | C | D | E | $\Theta$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| E-RX20B | 20~200 | 0.01 | $\pm 0.03$ | ¢3 | $\phi 19$ | SR44 <br> 1 piece | 360 g | 370 | 16 | 35 | \$20 | ¢2 | $40^{\circ}$ |
| E-RX30B | 20~300 |  |  |  |  |  | 582 g | 500 | 20 | 35 | \$20 | $\phi 2$ | $40^{\circ}$ |

For measurement of distance "between edge face and hole" E-RZ30B


## E-RM-J

Adequate for center to center distance measurement!


Measurement of distance between center to center of holes
 the value.


Measurement of distance between edge face and hole


By setting the upper side offset value ( 15.00 mm ) and the lower offset value ( 7.50 mm ), this instrument allows the measured center distance to be indicated as actual size. This saves time for addition or subtraction of indicated value that is required by former instruments, resulting easier use.

Since one unit of this caliper allows measurement of center distance of holes and distance between edge face and hole through direct reading, the product eliminates the need for preparing two units for two types of measurement, resulting in convenient use.

- Offset value setting in the upper side and the lower side can be easily conducted by pressing the "SET" button.

E-RM-J: Specifications

| Model | Measuring range |  | Resolution | Instumental eror | Winimumbediander | Maximunte dianter | Power supply | Weight | A | B | C | D | E | F | G | H | $\Theta$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Pith for upear side | Pitch or owerside |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| E-RM15J | 15~150 | 7.5~150 | 0.01 | $\pm 0.05$ | ¢ 3 | ¢ 14 | SR44 <br> 1 piece | 300 g | 260 | 50 | 16 | ¢15 | \$1.9 | 38 | 32 | 71 | $40^{\circ}$ |
| E-RM20J | 15~200 | 7.5~200 |  |  |  |  |  | 340 g | 310 |  |  |  |  |  |  |  |  |
| E-RM30J | 15~300 | 7.5~300 |  |  |  |  |  | 380 g | 405 |  |  |  |  |  |  |  |  |

## E-RX-J <br> Adequate for center distance measurement for holes at different levels

Digital direct reading of center distance measurement "between holes with equal diameter at different levels"

E-RX30J

(A)


Since the probe of main scale moves vertically different levels is available.

E-RX-J: Specifications
(Unit : mm)

| Model | Measuring range | Resolution | Instrumental error | Minimumble diameter | Maximum hole diameter | Power supply | Weight | A | B | C | D | E | F | $\Theta$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| E-RX30J | 10~300 | 0.01 | $\pm 0.05$ | $\phi 2$ | $\phi 9$ | SR44 <br> 1 piece | 300 g | 435 | 18~52 | 16 | 42 | $\phi 1$ | $\phi 10$ | $40^{\circ}$ |

## RM-DX

Adequate for center to center distance measurement!


For cener to center distance with different diameters!


## RM-S <br> Adequate for center distance measurement for small diameter holes

Vernier caliper for measuring circular hole center distance adequate for "small diameter hole".


| RM-S | ecifi | tions |  |  |  |  |  |  |  |  |  |  |  |  | Unit | mm ) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Model | Measuring range |  | Minimum reading | Instrumental error | Minimumhol diameer | Maximum hole diameter | Weight | A | B | C | D | E | F | G | H | $\Theta$ |
|  | Pith for upper side | Pith for ower side |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| RM-S15 | 5~150 | 3~150 | [into 20 equal parts] | $\pm 0.07$ | \$1 | ¢ 3.5 | 180g | 280 | 96 | ¢ 4 | $\phi 0.8$ | 26 | 50 | 20 | 20 | $40^{\circ}$ |

## E-RM60B

With "measuring length of 600 mm ", this large digital caliper is adequate for measuring holes with equal diameter on long work.


## E-RM30DX

Direct reading type multi-functional digital scale for measuring circular hole center distance that allows "three types of measurement" by replacing the probe


