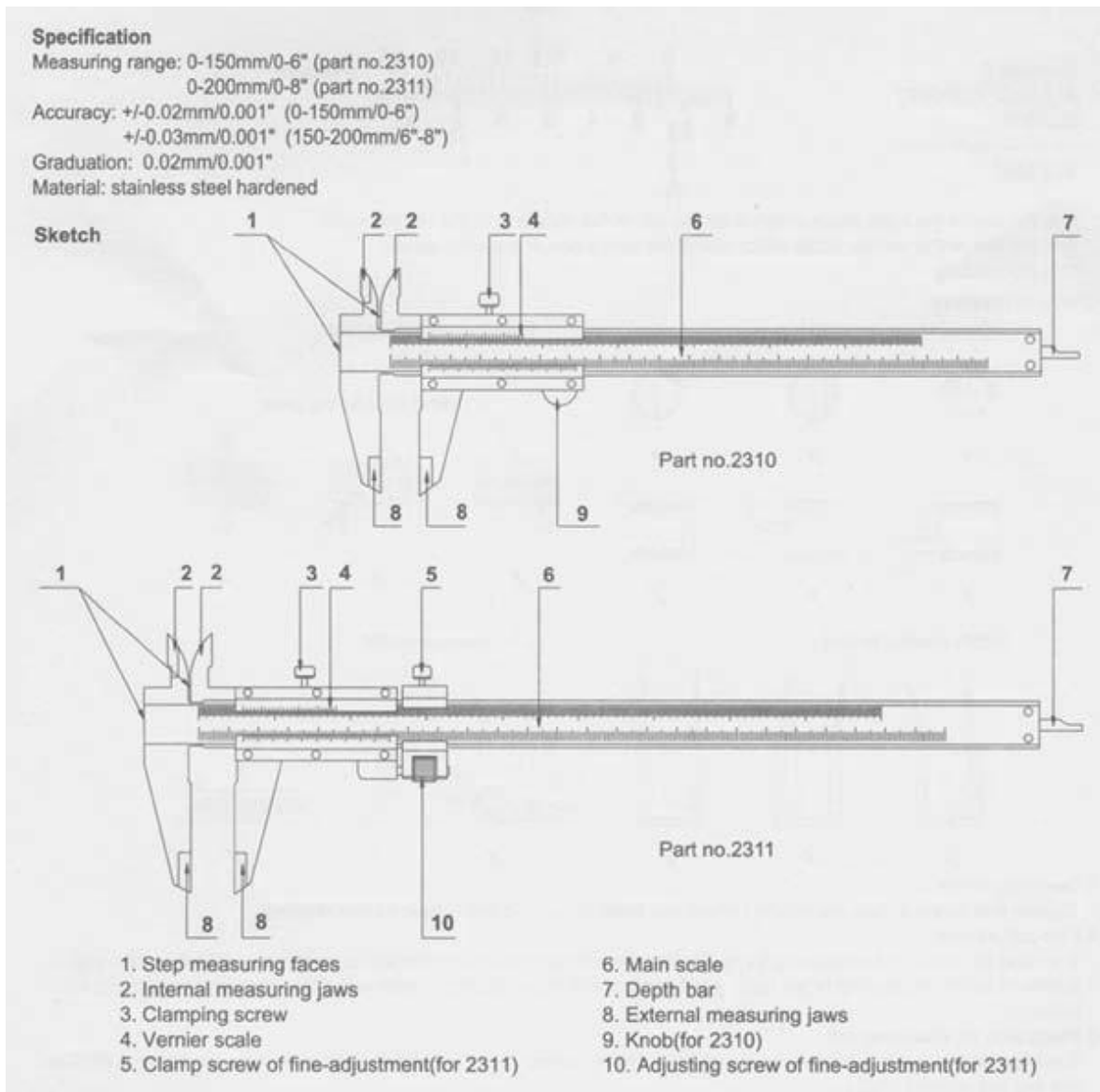


VERNIER CALIPER



PRECAUTION:

1. Clean the caliper before use. Make sure the measuring faces are clean.
2. Remove cutting chips, dust, burrs and other foreign substances from the piece to be measured.
3. Make sure that the zero lines of the vernier scale coincide with the zero lines of the main scale when the external jaws are closed.
4. Make sure that no slit is observed between two external jaws when they are closed.
5. Vernier caliper body should be lubricated with a small amount of clock oil.
6. Measuring faces should be carefully protected from being scratched, hit or rusty. Do not operate abruptly, drop or shake caliper.

