



United States Golf Association and R&A Rules Limited

**PROCEDURE FOR MEASURING
THE CLUB HEAD SIZE OF
WOOD CLUBS**

USGA-TPX3003

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1. Scope

- 1.1 This method covers the procedure for measuring the clubhead size of woods as administered by the United States Golf Association (USGA) and R&A Rules Limited (R&A).
- 1.2 The results of the conformance tests are used in determining conformity of the club to the Rules of Golf, Appendix II, Rule 1.
- 1.3 The values stated in imperial units are to be regarded as standard. The values stated in SI units are for information only.

2. Applicable Documents

- 2.1 USGA and R&A documents:
 - Rules of Golf

3. Summary of Method

- 3.1 Using the displaced water weight method the volume of woods is measured. In addition, using a testing apparatus that holds a wood clubhead in a specified lie orientation, the clubhead length (heel-to-toe) and height (sole-to-crown) dimensions are determined.

NOTE: This procedure may change and the test tolerances may be reduced as the test methods are refined.

4. Significance

- 4.1 This method measures the volume and dimensions of wood clubheads to determine the conformity to Appendix II, Rule 1 of the Rules of Golf.

The volume of the clubhead shall not be greater than **28.07 cu. in. (460 cc)**. A maximum test tolerance of **0.61 cu. in. (10 cc)** is associated with this test.

The length of the clubhead shall not be greater than **5.0 in. (12.70 cm)** when measured from the heel to the toe. The height of the clubhead shall not be greater than **2.8 in. (7.11 cm)** when measured from the sole of the clubhead to the crown.

5.0 Procedure for Measurement of Clubhead Volume

The volume of the clubhead is determined using the weighed water displacement method, also referred to as Archimedes Principle, which states that the buoyant force on a submerged object is equal to the weight of the fluid that is displaced by the object. Since water has a specific gravity of 1.0, one cubic centimeter of water has a mass of 1 gram.

- 5.1 Place water in a large volume container. The container must be large enough that there is sufficient room to completely immerse a clubhead without the clubhead touching either the bottom or sides of the container. Care should be taken not to overfill the container in order to prevent spillage when the clubhead is submerged.
- 5.2 Place the container with water on the digital electronic scale and tare the scale.
- 5.3 Prior to measuring the volume, the clubhead should be inspected for any large concavities. If large concavities are present they must be filled (e.g. clay or dough) and covered with tape so as to produce a smooth contour.
- 5.4 Mount the shaft of the club in the fixture with the clubhead just above the surface of the water in the container, Figure 5.4. (If the clubhead is not shafted, a temporary shaft should be used.)



Figure 5.4 – Tared Electronic Scale with Water-Filled Container Ready of Clubhead Immersion

- 5.5 Slowly lower the clubhead into the water until the top of the clubhead is just below the surface of the water, Figure 5.5 (a). The hosel of the clubhead should not be submerged, Figure 5.5 (b)



Figure 5.5 (a) – Clubhead Immersed in Container



Figure 5.5 (b) – Clubhead Immersed in Container with Hosel above the Surface

- 5.6 Record the reading on the electronic scale. This is the volume of the clubhead in cubic centimeters.
- 5.7 If the volume of the clubhead is greater than 460 cc plus the 10 cc tolerance, then the clubhead does not conform to the clubhead volume standard.

6. Procedure for Measurement of Clubhead Dimensions

6.0.1 The length (heel-to-toe) and height (sole-to-crown) of the clubhead is measured with the head positioned at a 60 degree lie angle. If the outermost point of the heel is not clearly defined, it will be deemed to be 0.875 inches above the horizontal plane on which the club is lying, Figure 6.0.1.