## E-RM(II) /E-RM-S

Caliper for measuring circular hole center distance adequate for "offset system" with vertical movement of probe and measurement of "small diameter hole and small surface"


| E-RM | II) : Sp | ecifica | tions |  |  |  |  |  |  |  |  |  |  |  |  |  | (Unit : mm) |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Model | Measuring range |  | Resolution |  | Minimum | Maximum | Po | W | A | B | C | D | E | F | G | H | J | K | $\Theta$ |
|  | Pith hor upper side | Pith for lower side |  |  | hole diameter | hole diameter |  |  | A |  |  |  | E | F | G | H | $J$ | K | $\Theta$ |
| E-RM(II) 15 B | 25~150 | 20~150 | 0.01 | $\pm 0.05$ | \$1 | \$5 | SR441 piece | 160 g | 254 | 70 | $\phi 6$ | \$0.2 | - | \$0.2 | \$6 | \$6 | 40 | 16 | $53^{\circ}$ |
| E-RM(II)30B | 35~300 | 25~300 |  |  | ¢3 | \$29 |  | 530 g | 438 | 120 | \$30 | \$2 | 50 | ¢ 2 | \$10 | $\phi 30$ | 50 | 20 | $40^{\circ}$ |
| E-RM(II) 60 B | 35~600 | 25~600 |  |  |  |  |  | 1.7 kg | 799 |  |  |  |  |  |  |  | 70 | 25 |  |



## Method of setting with special-purpose gage block

Method of measurement on upper and lower sides with E-RM-B series (E-RM60B/E-RM(II)-B/E-RM-S-B) special-purpose gage block

## [In case of E-RM60B]

Measurement on lower side
Position the lower measurement section to the dimension A side of the gage block. At this time, ensure that no clearance of measuring surface is present in the edge face side. Press the ON/OFF switch and then press the ZERO/ABS switch.
At this time, dimension A of 10 mm becomes the zero point.

* When the measured value is indicated, add or subtract it to or from dimension A of 10 mm .
(Example 1) If " 8.00 " is indicated:
$8.00+10 \mathrm{~mm}$ (dimension A$)=18.00 \mathrm{~mm}$ (actual size)
(Example 2) If " -0.05 " is indicated:
$-0.05+10 \mathrm{~mm}($ dimension $A)=9.95 \mathrm{~mm}$ (actual size)


Measurement on upper side
Position the upper measurement section to the dimension $B$ side of the gage block. At this time, ensure that the probe is securely inserted into the hole.
Press the ON/OFF switch and then press the ZERO/ABS switch.
At this time, dimension B of 100 mm becomes the zero point.

* When the measured value is indicated, add or subtract it to or from dimension B of 100 mm .
(Example 3) If " 25.00 " is indicated:
$25.00+100 \mathrm{~mm}($ dimension $B)=125.00 \mathrm{~mm}$ (actual size)
(Example 4) If "-25.00" is indicated:
$-25.00+100 \mathrm{~mm}$ (dimension $B)=75.00 \mathrm{~mm}$ (actual size)

With "Span replacement", this depth gage is adequate for measuring depth of hole with wide opening.


## E-DDVE Extra thin

## Adequate for measurement of depth of very small hole

With " $\phi 0.5 \mathrm{~mm}$ depth bar", this product is adequate for measurement


Adequate for measurement of depth of thin hole!


For hook measurement, depth measurement, and step measurement!


## E-LSDM/LSDM

Adequate for measurement of depth of large-diameter hole

With "Long base", this long base depth gage is adequate for measurement of depth of large-diameter hole.


## ESDM / SDM

Depth gage adequate for measurement of depth of hole with wide opening


With "Hook", this depth gage is adequate for measurement of depth of hole without end.


Adequate for measurement of hook in normal hole
"Standard type", Carl Mahr type depth gage equipped with hook without jogging function


## SD-P <br> Adequate for measurement of depth of normal hole

## "Standard type", Carl Mahr type depth gage without jogging function



## T Thin hole Adequate for measurement of depth of thin hole

With " $\phi 1.5 \mathrm{~mm}$ depth bar", this thin hole depth gage is adequate for measurement of depth of thin hole.


## KSM-FF / SM <br> Standard vernier caliper for normal measurement

This standard scale type vernier caliper provides measurement without fatigue of eyes.


## M/M-60P

## "Standard type"



- M : Specifications
(Unit : mm)

| Model | Measuring length | Minimum reading | Instrumental error | Weight | A | B | C | D | E | F | G | H | I |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| M45 | 450 | $\left[\begin{array}{c} 0.05 \\ {\left[\begin{array}{c} \text { Division of } 39 \mathrm{~mm} \\ \text { into } 20 \text { equal parts } \end{array}\right]} \end{array}\right.$ | $\pm 0.10$ | 900 g | 625 | 161.5 | 25 | 90 | 25 | 60 | 12.5 | 6 | 12.5 |
| M50 | 500 |  |  | 1.13 kg | 670 | 161.5 | 25 | 90 | 25 | 60 | 12.5 | 6 | 12.5 |
| M60 | 600 |  | $\pm 0.11$ | 1.25 kg | 780 | 161.5 | 25 | 90 | 25 | 60 | 12.5 | 6 | 12.5 |
| M100 | 1000 |  | $\pm 0.15$ | 3.50 kg | 1250 | 222 | 32 | 130 | 32 | 85 | 16 | 8 | 15 |

* Production of M40 was ceased. As an alternative product, we sell PITA40. (See page 3.)

