

Dial Indicator / Comparator

DIAL INDICATOR

Thank you for purchasing the Niigata Seiki Dial Indicator.

Used with a Magnetic Base or Indicator Stand, this gauge will show the difference in height or position relative to a zero point set at a reference position.

APPLICATIONS

- Tight places where plunger type Dial Gauge can not be used.
- Use on milling machines and laths for centering, measure runout, parallelism, flatness, etc.
- Mount on height gauge for various measurements.

- For safe and proper use of this product, please read this instruction manual before use and follow the procedures described. Please keep manual where it is accessible to user for future reference.
- Keep this manual with the instrument if transferred or leased to a third party.
- For inquiries about this product, please contact dealer or Niigata Seiki at the address listed on the following page.

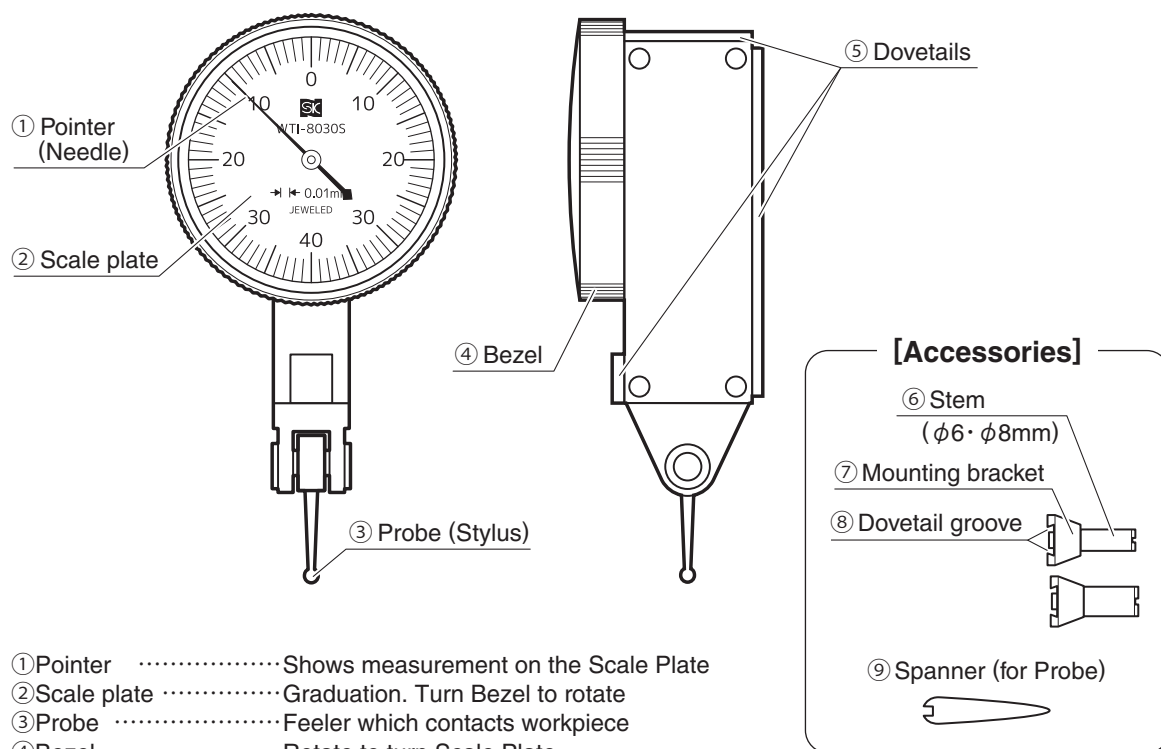
SAFETY NOTIFICATIONS

Throughout this manual, "⚠" symbol indicates RISK OF PERSONAL INJURY OR PROPERTY DAMAGE if not followed.

The "⊘" symbol indicates something which is PROHIBITED, and the "⊙" symbol Indicates REQUIRED step or necessary condition.