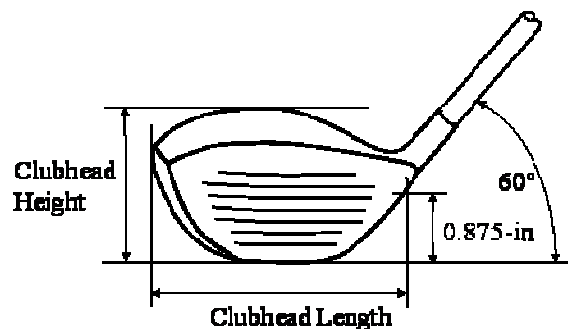


Figure 6.0.1– Convention for Clubhead Measurement

6.1 Place the clubhead measuring apparatus, Figure 6.1, on a flat, stable surface.

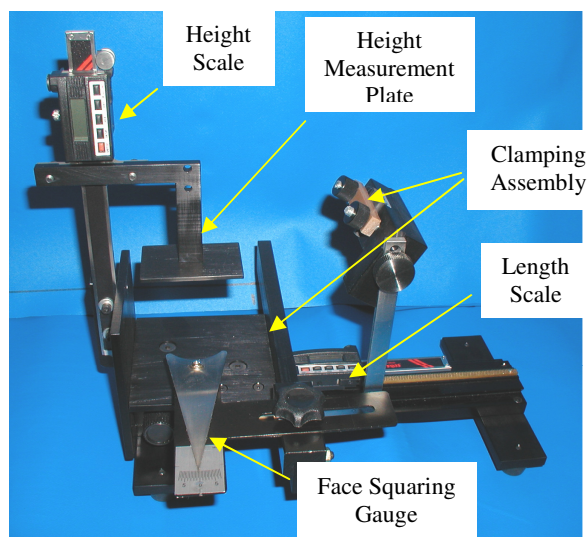


Figure 6.1–Clubhead Measurement Apparatus

6.2 Depress the “ON” button to activate the height (vertical) and length (horizontal) digital scales.

6.3 Prior to measurement the apparatus must be calibrated using gauge blocks.

6.3.1 Raise the height measurement plate to its highest position and insert gauge block(s) totaling 2.8 inches.

6.3.1.2 Lower the height measurement plate until it rests on the gauge block(s), and then zero the height scale, Figure 6.3.1.

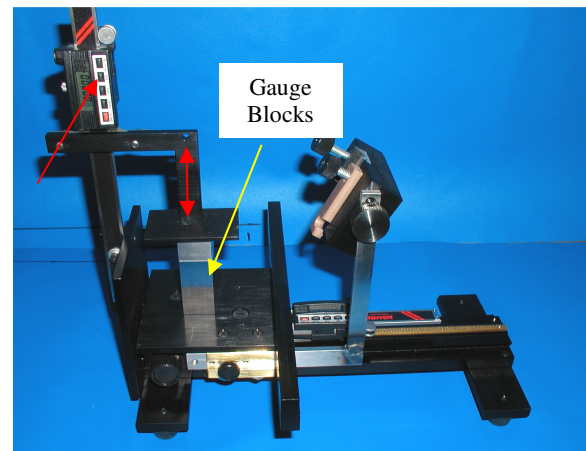


Figure 6.3.1–Calibration of the Height Measurement Using Gauge Blocks

6.3.2 Turn the knob to move the clamping assembly to the right enough to insert gauge block(s) totaling 5.0 inches.

6.3.2.2 Turn the knob to move the clamping assembly back to the left until one end of gauge block(s) rests against the toe plate and the opposing end of the gauge block(s) rests against the heel plate, and then zero the length scale, Figure 6.3.2.

