

# BALANCING

- Balancing
- Weighing the ball

# Balancing

## ? Balancing a Bowling Ball — Norms to Follow & Dodo Scale

When a bowling ball is drilled, holes for the fingers and thumb remove material and shift its **center of gravity (CG)**.


To ensure the ball remains **legal and properly balanced**, pro shops measure the ball's static balance using a **dodo scale** and follow **USBC balance norms**.

## 1. Norms to Follow — USBC Static Balance Rules

The **United States Bowling Congress (USBC)** sets the official balance limits that all drilled bowling balls must meet.

## ? USBC Legal Limits (Current as of 2025):

Type of Weight Imbalance	Maximum Allowed Difference
Top or Bottom Weight	3 ounces maximum
Side Weight	3 ounce maximum
Finger or Thumb Weight	3 ounce maximum

“  **Weight holes (balance holes)** are no longer allowed — since August 1, 2020. Only gripping holes (fingers and thumb) are permitted.

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# ? Static Weights Explained

Term	Description	Ball Motion Effect
<b>Top Weight</b>	Weight above the ball's center line	Helps delay hook (more length)
<b>Bottom Weight</b>	Weight below the ball's center line	Promotes earlier roll
<b>Side Weight</b>	Difference between left/right halves	Affects flare and backend motion
<b>Finger/Thumb Weight</b>	Difference between upper/lower halves	Impacts roll and reaction smoothness

**Norm:** Keep these weights **within limits** while achieving desired ball reaction. Excessive imbalance makes the ball illegal and unpredictable.

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## ⚙️ 2. Using a Dodo Scale to Measure Balance

The **dodo scale** is a specialized tool used by pro shops to **measure static imbalances** (top, bottom, side, finger, and thumb weight) in ounces.

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### ? Parts of a Dodo Scale

- **Base Platform:** Holds the ball in place.
  - **Balancing Arm / Beam:** Works like a scale arm with weights to measure imbalance.
  - **Pivot Point / Knife Edge:** It allows the arm to move freely.
  - **Indicator Dial / Counterweights:** Shows weight difference in ounces.
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### ? How to Use the Dodo Scale (Step-by-Step)

1. **Find the Center of Gravity (CG):**
  - Marked on the ball by the manufacturer.
  - It's the point used as the reference for all balance measurements.

## 2. Measure Side Weight:

- Place the ball on the dodo scale so the CG is aligned horizontally (left to right).
- Rotate the ball 90°.
- The scale shows the difference between the right and left halves (in ounces).
- Must be  $\leq 3$  oz.

## 3. Measure Finger/Thumb Weight:

- Rotate the ball so the CG is aligned vertically (top to bottom through the gripping holes).
- The reading shows weight difference between finger and thumb sides.
- Must be  $\leq 3$  oz.

## 4. Measure Top/Bottom Weight:

- Place the ball with the CG on top and measure the vertical imbalance.
- Reading must be  $\leq 3$  oz.

## 5. Adjust If Needed:

- If imbalance exceeds the limit, adjust drilling depth or plug/redrill holes to bring the ball within legal range.

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# ? Norms When Using a Dodo Scale

Step	Norm / Best Practice
Before Drilling	Record factory top weight and CG location.
After Drilling	Check all three balances (top, side, finger/thumb).
Adjustment	Stay comfortably <i>below</i> USBC max limits (not exactly at them).
Documentation	Record final readings for reference.
Verification	Test-roll to confirm expected ball motion.

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## 3. Why Balancing Matters

Proper balance ensures that:

- The ball **rolls evenly and predictably**.
- The **core orientation** performs as designed.
- The ball is **USBC-legal** for competition.

Unbalanced or illegal balls can:

- React unpredictably on the lane.

- Violate competition standards.
- Affect the bowler's release or control.

## □ Summary — Norms to Follow

Category	Norm / Standard	Measured By
<b>Static Balance</b>	3 oz top, 3 oz side, 3 oz finger/thumb	Dodo Scale
<b>Dynamic Balance</b>	Proper core layout and reaction shape	Dual Angle / CAD tools
<b>Physical Fit</b>	Comfortable grip and pitches	Fit tools / Pro fitting
<b>No Balance Holes</b>	Only finger & thumb holes allowed	USBC Rule
<b>Check After Drilling</b>	Verify legality before use	Dodo Scale Measurement

## ? In Short

“Balancing a bowling ball” means making sure it meets **USBC static balance limits** and rolls as intended. The **dodo scale** is the key tool used to **measure and confirm** those weight differences after drilling.