PART IDENTIFICATION, FUNCTION

※Model WTI-8030S shown



- ① Pointer Shows measurement on the Scale Plate
- ② Scale plate Graduation. Turn Bezel to rotate
- ③ Probe Feeler which contacts workpiece
- ④ Bezel Rotate to turn Scale Plate
- ⑤ Dovetails For attaching Stem
- ⑥ Stem For mounting to Holder
- ⑦ Mounting bracket Connects Stem to gauge
- ⑧ Dovetail groove Matches Dovetail in gauge body for mounting Stem
- ⑨ Spanner Tool to change Probe

SAFETY PRECAUTIONS

Please Observe

Always follow the procedures specified below in order to prevent harm to yourself or others, and to prevent damage to property.

■ Content marked as follows indicates risk of injury or damage if not followed.



WARNING

Indicates risk of personal injury or property damage if not followed.

■ These symbols mark content that must be observed.



Denotes a prohibition – You **MUST NOT** do.



Denotes a requirement – You **MUST** do.



CAUTION



Read the manual and follow all instructions.

- Use of product other than as described in the manual may cause accident.



Use only as indicator Gauge.

- Use for any purpose other than measuring may damage or wear the instrument. Improper use may also cause accident.



Use in an environment which meets the following conditions:

- Temperature within range of 0~40° C, humidity 30~70% (non-condensing.)
- Location with minimal dust, oil, oil mist, and protected from direct sunlight.
- Location protected from use by children and unauthorized people.
- Use in location contrary to the above may cause poor accuracy, damage to the product, or may result in accident or injury.



Handle With Care.

- Do not drop or subject to shock, do not place under heavy objects. Damage may cause failure or poor accuracy.



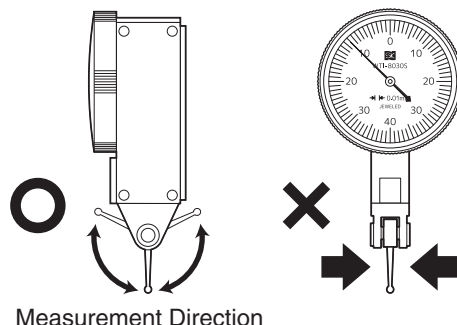
Do not disassemble or modify.

- It may damage Gauge and cause poor accuracy.
- If Bezel Clamp Screw is removed, internal components may come loose and become misaligned causing product failure.



Do not shock Probe.

- Rapid motion, or lateral force may damage Gauge and cause poor accuracy.



PREPARATION - Mounting

Dial Indicator must be securely mounted such as on a comparator stand or magnetic base. Please follow these guidelines.



Make sure Gauge holder is rigid.

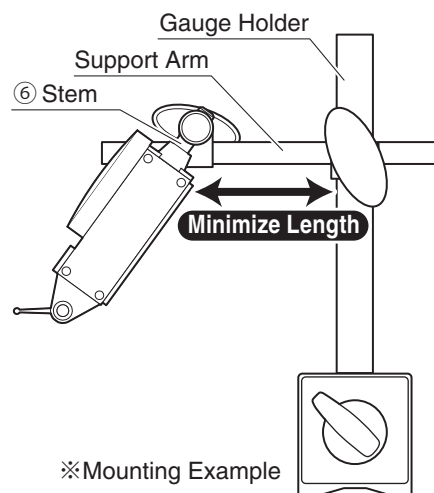
- Holder must be sufficiently secure to prevent deflection from the weight of the Gauge.
- Holder must be rigid enough to hold Gauge and not to lift from measurement force.
- Holder support arm should be as short as possible to prevent deflection.

※ Deflection or lifting will cause measurement error, such as origin position error and inaccuracies in measured reading.



Dial Gauge must only be attached by Dovetail or Stem.

- Mounting of gauge by other than Stem or Dovetail will cause inaccuracy and product damage.



HOW TO USE - Preparation

① Attach Mounting Stem.