Although the measuring length is large, this vernier caliper is light and can be held easily with one hand. Also the price is reasonable.


| M-P | Specificatio |  |  |  |  |  |  |  |  |  |  | (Unit : mm) |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Model | Measuring length | Minimum reading | Instrumental error | Weight | A | B | C | D | E | F | G | H | I |
| M60P | 600 | $\left[\begin{array}{c} 0.05 \\ {\left[\begin{array}{c} \text { Division of } 39 \mathrm{~mm} \\ \text { intoo } 20 \text { equal parts } \end{array}\right.} \end{array}\right]$ | $\pm 0.11$ | 612g | 800 | 111.6 | 20 | 64.2 | 18.9 | 48 | 9.4 | 4 | 8 |
| M100P | 1000 |  | $\pm 0.15$ | 1.9 kg | 1250 | 161.5 | 25 | 90 | 25 | 60 | 12.5 | 6 | 12.5 |

* M60P M100P are not equipped with any JIS mark. The instrumental error is within the JIS specification.


## 5-1 E-Curre Jaw / M Curre Jaw

## Adequate for measurement at a

With "Curre jaw", this caliper is adequate for measurement of work for which straight jaws cannot be used.


Adequate for measurement of inside and outside of narrow and deep part!

| Model | Measuring length | Resolution | Instrumental error | Power supply | Weight | A | B | C | D | E | F | G | H |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| E-ROBA15B | 150 | 0.01 | $\pm 0.03$ | SR44 1piece | 180 g | 247 | 34 | 64 | 17 | 6.5 | 16 | 48 | 9 |
| E-ROBA20B | 200 |  |  |  | 200 g | 297 |  |  |  |  |  |  |  |



ROBA: Specifications
(Unit : mm)

| Model | Measuring length | Minimum reading | Instrumental error | Weight | A | B | C | D | E | F | G | H | I | J |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ROBA15 | 150 | $\left[\begin{array}{c} 0.05 \\ {\left[\begin{array}{c} \text { Division of } 19 \mathrm{~mm} \\ \text { into } 20 \text { equal parts } \end{array}\right]} \end{array}\right.$ | $\pm 0.07$ | 270 g | 250 | 34 | 64 | 17 | 6.5 | 20 | 48 | 9 | 8 | 4 |
| ROBA20 | 200 |  |  | 310 g | 300 |  |  |  |  |  |  |  |  |  |
| ROBA30 | 300 |  | $\pm 0.08$ | 370 g | 410 |  |  |  |  |  |  |  |  |  |

## E-LSM / LSM

Adequate for measurement of diameter of ball, pipe, etc.!


## E-ICM-J/E-ICM/ICM

## Adequate for measurement of

 inside in a deep locationWith "Long and thin jaw", this inside caliper is adequate for measurement of inside in a deep location.


With "Blade jaw", this digital blade caliper is adequate for measurement of outside of groove on work with narrow groove and groove interval.


Direct-reading type digital caliper

Adequate for measurement in same direction!


## E-PK / E-PM / E-NK

## Adequate for measurement of special outside

Point vernier caliper for narrow groove interval, pipe caliper for wall thickness of curvature, and neck caliper for groove part


Kanon original flange caliper adequate for measurement of dimensions "within JPI standard"


## FBM For working



With "Short leg jaw", this product can be easily used for measurement of step machining part in a hole.


## SNAP GAUGE

For inspection of precision of vernier caliper
With "Various sizes", this snap gauge allows quick inspection of inside and outside of vernier caliper.


## SCM / SCML <br> High-precision reading for inside and outside measurement

With "Jogging function", high precision is provided. Also various sizes are available with this vernier caliper.


Adequate for positioning of machine tool, measurement equipment, and so on

Convenience digital scale on which the indication of "digital direct reading type" scale can be read directly.


