

5.1 —

Understanding the Oval

- 5.1.1 What is an oval thumb hole and why is it used?
- 5.1.2 Oval terminology: Starting Bit, Oval Width, Oval Degrees, Taper
- 5.1.3 Vertical cut (V) vs. Horizontal cut (H) — what they mean physically
- 5.1.4 How oval degree affects pitch inside the oval

5.1.1 What is an oval thumb hole and why is it used?

What is an oval thumb hole and why is it used?

5.1.1

KEY

concept

Most bowling balls are drilled with round holes — circular in cross-section, sized to fit the bowler's thumb or fingers at the point of insertion. For many bowlers, a well-fitted round hole is entirely adequate. But the human thumb is not a cylinder. In cross-section, most thumbs are slightly wider than they are deep, and they taper as they move from the surface of the ball toward the base. An **oval thumb hole** is drilled to match this natural shape — elliptical rather than circular — producing a fit that round drilling simply cannot replicate.

□ The Geometry of the Thumb in a Round Hole

When a round hole is drilled to fit a thumb that is wider than it is deep, one of two compromises must be made:

- □ **Size to the width** — the hole is large enough to accommodate the widest dimension of the thumb. The thumb fits without binding side to side, but has excess clearance front to back, allowing it to shift during the release.
- □ **Size to the depth** — the hole is snug front to back. The thumb fits firmly in one axis, but binds or compresses in the wider axis, causing discomfort or an inconsistent release as the thumb is forced into a shape it does not naturally hold.

Neither option produces a truly precise fit. The bowler adapts — consciously or not — by gripping tighter, releasing at a slightly different point, or relying on tape to compensate. Over time these adaptations become habits that mask the underlying fit problem rather than solving it.

What an Oval Hole Does Differently

An oval thumb hole is drilled to match the actual cross-sectional shape of the bowler's thumb at the point of insertion — wider in the axis where the thumb is wider, narrower in the axis where the thumb is narrower. The hole conforms to the thumb rather than requiring the thumb to conform to the hole.

- The thumb seats fully and naturally at the correct insertion depth without binding in any direction.
- There is no excess clearance in any axis — the fit is snug uniformly around the thumb's perimeter.
- The thumb releases cleanly and consistently because it is not being held by friction in one axis while loose in another.
- Taper in the oval hole accommodates the widening of the thumb toward its base, allowing the thumb to seat at the correct depth without the base binding against a hole that is the same diameter from top to bottom.

Who Benefits Most from an Oval Thumb Hole

Bowler profile	Likely benefit
Thumb is noticeably wider than it is deep	High — a round hole requires significant compromise; oval resolves it directly
Bowler reports thumb feeling inconsistent despite correct round sizing	High — inconsistency in a correctly-sized round hole often indicates oval fit mismatch
Bowler uses excessive tape to stabilise thumb fit	High — heavy tape use frequently compensates for a round hole that does not match thumb geometry
Competitive bowler seeking maximum consistency across arsenal	High — oval fitting produces repeatable results across multiple balls
Bowler with a thumb that swells significantly during play	Moderate — oval fit can be more forgiving of swelling in specific axes

Bowler profile	Likely benefit
Bowler whose thumb cross-section is approximately circular	Low — a well-fitted round hole will produce an equivalent result with less drilling complexity
Youth bowler with rapidly changing hand size	Situational — oval is more precise but requires re-measurement more frequently

How Spectre Cloud Approaches Oval Thumb Drilling

Spectre Cloud's oval calculator removes the manual geometry work from oval thumb drilling. The operator takes four measurements from the bowler's fitting — starting bit, oval width, oval degrees, and taper — and enters them into the spec sheet. Spectre Cloud converts these inputs into a set of x-axis and y-axis offset instructions that the driller executes at the drill press, elongating the pilot hole along the correct angle to the correct width with the correct taper profile.

This approach makes oval thumb drilling accessible to any operator using Spectre Cloud, regardless of whether they have previously drilled oval holes. The geometry is handled by the system — the driller follows a clear set of calculated movements rather than working out the trigonometry manually.

- Consistent results across different drillers in the same shop — the calculation is the same every time.
- Full record of oval inputs stored in the spec sheet — future balls can be drilled to the same oval specification by cloning.
- The oval degrees input ensures the hole is oriented to match the bowler's individual thumb angle — not a generic horizontal or vertical oval.