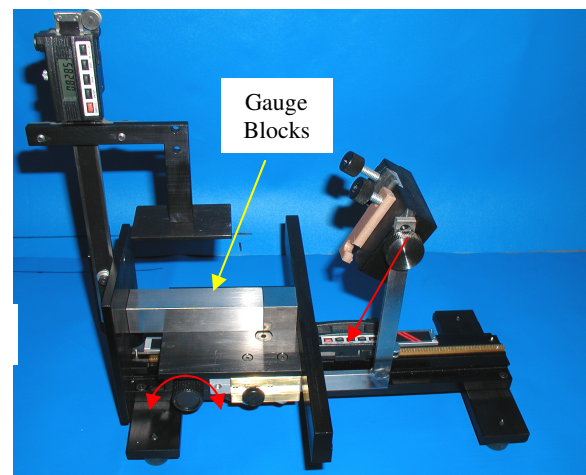


Figure 6.3.2–Calibration of the Length Measurement Using Gauge Blocks

6.4 With the apparatus now calibrated, remove the gauge blocks and place the club in the clamping assembly (If the clubhead is not shafted, a temporary shaft should be used.) Tighten the shaft clamp slightly so that the club is secure while still allowing enough rotation of the clubhead so that the face can be squared, Figure 6.4.

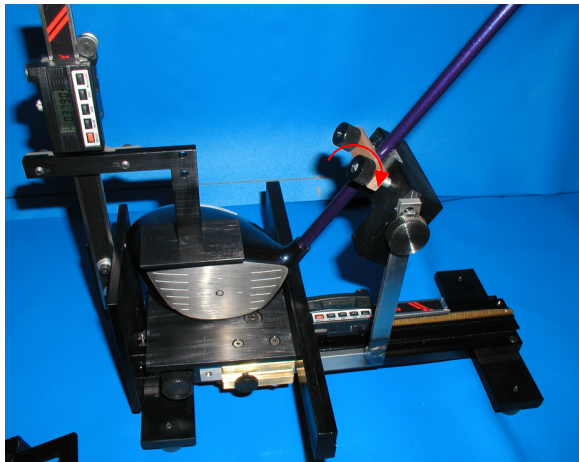


Figure 6.4–Club in Measurement Apparatus

6.5 Slide the shaft clamping fixture to the right, Figure 6.5 (a) until the heel of the clubhead just touches the heel plate, Figure 6.5 (b).



Figure 6.5 (a)–Slide Shaft Clamp Until the Heel of Clubhead Rests Against Heel Plate

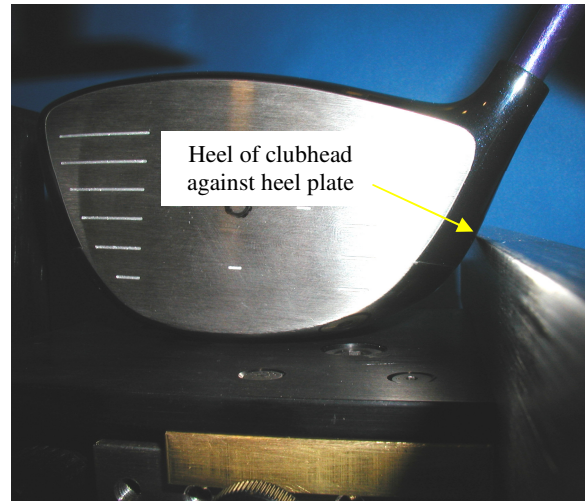


Figure 6.5 (b)–Heel of Clubhead Resting Against Heel Plate

6.6 Slide the face squaring gauge to the left until the two contact points are equidistant from the center of the clubface.

6.7 Gently rotate the clubhead until the indicator on the face squaring gauge reads zero, then tighten the shaft clamp, Figure 6.7.