ES30B

- ABS with absolute origin is built in and therefore zero setting is not required each time the power is turned on.
- With a measurement data output function, a statistical process control system or a measurement system can be configured.
$\square$ ES-B: Specifications
(Unit : mm)

| Model | Measuring length | Resolution | Allowable measuring range | Instrumental error | Power supply | Weight | A | B | C | D | E | F |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ES10B | 100 | 0.01 | 120 | $\pm 0.03$ | $\begin{gathered} \text { SR44 } \\ 1 \text { piece } \end{gathered}$ | 360 g | 256 | 220 | 16 | 244 | ¢ 6 | 10 \$ 5.2 |
| ES20B | 200 | 0.01 | 220 |  |  | 480 g | 356 | 320 | 16 | 344 | $\phi 6$ | 10 \$ 5.2 |
| ES30B | 300 | 0.01 | 320 |  |  | 590 g | 456 | 420 | 16 | 444 | $\phi 6$ | 10 \$ 5.2 |

Digital thickness scale

Easy measurement of clearance in a narrow location!


TES 10B


| TES | pecifications |  |  |  |  |  |  |  |  | (Unit : mm) |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Model | Measuring range | Resolution | Instrumental error | Power supply | Weight | A | B | C | D | E | F |
| TES5B | $0.2 \sim 4.8$ | 0.01 | $\pm 0.03$ | SR44 1piece | 158 g | 225 | 10 | 3.3 | 0.1 | 1 | 49 |
| TES10B | 0.5~9.5 |  |  |  | 218 g | 330 | 10 | 3.3 | 0.3 | 3 | 102 |

## EHK30J

## Adequate for various types of height measurement!



## EHK30J

ABS/INC measurement

- A scriber for SHT-3-30J is provided as a standard component like the rotating scriber.
- Two scriber measuring surfaces of "Kurukuru" are on the same plane. Since the product is an absolute (ABS) type, zero setting is not required each time the power is turned on.
- Zero setting can be conducted at any positions, and relative measurement is available.
- Digital display provides easy reading.
 surfaces are on the same plane.

| Model | Measuring range (*) | Resolution | Instrumental error | Power supply | Weight | A | B | C | D | E | F | G | H | 1 | J |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| EHK30J | 0~300 | 0.01 | $\pm 0.03$ | SR44 1piece | 2.2 kg | 450.5 | 120.0 | 68.0 | 32.0 | 19.9 | 94.0 | 32.1 | 20.0 | 10.0 | 13.1 |

*When the rotating scriber "Kurukuru" is used, the measuring range is 10 to 300 mm .

## TPK-3

With various statistical parameters, measurement data is securely controlled.


## SCRIBER

Measuring surface for height gage

## Precisely finished scriber with carbide tip



(E)
(F) RS-15


Rotating scriber "Kurukuru" : Dimensions (Unit : mm)

| Type | A | B | C | D | E | F |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| RS-10 | 105.5 | 36 | 12.7 | 9 |  |  |
| RS-15 | 68 | 36.7 | 12.7 | 6.35 | 10 | 10 |
| RS-20 | 105 | 33 | 9 | 9 |  |  |

## SHT-3/SHT-1

## Adequate for measurement of height for

 vertically long objectsWith "Vertical movement of main scale", this height gage can be used for instantaneous measurement.


## Y-600/K=1000 Straight line

## Measurement of shaft with

 easy operationWith "3 types of probe placed in line", this oneaxis measuring machine can be used for various types of dimension measurement.


With "Manual operation and noncontact method", this vision measuring machine allows high-precision measurement for small parts and soft objects.

Manual and noncontact type vision measuring machine
EXLCLN:Y

- Only by clicking the measurement location, multipoint measurement can be automatically conducted.
- Basic measurement for point, line, circle, arc, etc. (500 points at the maximum)
- Indirect measurement for distance, angular midpoint, etc.
- Coordinate system setting for axis correction. origin movement, etc.
- Calling and recalculation
- Drawing is conducted at the same time as measurement.
- Recalculation can be conducted only by clicking the measurement location on the graph, instead of number for recalculation of result.
- Graphs can be stored in a DXF file It can be transferred to CAD/CAM, allowing editing.
- As measurement data, in addition to $X$ and $Y$ coordinate values, geometrically calculated values such as roundness and straightness can be outputted at the same time.
- Also the shortest distance and the longest distance can be calculated.
- CNC machines (automatic) are also provided.