- DODO Scale

- Use this tool to determine the need for a weight hole

- Norms to follow:

- At most, **3oz** Side
  - At most, **3oz** finger/thumb
  - At most, **3oz** top/bottom



# Weighing the ball

To weigh a bowling ball using a **Dodo scale**, follow these steps:

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## 1. Set Up the Scale

Place the Dodo scale on a flat, stable surface. Ensure it's turned on and calibrated to zero.

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## 2. Position the Ball

Place the bowling ball on the scale's cradle, ensuring it's centered and stable.

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## 3. Read the Display

The scale will display the weight of the ball. Note the reading in ounces or grams.

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## 4. Calculate the Weight

If the reading is in ounces, divide by 16 to convert to pounds. If in grams, divide by 1000 to convert to kilograms.

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## 5. Verify Accuracy

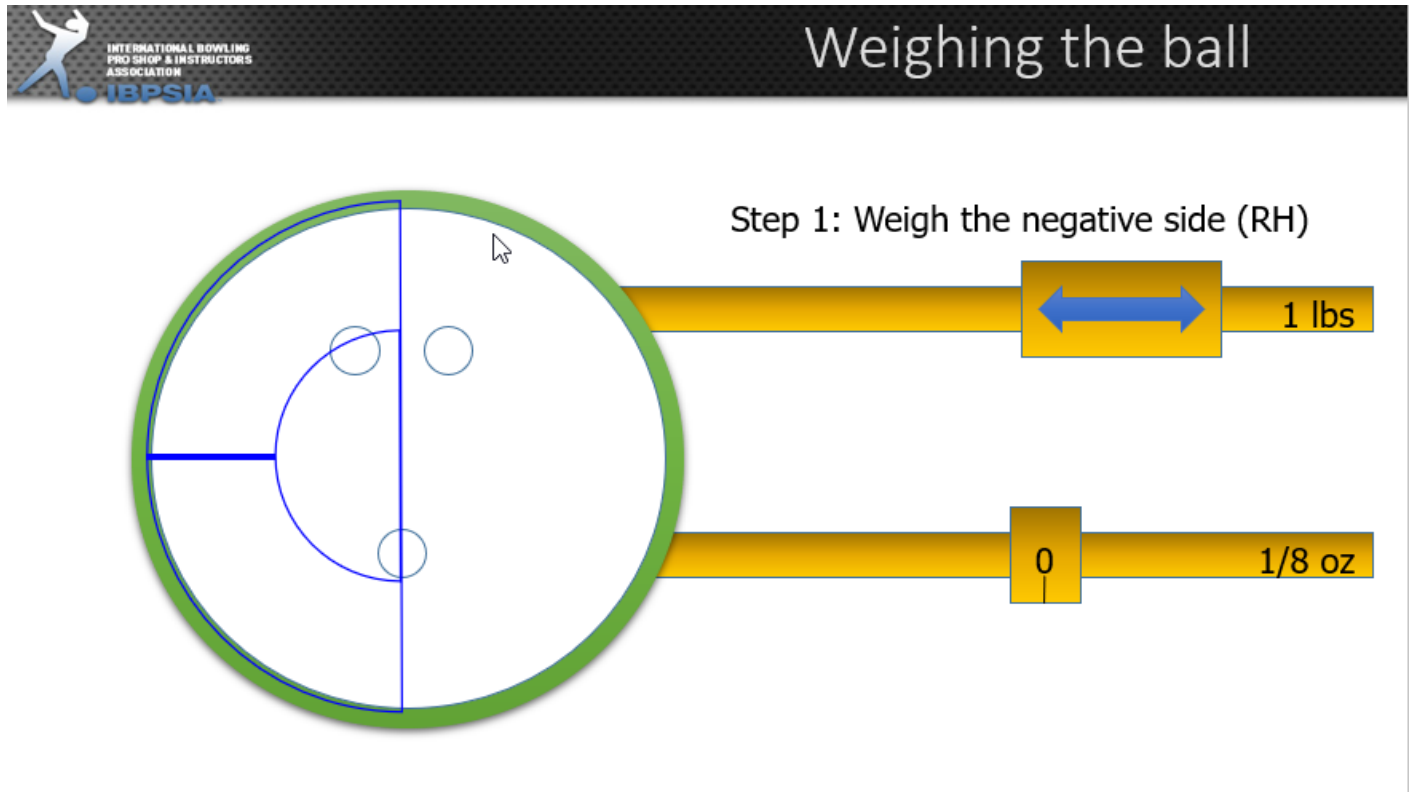
For precision, repeat the measurement and check for consistency.

