

Ratchet Thimble type that has improved operability with one hand



SPECIFICATIONS

| Metric | | | | | | | | | | | |
|-------------------------|------------|------------|----------|-------------|-----------------|-----------------------|---------|-------------------|----------|----------------------|------|
| | Order No. | Range | Accuracy | Parallelism | Measuring force | constant-force device | Mass | | | | |
| With SPC data output | 293-230-30 | 0 - 25mm | ±1µm | 1µm | 5 - 10N | With ratchet stop | 270g | | | | |
| | 293-231-30 | 25 - 50mm | | | | | 330g | | | | |
| | 293-232-30 | 50 - 75mm | ±2µm | 2µm | | | 470g | | | | |
| | 293-233-30 | 75 - 100mm | | | | | 625g | | | | |
| | 293-234-30 | 0 - 25mm | ±1µm | 1µm | | | 280g | | | | |
| | 293-235-30 | 25 - 50mm | | | | | 340g | | | | |
| Without SPC data output | 293-236-30 | 50-75mm | ±2µm | 2µm | 7 - 12N* | With ratchet thimble | 480g | | | | |
| | 293-237-30 | 75-100mm | | | | | 635g | | | | |
| | 293-240-30 | 0 - 25mm | ±1µm | 1µm | | | 5 - 10N | With ratchet stop | 270g | | |
| | 293-241-30 | 25 - 50mm | | | | | | | 330g | | |
| | 293-242-30 | 50 - 75mm | ±2µm | 2µm | | | | | 470g | | |
| | 293-243-30 | 75 - 100mm | | | | | | | 625g | | |
| | 293-244-30 | 0 - 25mm | ±1µm | 1µm | | | | | 280g | | |
| | 293-245-30 | 25 - 50mm | | | | | | | 340g | | |
| | 293-246-30 | 50-75mm | ±2µm | 2µm | | | | | 7 - 12N* | With ratchet thimble | 480g |
| | 293-247-30 | 75-100mm | | | | | | | | | 635g |

| Metric Micrometer Set | | |
|-----------------------|------------|---|
| Range | Order No. | Included in set |
| 0-50mm (2pcs. Set) | 293-966-30 | 293-230-30, 293-231-30, 25mm CERA block, plastic case |
| 0-75mm (3pcs. Set) | 293-962-30 | 293-230-30, 293-231-30, 293-232-30, 2 standard bars, plastic case |
| 0-100mm (4pcs. Set) | 293-963-30 | 293-230-30, 293-231-30, 293-232-30, 293-233-30, 3 standard bars, wooden box |

| Inch/Metric | | | | | | | | | | |
|----------------------|------------|----------|----------|-------------|-----------------------|-----------------------|--------|-----------------------|----------------------|------|
| | Order No. | Range | Accuracy | Parallelism | Measuring force | constant-force device | Mass | | | |
| With SPC data output | 293-330-30 | 0-1" | ±.00005" | .00004" | 5-10N | With ratchet stop | 270g | | | |
| | 293-331-30 | 1-2" | | | | | 330g | | | |
| | 293-332-30 | 2-3" | ±.0001" | .00008" | | | 470g | | | |
| | 293-333-30 | 3-4" | | | | | 625g | | | |
| | 293-334-30 | 0-1" | ±.00005" | .00004" | | | 7-12N* | With ratchet thimble | 280g | |
| | 293-335-30 | 0-1" | | | | | | | 275g | |
| 293-336-30 | 1-2" | ±.0001" | .00008" | 5-10N | With friction thimble | 335g | | | | |
| 293-340-30 | 0-1" | | | | | 270g | | | | |
| 293-341-30 | 1-2" | ±.00005" | .00004" | | | 5-10N | | | With ratchet stop | 330g |
| 293-342-30 | 2-3" | | | | | | | | | 470g |
| 293-343-30 | 3-4" | ±.0001" | .00008" | | | | 7-12N* | With ratchet thimble | | 625g |
| 293-344-30 | 0-1" | | | | | | | | | 280g |
| 293-345-30 | 1-2" | ±.00005" | .00004" | 5-10N | With friction thimble | | | | | 340g |
| 293-346-30 | 2-3" | | | | | | | | | 480g |
| 293-347-30 | 3-4" | ±.0001" | .00008" | | | 7-12N* | | | With ratchet thimble | 635g |
| 293-348-30 | 0-1" | | | | | | | | | 275g |
| 293-349-30 | 0-1" | ±.0001" | .00004" | | | | 5-10N | With friction thimble | | 280g |
| | | | | | | | | | | 275g |