■ EXLON Y: Specifications

| Model | EXLON Y 45 |
| :---: | :---: |
| Measuring range for X axis | 400 mm |
| Measuring range for Y axis | 500 mm |
| Resolution | 0.001 mm |
| Precision on each axis | $5+5 \mathrm{~L} / 1000 \mu \mathrm{~m}$ |
| Operation method | Manual |
| Sliding section | LM guide |
| Sensor | Optical linear scale |
| Environmental conditions: Temperature | $18^{\circ} \mathrm{C} \sim 30^{\circ} \mathrm{C}$ |
| Environmental conditions: Humidity | $30 \% \sim 80 \%$ |
| Detection of image | High-definition image CCD camera |
| Lighting system | LED epi-illumination, transillumination (optional) |
| Zoom lens-barrel | $1 \times$ to $4 \times$ zoom lens |
| Personal computer | OS : Windows 7 Professional |
| A | 1300 mm |
| B | 720 mm |
| C | 800 mm |
| Weight | 290 kg |

[^0]
## EXLON-Z III 453

With "Manual operation" and excellent operability, this coordinate measuring machine allows high-precision measurement for three-dimensional objects.


- A jogging unit with excellent operability is provided for each axis.
While moving an axis, the machine can be operated easily. - Since the main body has portal structure, the product is resistant to vibration, resulting in stable precision. Also a stone surface plate is used and therefore the product is resistant to temperature change, resulting in stable precision at ordinary temperature.
- Measurement = Three-dimensional rotation, reverse, enlargement/reduction, movement, and so on of prepared drawing can be conducted easily.
Output to IGES file allows easy editing on CAD/CAM.
- In addition to measurement of elements (point, line, surface, circle, sphere, cylinder) and indirect measurement in which measured elements are combined for calculation, geometric calculation (straightness, flatness, roundness, sphericity, cylindricity, position, parallelism, perpendicularity) is available.

EXLON Z III 453 : Specifications

| Model | EXLON Z III 453 |
| :---: | :---: |
| Measuring range for $X$ axis | 400 mm |
| Measuring range for Y axis | 500 mm |
| Measuring range for $Z$ axis | 300 mm |
| Resolution | 0.001 mm |
| Precision on each axis | $4+5 \mathrm{~L} / 1000 \mu \mathrm{~m}$ |
| Operation method | Manual |
| Sliding section | LM guide |
| Sensor | Optical linear scale |
| Environmental conditions: Temperature | $18^{\circ} \mathrm{C} \sim 30^{\circ} \mathrm{C}$ |
| Environmental conditions: Humidity | $30 \% \sim 80 \%$ |
| Sensor section | Electronic probe TP8 |
| Personal computer | OS : Windows 7 Professional |
| A | $1,830 \mathrm{~mm}$ |
| B | 720 mm |
| C | 800 mm |
| D | 415 mm |
| E | 495 mm |
| Weight | 350 kg |

Large sizes are also provided. Contact our company or your dealer.

## What is a vernier caliper?

A vernier caliper is a measuring tool for use in the field that is used most widely for dimension measurement at present.
A slider and a scale are combined and a vernier scale is mounted to the outside jaw, allowing finer and more accurate reading of graduations of scale.


## Origin of vernier caliper

It is said that the method of vernier scale was invented by Portuguese mathematician, Petrus Nonius (1492-1577). It is French Pierre Vernier that developed structure for accurate reading by mounting this method of scale to one measuring jaw of pass. In Germany, it is called Nonius.

## Principle of vernier

By subdividing the reference graduations of main scale for accurate reading, a vernier scale is provided. Normally, if the graduations of main scale are in 1 mm steps, the vernier scale is provided by dividing ( $n-1$ ) mm into $n$ or $n / 2$ equal parts. For example, the following types of vernier scale are the greater part of Kanon calipers. (See Table 1.)
(1) 1. $n=20$ (divided into $n$ equal parts) -> 19 mm is divided into 20 equal parts.
(ICM, ROBA, RA, etc.)
(2) 2. $n=40$ (divided into $\mathrm{n} / 2$ equal parts) $->39 \mathrm{~mm}$ is divided into 20 equal parts.
(PITA, KSM-FF, M45 to M100, SM150 to 300, etc.)
(3) 3. $n=50$ (divided into $n$ equal parts) $->49 \mathrm{~mm}$ is divided into 50 equal parts.
(SCM, SCML, FCM, etc.)
For easy understanding of the principle, take an example of scale in 1 mm steps with vernier scale of 9 mm divided into 10 equal parts ( $n=10$ ). For example, as shown in Fig. 1, the 9 graduations ( 9 mm ) on the main scale (in 1 mm steps) divided into 10 equal parts configure a vernier scale. One graduation on the scale is 0.9 mm . Consequently, the difference of one graduation between the main scale and the vernier scale is 1 mm $-0.9 \mathrm{~mm}=0.1 \mathrm{~mm}$. This shows a case that graduation 0 on the main scale matches with graduation 0 on the vernier scale, namely the slider is at the leftmost position without any object to be measured. (Fig. 1)