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The Dodo scale is a specialized tool used in bowling to measure static imbalances in a ball, such as side, finger, and thumb weights. These measurements are crucial for customizing the ball's layout to match a bowler's style and preferences. However, for general weight measurements, a standard scale may suffice.

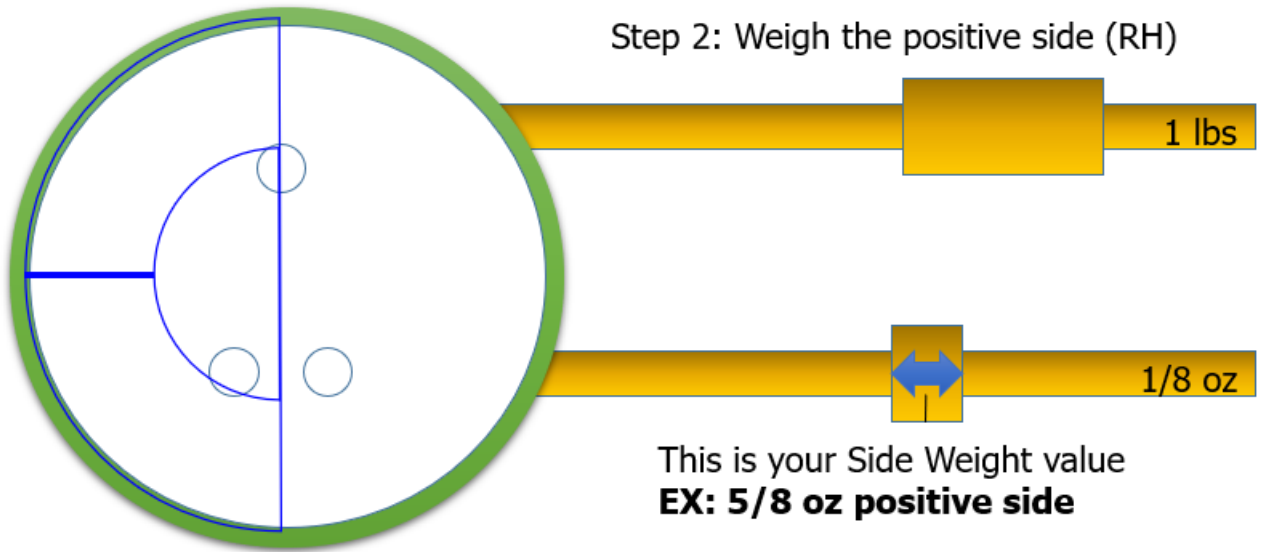
Here are the 6 steps for weighing your bowling balls with the dodo scale .....

STEP 1 :