* Measuring force in the case of using the Speeder ratchet
Prior to measurement, apply a measuring force in the same condition to align the index line with the thimble zero line.

| Inch/Metric Micrometer Set .00005" / 0.001mm graduation model | | |
|---|------------|---|
| Range | Order No. | Included in set |
| 0 - 3" / 0 - 76.2mm (3 pcs. set) | 293-960-30 | 293-330-30, 293-331-30, 293-332-30, 2 standard bars, plastic case |
| 0 - 4" / 0 - 101.6mm (4 pcs. set) | 293-961-30 | 293-330-30, 293-331-30, 293-332-30, 293-333-30, 3 standard bars, wooden box |



An inspection certificate is supplied as standard. (50mm/2" or less range model)



These marks indicate that a product has successfully passed IP65-level testing, which is carried out by the independent German certification organization TUV Rheinland.

IP Codes

- Level 6:** Dust-proof.
No ingress of dust allowed.
- Level 5:** Protected against water jets.
Water projected in jets against the enclosure from any direction shall have no harmful effects.

Technical Data

- Resolution:** .00005" / 0.001mm
 - Quantizing error:** ±1 is not included.
 - Flatness:** .000012" / 0.3 µm
 - Dust/water protection level:** IP65 (IEC60529) *2
 - Measuring system:** Electromagnetic induction type rotary sensor
 - Battery:** SR44 (1 pc), 938882, for initial operational checks (standard accessory)
 - Battery life:** Approx. 2.4 years under normal use
 - Standard accessories:** Reference bar, 1 pc (except for 0-25mm (0-1") models) Spanner (301336), 1 pc
- *2 Rustproofing shall be applied after use.

Coolant Proof Micrometers



Functions

- **Origin point setting** (ABS measurement system)

Resets the ABS origin at the current spindle position to the minimum value of the measuring range and switches to ABS mode.

- **Zero-setting** (INC measurement system)

A brief press on the ZERO/ABS button sets display to zero at the current spindle position and switches to the incremental (INC) measuring mode. A longer press resets to the ABS measuring mode.

- **Hold:**

Pressing the HOLD button freezes the current value in the display. This function is useful for preserving a measurement in situations of poor visibility where the instrument must be moved away from the workpiece before the reading can be recorded.

- **Data output***4:

Models equipped with this function have an output port for transferring measurement data to a Statistical Process Control (SPC) system. *4: Only models with the data output function

- **Auto power ON/OFF:**

The reading on the LCD disappears after this instrument is idle for about 20 minutes, but the reading and measurement mode are retained. Turning the spindle causes the reading to reappear.

- **Error alarm:**

In case of an overflow on the LCD or a computing error, an error message appears on the LCD, and the measuring function stops. This prevents an instrument from giving an erroneous reading. Also, when the battery voltage drops to a certain level, the low-battery-voltage alarm annunciator appears well before the micrometer becomes unusable.

- **Function lock***5:

This function allows the ORIGIN (origin point setting) function and the ZERO (zero-setting) function to be locked to prevent these points being reset accidentally. *5: All-digit preset type only

Optional accessories

(Only for models with data output function)

Printer

Digimatic mini-processor **DP1-VR**

Connecting cables with output switch

05CZA662 SPC cable w/data switch 40" (1m)

05CZA663 SPC cable w/data switch 80" (2m)



USB Input Tool Direct

USB-ITN-B: 06ADV380B (2m)

Wireless interface:

02AZD730D U-WAVE transmitter IP67 type

02AZD880D U-WAVE transmitter buzzer type

02AZD810D U-WAVE receiver

02AZD790B U-WAVE connecting cable

02AZE140B Connecting cable for footswitch

DIMENSIONS