Then, suppose that a string of 0.1 mm in thickness is put in the outside jaw. The vernier scale slides to the right by 0.1 mm , and graduation 1 on the vernier scale that is 0.1 mm shorter than the main scale matches with graduation 1 on the main scale. (Fig. 2) From the reverse point of view, reading this graduation on the vernier scale indicates the quantity of sliding of the vernier scale, namely the dimension of object to be measured ( 0.1 mm ). If the vernier scale slides further and graduation 2 matches, the measured value is 0.2 mm . If graduation 3 matches, the value is 0.3 mm .


In other words, the deviation of graduation 0 on the main scale from graduation 0 on the vernier scale is the measured value. In the case of Fig. 3, the method of reading is expressed as shown below. Deviation of graduation 0 between main scale and vernier scale $=$ Graduation of main scale $(2 \mathrm{~mm})+(8 \mathrm{X} \mathrm{1} 110 \mathrm{~mm})=2.8 \mathrm{~mm}<-$ Measured value As shown above, a vernier scale that is graduated in smaller values than the main scale is used to read finer and more accurate dimensions. This is the principle of vernier.


## Example of actual measurement

In the example on the previous page, 9 mm is divided into 10 equal parts and therefore values can be read in 0.1 mm steps. Here, we show a case of currently popular vernier scale on which 19 mm is divided into 20 equal parts (1).
One graduation of this vernier scale is $19 \mathrm{~mm} / 20=0.95 \mathrm{~mm}$. The deviation of one graduation from the main scale is $1 \mathrm{~mm}-$ $0.95 \mathrm{~mm}=0.05 \mathrm{~mm}$, which is minimum reading. Consequently, values can be read in $5 / 100 \mathrm{~mm}$, namely, $1 / 20 \mathrm{~mm}$ steps. (Fig. 4) Similarly, in the case of division of 39 mm into 20 equal parts (2), values can be read in $1 / 20 \mathrm{~mm}$ steps (Fig. 5). In the case of division of 49 mm into 50 equal parts (3), values can be read in 0.02 mm , namely $1 / 50$ steps (Fig. 6).
(A) How to read $1 / 20 \mathrm{~mm}$ vernier

In the case of Fig. 7, the 5th graduation of vernier matches. $9 \mathrm{~mm}+(1 / 20 \mathrm{~mm} \times 5)=9 \mathrm{~mm}+0.25 \mathrm{~mm}=9.25 \mathrm{~mm}$
Consequently, the 5th graduation of vernier scale indicates 25 for easy reading.
(B) How to read $1 / 50 \mathrm{~mm}$ vernier

In the case of Fig. 8, the 6th graduation of vernier matches.
$5 \mathrm{~mm}+(1 / 50 \mathrm{~mm} \times 6)=5 \mathrm{~mm}+0.12 \mathrm{~mm}=5.12 \mathrm{~mm}$
Consequently, the 6th graduation of vernier scale indicates 11 similarly.

Fig. $4 \quad 1 / 20 \mathrm{~mm}$ vernier (19 graduations, 20 equal parts)


Fig. $5 \quad 1 / 20 \mathrm{~mm}$ vernier ( 39 graduations, 20 equal parts)


Fig. 6 1/50 mm vernier (49 graduations, 50 equal parts)



Scale type of Kanon vernier calipers Table 1 (JIS B7507 standard)

| 1 graduation of main scale | 1 mm |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Method of vernier scale | 49 graduations -> 50 equal parts | 19 graduations -> 20 equal parts | 39 graduations -> 20 equal parts | 29 graduations -> 10 equal parts |
| Minimum reading | $1 / 50=0.02 \mathrm{~mm}$ | $1 / 20=0.05 \mathrm{~mm}$ |  | $1 / 10=0.1 \mathrm{~mm}$ |
| Applicable Kanon calipers | LSDM, ESDM, SDM, BSDM, FCM, SDM, SCM, SCML | TH, SM7, RA, ROBA, ICM | PITA, RM-DX, RM-S, BSD-P, SD-P, KSM-FF, SM150 ~300, M45~100, LSM | RM (II) |

## Features of Kanon calipers

Kanon calipers, for which the tradition of Kanon and its excellent technology are fully used from standard products such as KSM-FF and SM to special products, are commonly acknowledged first-class products concerning quality and precision.