1. How to read
Example 1

A: 32

B: 0.54

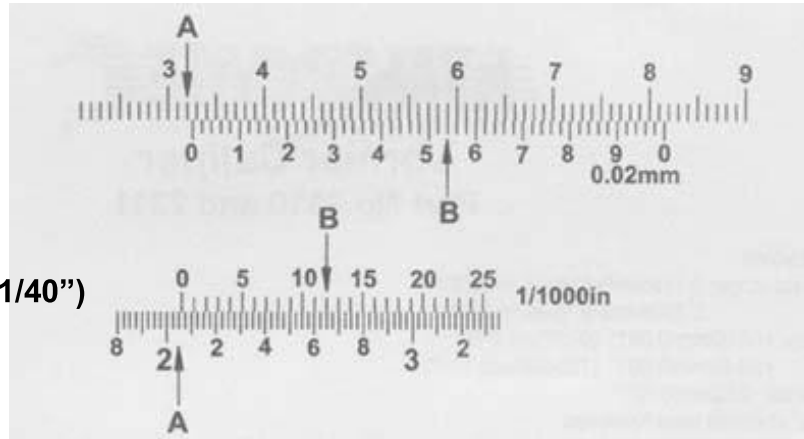
C: 32.54mm

Example 2

A: 2.05 (2" + 2 X 1/40")

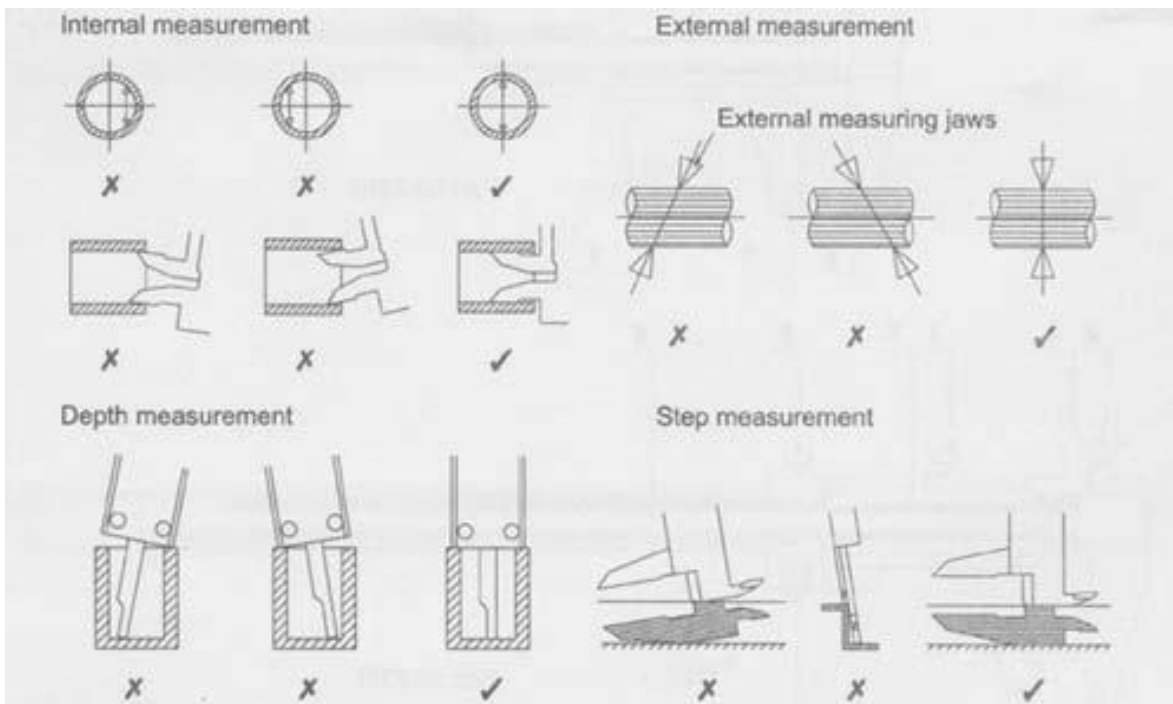
B: 0.012

C: 2.062"



A is the line of the main scale which is on the left of the zero line of the vernier scale.
B is the line of the vernier scale which coincides with a line of the main scale.
C is the reading

2. Measurement:



3. Clamping Screw:

Tighten the screw to lock the reading when you have to remove the caliper before reading.