Loosen the Stem mounting bracket and slide the groove onto the Dovetail in the desired position. Tighten the Stem to secure. (Choose a stem with diameter to match the Gauge Holder you plan to use.)

② Confirm that the Probe and stem are secure without any play.

If they are loose, tighten to secure.

③ Attach the Indicator Gauge to the Holder.

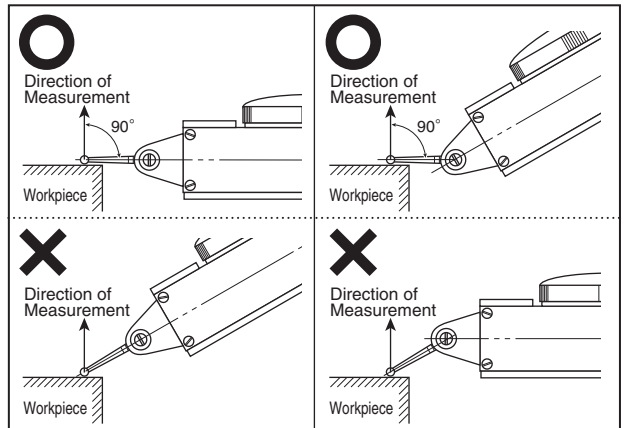
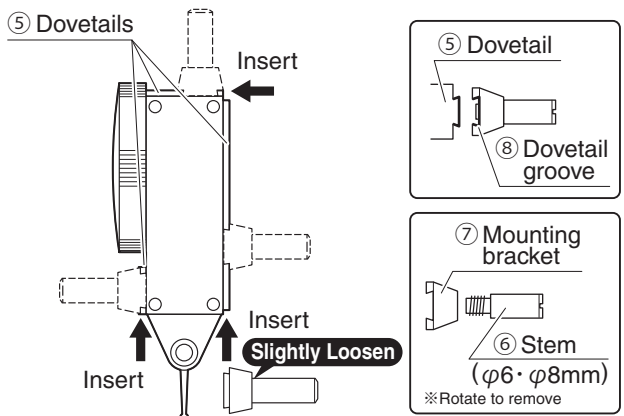
Please attach by the Stem only.

④ Confirm that the pointer moves freely.

Bring the Probe into contact with the workpiece, and gently raise and lower the gauge while checking the movement. Confirm that the pointer returns to initial position when raised.

⑤ Make sure the Probe is parallel to the measured surface, and perpendicular to the direction of the measurement

If probe is not positioned properly, the measurement will be inaccurate and operation may be faulty.



HOW TO USE - Comparison Measurements

① Set Up Reference Part.

Position the reference Part with the measured surface parallel to the probe and perpendicular to the direction of the measurement. Bring into contact with the probe, but use care that the part does not bump the probe from the side.

② Set the Origin.

Adjust the gauge mount or rotate the Bezel to set the Gauge to "0".

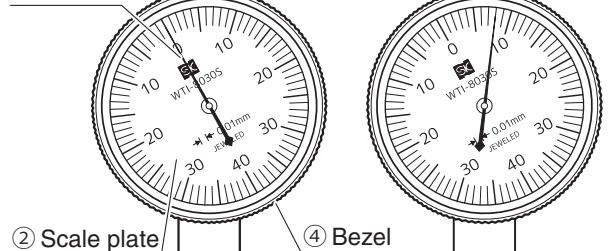
③ Remove the Reference Part and Measure the Workpiece.

Remove the master with care not to shock the gauge. Replace with the workpiece and read the scale.

Ex.) Reference Part 30mm Gauge Block : 30mm
Workpiece height : 30.08mm

〈Set origin with Reference Part〉 〈Measure workpiece〉

① Pointer



HOW TO USE - Parallelism, Flatness, Runout, etc.

① Position the probe on the workpiece.

Position the Part with the measured surface parallel to the probe and perpendicular to the direction of the measurement. Bring into contact with the probe, but use care that the part does not bump the probe from the side.

② Set the Origin.