## 1. Material

Since high-quality stainless steel (SUS420J2) that is selected carefully is refined completely, rust is not generated and aged deterioration does not occur.

## 2. Overall quenching

Not only measuring surfaces but also the main scale are quenched completely, the product has excellent resistance to flaw and wear.

## 3. Power of two lines of Kanon

Since two grooves are provided on the scale surface, the scale can be easily read and is resistant to flaw. Also galling does not occur easily and smooth sliding can be conducted. (PITA, KSM-FF, etc.)

## 4. Graduation lines

Graduation lines and numbers are processed with a Kanon original method, and accurate and uniform lines are obtained. Also chromium matte plating is applied to the scale surface, clear and easy reading is available without fatigue of eyes.

## 5. Excellent precision quality

Each part is processed uniformly with latest special-purpose machines for vernier calipers under a rational mass production system and keeps high precision even after assembly.

Vernier caliper
Verinier,dial and digital calipers

## 1. Scope

This standard specifies calipers of which the maximum measuring length is $1,000 \mathrm{~mm}$ or less among general vernier calipers of which the resolution or the minimum reading is $0.1 \mathrm{~mm}, 0.05 \mathrm{~mm}, 0.02 \mathrm{~mm}$ or 0.01 mm and which are used for measuring outside dimension and inside dimension (hereafter referred to as caliper).

## 2. Definition of terms

The definition of principal terms used in this standard conforms to JIS B 7507 and additionally is described below.

Measuring instrument in which the main scale that is equipped with a jaw with measuring surfaces for outside and inside on one end is configured as a reference component, a slider that is equipped with a jaw including a measuring surface that is parallel with the above measuring surfaces slides, and the distance between measuring surfaces is read on the main scale and the vernier scale or on the dial scale or through electronic digital display.

## (2) Vernier scale

Scale for reading detailed graduations of main scale graduations of which the graduations are obtained by dividing ( $n-1$ ) graduations of main scale into $n$ or $n / 2$ equal parts. Also it is called subscale.

## (3) Dial scale

Disk type scale in which the slider moving quantity is enlarged mechanically by gears or the like and is read through a rotating pointer.

## (4) Electronic digital display

Numeric display in which the slider moving quantity is detected based on the main scale and indicated numerically by counting with an electronic circuit. <br> (5) Instrumental error}

Value obtained by subtracting real value to be indicated from the read value on the caliper.

## 3. Notes on use

(1) Since the caliper is not equipped with any constant pressure device, proper and uniform measurement power must be used for measurement.
Note that measurement at the base or the tip of jaw may cause particularly a larger error
(2) On electronic digital display, consider sufficiently that the last digit of indicated value is uncertain within the range of 1 . Attention must be paid particularly to the operating environment. For example, a magnetic field, electric field, and humidity influence the function of electronic parts.

## 4-1. Instrumental error of caliper

The tolerance of instrumental error of caliper is shown in Table 1.

Table 1. Tolerance of instrumental error of caliper

| Measuring length |  | Graduation, resolution or minimum reading |  |
| :---: | :---: | :---: | :---: |
|  |  | 0.1 or 0.05 | 0.02 or 0.01 |
|  | 50 or less | $\pm 0.05$ | $\pm 0.02$ |
| More than 50 | 100 or less | $\pm 0.06$ | $\pm 0.03$ |
| More than 100 | 200 or less | $\pm 0.07$ |  |
| More than 200 | 300 or less | $\pm 0.08$ | $\pm 0.04$ |
| More than 300 | 400 or less | $\pm 0.09$ |  |
| More than 400 | 500 or less | $\pm 0.10$ | $\pm 0.05$ |
| More than 500 | 600 or less | $\pm 0.11$ |  |
| More than 600 | 700 or less | $\pm 0.12$ | $\pm 0.06$ |
| More than 700 | 800 or less | $\pm 0.13$ |  |
| More than 800 | 900 or less | $\pm 0.14$ | $\pm 0.07$ |
| More than 900 | 1000 or less | $\pm 0.15$ |  |

Remarks 1. Values in the table are for $20^{\circ} \mathrm{C}$.
2. These values include measurement errors caused by straightness and parallelism of measuring surface.

