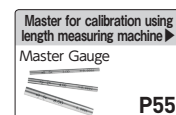


## STEEL PIN GAUGE FOR GEAR MEASUREMENT OP SERIES



HOW TO MOVE

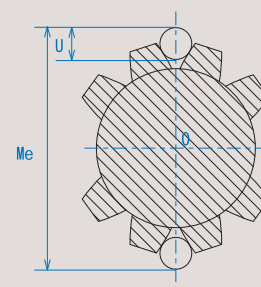
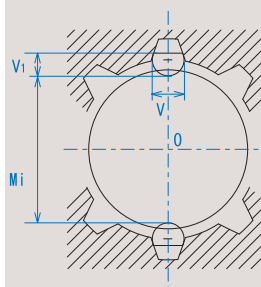
Available from 1pc. Must-have item for gear wheel measurement.

**SUB-ZERO (Cryogenic hardened) TREATMENT**  
 ※ 2,700mm or over


## 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

## USE

- For quick and accurate over-pin diameter measurement of internal and external gears (magnetize the pin for easy handling)

## FEATURES

- OP series gauge is for measuring over pin diameter of gears and involute splines. Each module is a set of two 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

## SPECIFICATIONS

|                                       |                                                                               |
|---------------------------------------|-------------------------------------------------------------------------------|
| Dimensional deviation (V and U)       | 0.90mm~10.00mm: $\pm 1 \mu\text{m}$<br>10.01mm~20.00mm: $\pm 1.5 \mu\text{m}$ |
| Out of Roundness ( $\mu\text{m}$ )    | 0.90mm~10.00mm: $1 \mu\text{m}$<br>10.01mm~20.00mm: $1.5 \mu\text{m}$         |
| Diameter Inequality ( $\mu\text{m}$ ) | 0.90mm~10.00mm: $2 \mu\text{m}$<br>10.01mm~20.00mm: $3 \mu\text{m}$           |
| Length                                | 50mm                                                                          |
| Hardness                              | 0.90mm~ 2.69mm: Over HV720<br>2.70mm~20.00mm: Over HV650                      |

※ 5mm from each edge is not precision guaranteed

## 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