Adjust the gauge mount or rotate the Bezel to set the Gauge to "0".

③ Move the workpiece and read the scale.

Move the workpiece slowly while reading the position of the pointer on the scale.

TROUBLESHOOTING

■ Origin position shifts during measurement.

- Temperature changes during measurement can cause repeatability error. Please try the following solutions:
 - Use in location with constant temperature.
 - When taking measurements, periodically adjust zero point using a Master reference to correct for temperature induced drift.
- Make sure the Stem is not loose, and tighten if necessary.

■ Measurement is not stable, or measurement accuracy is poor.





- Probe may be worn; a worn Probe will affect accuracy. Periodically check for wear, and replace if wear is affecting measurement accuracy.

SPECIFICATIONS

Model No.	Graduation (mm)	Measurement Range (mm)	Scale	Wide-range Accuracy (μm)	Retrace Error (μm)	Measuring Force (N)	Repeatability (μm)	Adjacent Error (μm)	Probe	Weight (g)
WTI-2030S	0.002	0~0.2	0-100-0	6	2	≤ 0.5	1	4	Steel Ball	70
WTI-2030R									Ruby	
WTI-2030W									Carbide Ball	
WTI-2038S	0.002	0~0.2	0-100-0	6	2	≤ 0.5	1	4	Steel Ball	80
WTI-2038R									Ruby	
WTI-2038W									Carbide Ball	
WTI-8030S	0.01	0~0.8	0-40-0	13	3	≤ 0.5	3	10	Steel Ball	70
WTI-8030R									Ruby	
WTI-8030W									Carbide Ball	
WTI-8038S	0.01	0~0.8	0-40-0	13	3	≤ 0.5	3	10	Steel Ball	80
WTI-8038R									Ruby	
WTI-8038W									Carbide Ball	

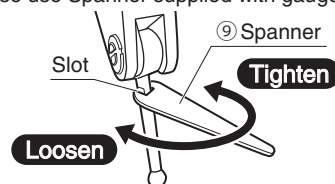
● Replacement Probe Part No. : WTI-2030S·WTI-2038S···WTI-20S, WTI-2030R·WTI-2038R···WTI-20R, WTI-2030W·WTI-2038W···WTI-20W
WTI-8030S·WTI-8038S···WTI-80S, WTI-8030R·WTI-8038R···WTI-80R, WTI-8030W·WTI-8038W···WTI-80W

AFTER USE CARE, STORAGE

-  **Remove any dust or dirt after use. ※Do not lubricate.**
 - Wipe any contamination from Probe and moving surfaces using a dry cloth, or cloth moistened with alcohol.
 - To clean other surfaces, wipe with a soft dry cloth, or a cloth moistened with a mild cleaner.
-  **Check for wear of Probe tip.**
 - Measurement accuracy will be affected by worn Probe. Regularly check for wear and replace Probe if worn.
-  **Store in provided case in a cool, dark, and dry location.**
 - During storage, make sure there is no force on the Probe (such as pushed in, or lateral force.)
 - Keep away from moisture and direct sunlight, and secure from unauthorized personnel.
-  **Use only factory approved Probe. Using alternate probe may cause error.**
 - Always perform calibration after replacing Probe.

Replacing Probe

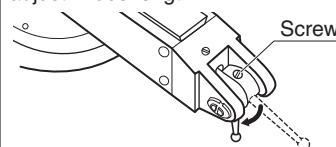
Please use Spanner supplied with gauge.



Adjusting Length After Changing Probe

※WTI-2030S·WTI-2038S·WTI-2030R·WTI-2038R·WTI-2030W·WTI-2038W only

Rotate Probe to expose screw as shown. Using a screwdriver, turn screw and adjust Probe length.



CALIBRATION

To maintain measurement accuracy, periodic calibration is recommended.

(For reference, we recommend a calibration interval of 3~4 months when used in a factory.)

Outside Japan, Please contact distributor or place of purchase to inquire about calibrations services.

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