## 4-2. Deviation of zero point of depth bar

[^1]
## PARTS LIST



| Name <br> Model |  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Slider clamp | Upper screw | Lower screw | Leaf spring | Fine adjust clamp | Fine adjust nut | Fine adjust bar screw | Screw for vernier scale |
| SCM | 15 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | - |
| SCM | 20 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | - |
| SCM | 30 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | - |
| SCM | 40 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | - |
| SCM | 45 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| SCM | 50 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| SCM | 60 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| SCM | 100 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| SCM | 150 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| SCM | 200 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| $\begin{aligned} & \text { SCM } \\ & \text { SCM } \end{aligned}$ | 250 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
|  | 300 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| SCML | 3045 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | - |
| SCML |  | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| SCML | 50 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| SCML | 60 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |

## PARTS LIST

## SDM type



| Model Name |  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Slider clamp | Upper screw | Lower screw | Leaf spring | Fine adjust clamp | Fine adjust nut | Fine adjust bar screw |
| SDM | 15 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| SDM | 20 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| SDM | 30 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| SDM | 40 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| SDM | 50 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| SDM | 60 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| SDM | 100 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| BSDM | 15 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| $\begin{aligned} & \text { BSDM } \\ & \text { BSDM } \end{aligned}$ | 20 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
|  | 30 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| LSDM | $15 \times 15$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| LSDM | $15 \times 20$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| LSDM | $15 \times 25$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| LSDM | 20×15 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| LSDM | $20 \times 20$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| LSDM | $20 \times 25$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| LSDM | $30 \times 15$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| LSDM | $30 \times 20$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| LSDM | $30 \times 25$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| SD | 15P | $\bigcirc$ | - | $\bigcirc$ | $\bigcirc$ | - | - | - |
| SD | 20P | $\bigcirc$ | - | $\bigcirc$ | $\bigcirc$ | - | - | - |
| SD | 30 P | $\bigcirc$ | - | $\bigcirc$ | $\bigcirc$ | - | - | - |
| BSD | 15 P | $\bigcirc$ | - | $\bigcirc$ | $\bigcirc$ | - | - | - |
| $\begin{aligned} & \mathrm{BSD} \\ & \mathrm{BSD} \\ & \hline \end{aligned}$ | 20P | $\bigcirc$ | - | $\bigcirc$ | $\bigcirc$ | - | - | - |
|  | 30P | $\bigcirc$ | - | $\bigcirc$ | $\bigcirc$ | - | - | - |

SHT-3 type
SHT-1 type


| $\mathrm{Model}^{\text {Name }}$ | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Slider clamp | Upper screw | Lower screw | Leaf spring | Lock screw | Fine adjust nut | Fine adjust bar screw | Fine adjust nut holder | Fine adjust blacket nut | Main scale adjust nut |
| SHT-3-30JSHT-3-60J | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
|  | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
|  |  |  |  |  |  |  |  |  |  |  |
| Model Name | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|  | Main scale bar screw | Main scale nut holder | Main scale blacket nut | Main scale fixing nut | Magnifier | Magnifier frame | Magnifier bar | Scriber box | Box clamp | Screw for vernier scale |
| SHT-3-30J <br> SHT-3-60J | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
|  | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |


| $\qquad$ | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Slider clamp | Upper screw | Lower screw | Leaf spring | Lock screw | Fine adjust nut | Fine adjust bar screw | Fine adjust nut holder | Fine adjust blacket nut | Main scale adjust nut |
| SHT-1-30J | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| SHT-1-60J | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| SHT-1-100 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| SHT-1-150 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| SHT-1-200 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |


| Model Name | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Main scale bar screw | Main scale nut holder | Main scale blacket nut | Main scale fixing nut | Magnifier | Magnifier frame | Magnifier bar | Scriber box | Box clamp | Screw for vernier scale |
| SHT-1-30J | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| SHT-1-60J | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| SHT-1-100 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| SHT-1-150 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |
| SHT-1-200 | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ | $\bigcirc$ |

## Memo

## "Reliable measured values" of Kanon contribute to "reliable manufacturing."



Torque equipment general catalog

Please feel free to inquire about products and request catalogs.


- Origin of KANON Mark -

The KANON mark is a symbol of technology of Nakamura Mfg. Co., Ltd., which was established at the time of foundation. Kanon is a Latin word that means "Standard." We selected this word because we think that our products on which the KANON mark is printed must be "KANON" of all measuring equipment, namely the best model product.

## Producted by : <br> NAKAMURA MFG.CO.,LTD.

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[^0]:    Large sizes (up to $2,000 \mathrm{~mm}$ ) are supported. Contact our company or your dealer.

[^1]:    For calipers with a depth bar for measurement of depth, the deviation of zero point must be 0.02 mm or less.