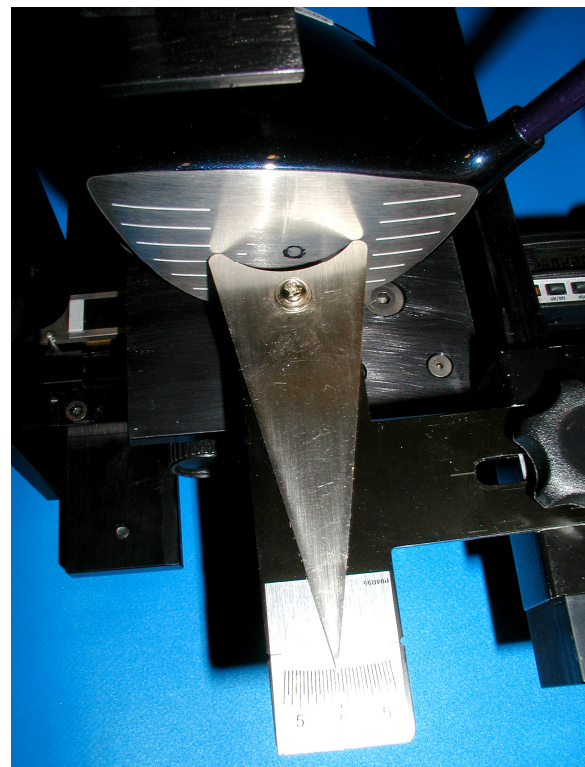


Figure 6.7–Clubface Squared

6.8 Rotate the clamping assembly knob counter-clockwise until the toe of the clubhead just touches the toe plate, and then read the value on the length scale, Figure 6.8

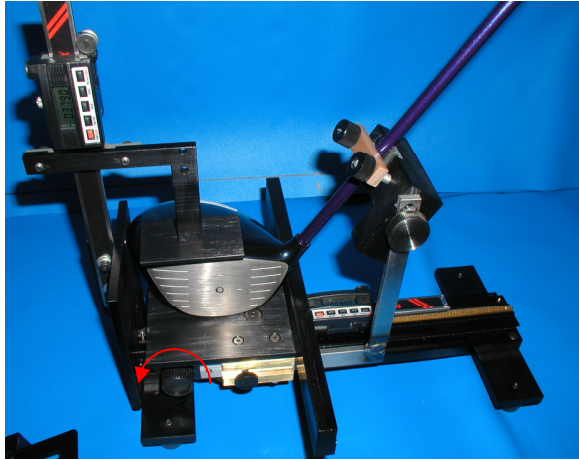


Figure 6.8-Rotate Clamping Assembly Knob until the Toe of Clubhead Rests Against Toe Plate

6.8.1 If the reading is less than or equal to 0.0 then the clubhead length is less than 5.0-in. and the club conforms to the clubhead length standard.

6.8.2 If the reading is greater than 0.0 then the clubhead length is greater than 5.0-in. and the club does not conform to the clubhead length standard.

6.9 Lower the height measurement plate until it just touches the crown of the clubhead, and then read the value on the height scale, Figure 6.9.

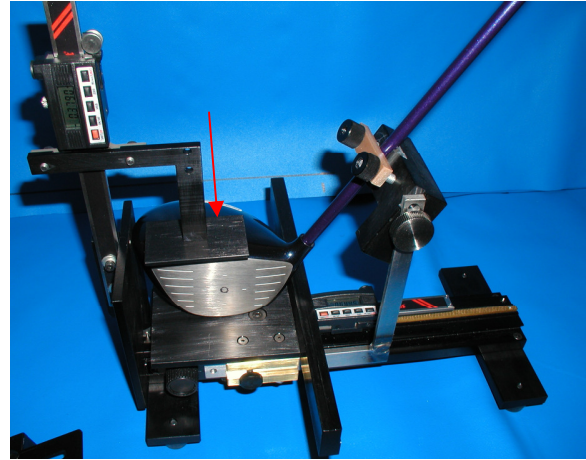


Figure 6.9-Slide Height Measurement Plate until it Rests on the Crown of the Clubhead

6.9.1 If the reading is less than or equal to 0.0 then the clubhead height is less than 2.8-in. and the club conforms to the clubhead height standard.

6.9.2 If the reading is greater than 0.0 then the clubhead length is greater than 2.8-in. and the club does not conform to the clubhead height standard.