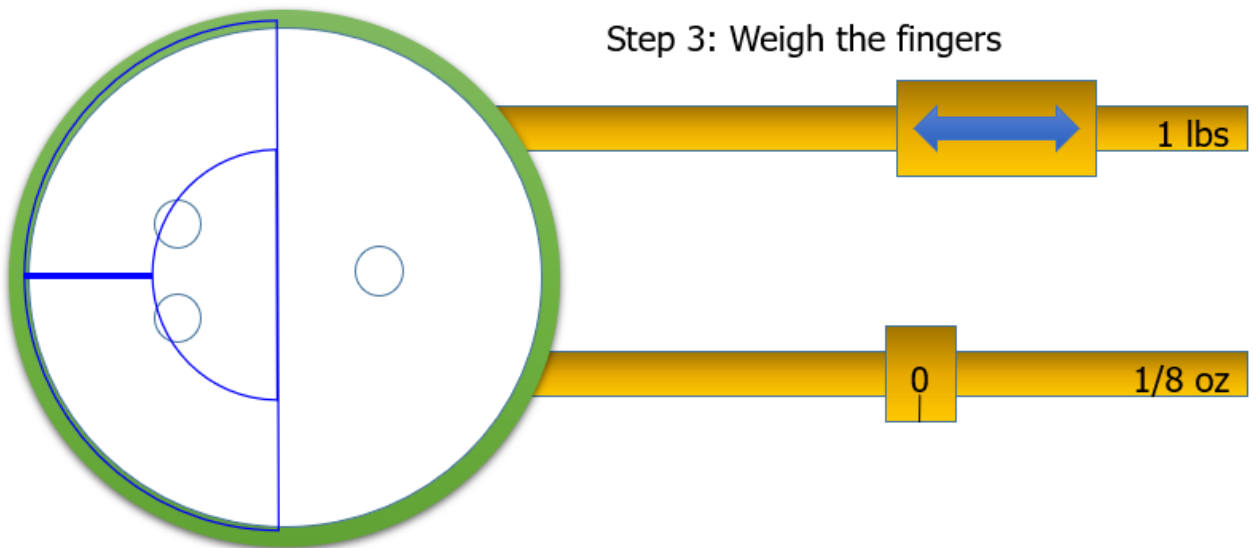
STEP 2 :