4. Fine Adjustment:

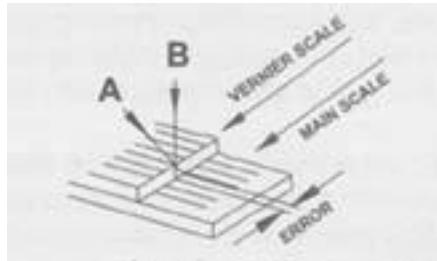
This is used to control the measuring force. Tighten the clamping screw of the fine adjustment, rotate the adjusting screw to let the

measuring faces be in good contact with the workpiece, meanwhile the clamping screw must be loose.

5. Precaution for measurement:

It is important to apply suitable measuring force on the caliper to get accurate reading. Always use knob of 2310 or the fine adjustment of 2311.

Take care to avoid parallax error when reading the vernier scale. Parallax error is caused when viewing from A direction. Please view from B direction.



In order to get smooth sliding, rotate the adjusting screw of the fine adjustment to make the fine adjustment close to the vernier before sliding.

OUTSIDE MICROMETER

Measuring range:

5606 0-25mm

5607 25-50mm

5608 50-75mm

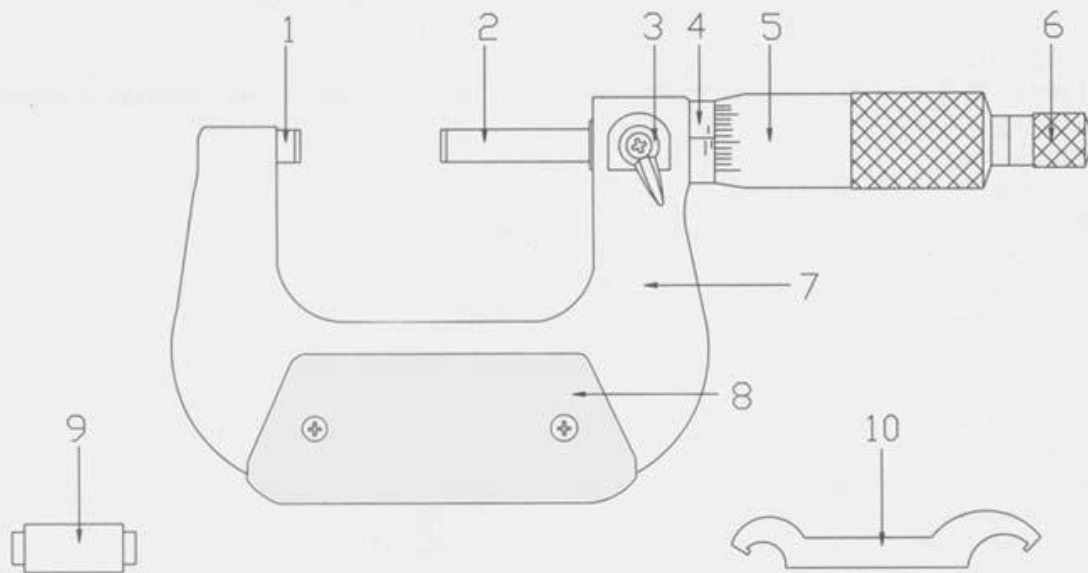
5609 75-100mm

5605 4pcs/set (0-25mm,25-50mm, 50-75mm, 75-100mm)

Graduation: 0.01mm

Accuracy: +/-0.004mm (0-50mm)

+/-0.005mm (50-100mm)