# Weighing the ball

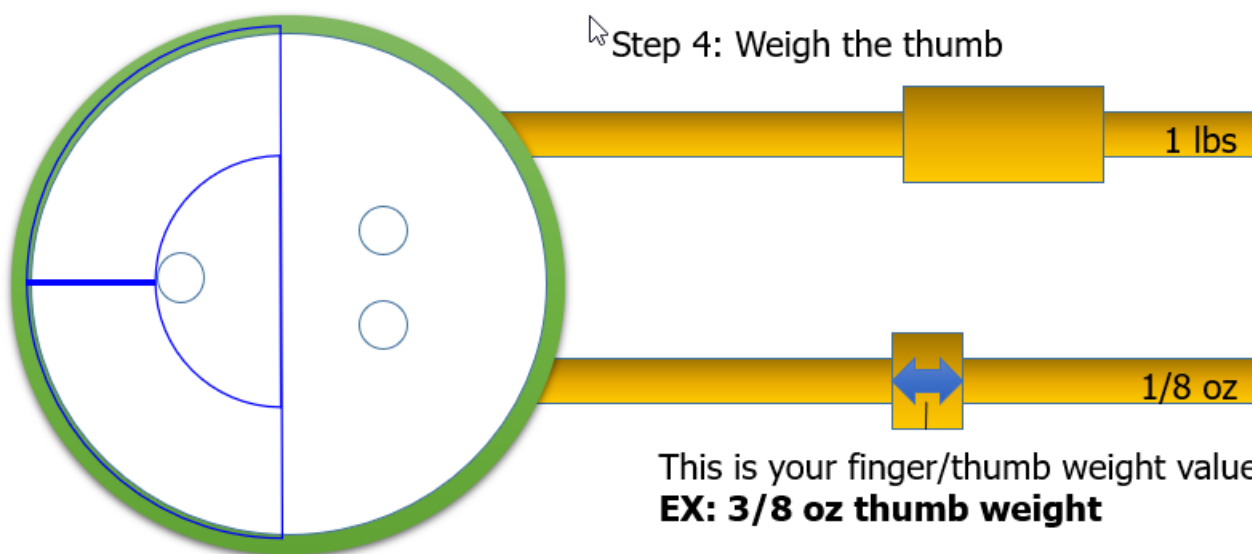


## STEP 3 :

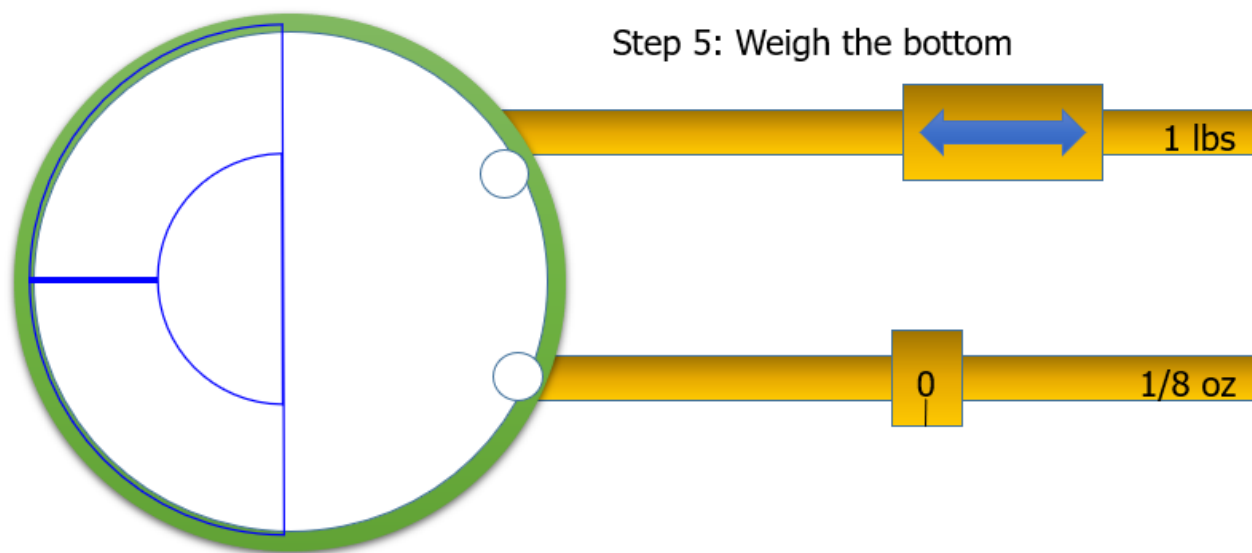
# Weighing the ball



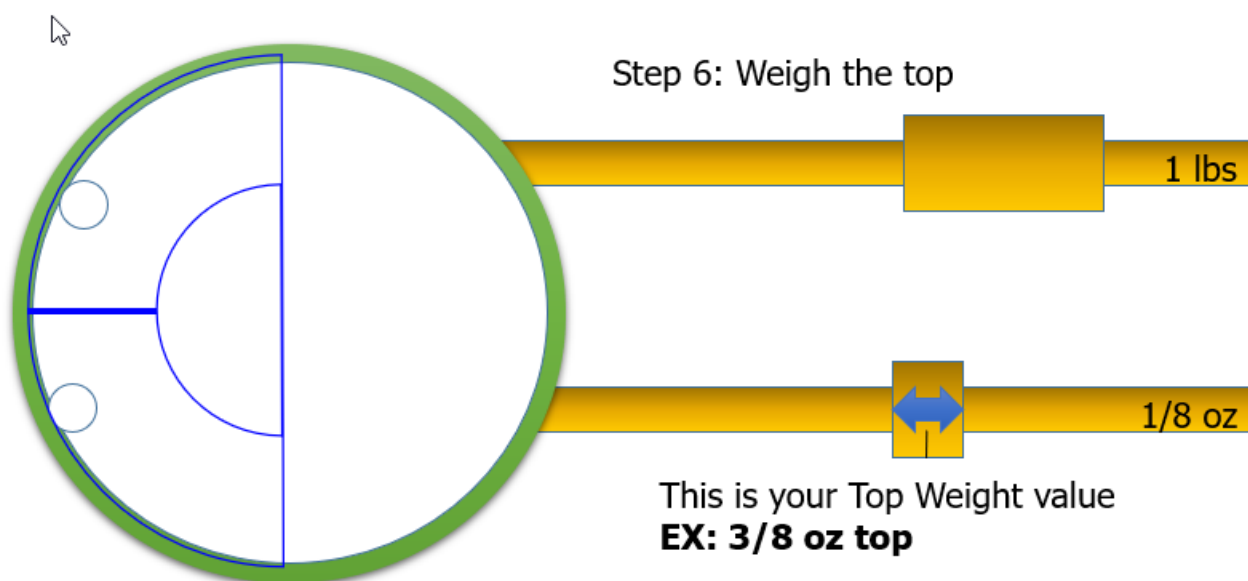
## STEP 4 :



## STEP 5 :



## STEP 6 :



## Final Tips

- **Verify Weight After Drilling:** Drilling the ball for finger holes can slightly alter its weight. Always weigh the ball after drilling to ensure it meets your specifications.
- **Consult Professionals:** For personalized recommendations, consult with a certified bowling coach or professional shop.