1. Anvil with carbide measuring tip
2. Spindle with carbide measuring tip
3. Locking lever
4. Sleeve
5. Thimble

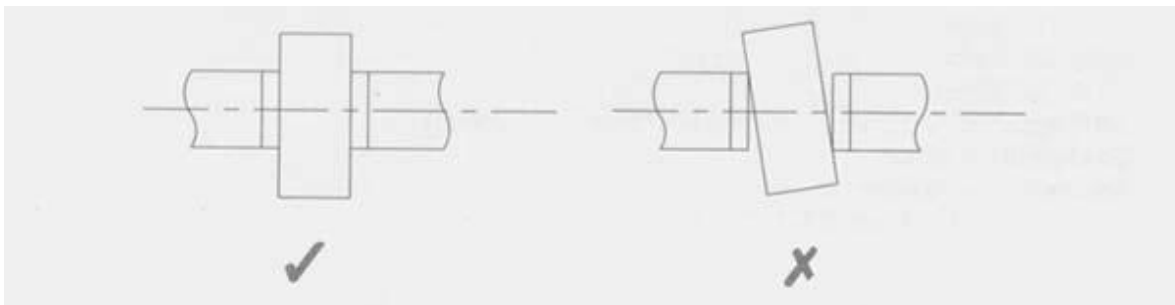
6. Ratchet stop
7. Frame
8. Heat isolation plate
9. Standard rod(except 0-25mm)
10. Adjusting wrench

1. **Clean the micrometer gently before use. Make sure the measuring faces are clean.**
2. **Remove cutting chips, dust, burrs and other foreign substances from the piece to be measured.**
3. **Standard rod and adjusting wrench:**
They are used to calibrate micrometers. Micrometers should be calibrated frequently. The length of the standard rod is 25mm for 5607 (25-50mm), 50mm for 5608 (50-75mm) and 75mm for 5609 (75-100mm). 5606 (0-25mm) doesn't have standard rod and it can be regarded as having a standard rod of zero length. The reading must

be the same as the length of standard rod when the micrometer 'measures' the rod. For example, when 5607 (25-50mm) 'measures' its standard rod 25mm, the reading must be 25mm exactly. Otherwise you should adjust the micrometer. Put the small point of the adjusting wrench into the small hole on the sleeve which is near the locking lever, rotate the sleeve to make the zero line of the thimble align with the horizontal line of the sleeve. Another end of the adjusting wrench is used to fix or unfix the ratchet stop.

4. How to measure:

Let the anvil contact with the workpiece first. Rotate the thimble or the ratchet stop till the spindle is close to (but not in contact with) the workpiece. Rotate the ratchet stop until you hear a click from the ratchet stop.



5. Locking lever:

Tighten this lever to lock the reading when you have to remove the micrometer before reading.

6. How to read

Example 1

A: 35

B: 0.12

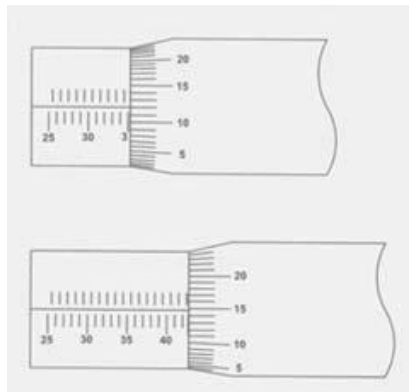
C: 35.12mm

Example 2

A: 42.5

B: 0.148 (8 is estimated)

C: 42.648mm



A is the line of the sleeve which is on the left of the thimble.

B is the point on the thimble which aligns with the horizontal line on sleeve.

C is the reading

The graduation on the sleeve is 0.5mm. One rotation of the thimble makes 0.5mm (1 graduation) step on the sleeve.

7. Precaution for measurement:

Never rotate the thimble to let the spindle contact with the workpiece, which may damage the precision thread inside the sleeve.

Please grip the heat isolation plate if you hold the micrometer for a long time, in order to prevent heat transferring from your hand to the micrometer. If the workpiece and the micrometer are a different temperature, an error of accuracy may be caused.

- 8. Measuring faces should be carefully prevented from being scratched, hit or rusty. Do not operate abruptly, drop or strike the micrometer. The spindle should be oiled to avoid getting rusty.**