Note: Oval thumb drilling requires a drill press setup that supports lateral repositioning of the ball between cuts. Confirm your equipment supports this workflow before offering oval thumb fittings. See *Book 06 — Drilling Your First Ball* for drill press setup guidance.

Oval Thumb vs. Oval Finger Holes

Oval drilling is most commonly applied to the thumb hole, but the same principle applies to finger holes — a finger whose cross-section is not circular will fit more precisely in an oval hole than a

round one. Oval finger holes are less common in everyday pro shop work but follow the same measurement and drilling logic. See *4.3.5 — How to input a finger oval measurement (no inserts)* for finger oval entry, and *Book 05* for the full oval calculation workflow covering both fingers and thumb.

□ Introducing Oval Fitting to Your Bowlers

- □ Many bowlers have never been offered an oval thumb fitting — raising it as an option during a new fitting or a re-drill consultation demonstrates precision and expertise that builds long-term client trust.
- □ A simple visual check during any fitting — observing whether the bowler's thumb is measurably wider than it is deep — takes seconds and identifies candidates for oval fitting without additional equipment.
- □ For bowlers who are already heavy tape users, introducing oval fitting as a way to reduce tape dependence is a compelling and accurate way to explain the benefit.
- □ Do not position oval as inherently superior to round for all bowlers — for a bowler whose thumb is approximately circular, a well-fitted round hole is the right choice. Oval is a precision tool, not a universal upgrade.

Related Sections

- 5.1.2 — Measuring the thumb for oval fitting
- 5.2 — Oval degrees — understanding hole orientation
- 5.3 — Taper — fitting the thumb base
- 4.5.1 — Selecting "Oval" thumb hole on the spec sheet
- 4.5.2 — Entering starting bit, oval width, oval degrees and taper
- 4.5.3 — How the system calculates the oval cuts from your inputs
- 4.3.5 — How to input a finger oval measurement (no inserts)

Tip: The best way to understand the value of oval thumb drilling is to try it on a bowler who has been struggling with thumb fit for a long time. A single successful oval fitting — where the bowler immediately notices the difference — tends to make oval a standard part of your fitting process rather than an occasional special request.

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5.1.2 Oval terminology: Starting Bit, Oval Width, Oval Degrees, Taper

Oval terminology: Starting Bit, Oval Width, Oval Degrees, Taper

5.1.2

glossary

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Before working with Spectre Cloud's oval calculator, it helps to have a clear understanding of the four key terms used throughout the oval thumb fitting process. This page defines each term precisely — what it measures, what it controls, and how it relates to the finished hole. These definitions are the foundation for everything covered in Book 05.

## □□ The Four Oval Terms

### □□ Starting Bit

The **starting bit** is the diameter of the round pilot hole drilled into the ball before any oval cuts are made. It is the first and most fundamental cut — every subsequent oval pass removes material outward from this initial hole.

- □ The starting bit must be small enough to fit entirely within the narrowest dimension of the intended oval — typically the depth of the bowler's thumb — so that the oval passes open the hole outward without cutting outside the intended oval boundary.
- □ The starting bit is always smaller than the oval width. The difference between the two values is the total material the oval passes must remove.
- □ Choosing the largest starting bit that fits within the narrowest oval dimension minimises the number and depth of oval passes needed, producing a cleaner finished hole.

**In plain terms:** The starting bit is the round hole you drill first. Everything after that is about turning that round hole into the correct oval shape.

## ↔ Oval Width

The **oval width** is the finished size of the thumb hole along its longest axis — the larger of the two oval dimensions. It defines how far the oval cuts must open the starting pilot hole to match the bowler's thumb at the point of insertion.

- □ Oval width is derived from the bowler's thumb measurement along its widest axis, plus the appropriate fit allowance — typically  $\frac{1}{32}$ " to  $\frac{1}{16}$ " of clearance above the raw thumb measurement.
- □ The oval width and the starting bit diameter together define the total travel of the oval cuts — the drill must move far enough from the pilot hole center to open the hole to the full oval width.
- □ The shorter axis of the oval — the depth — is defined by the starting bit diameter. The starting bit diameter becomes the finished depth of the oval hole.
- □ Oval width is not the bowler's raw thumb measurement — it always includes a fit allowance. Entering the raw thumb measurement without allowance will produce a hole too tight to insert the thumb comfortably.

**In plain terms:** Oval width is the long dimension of the finished hole — how wide the hole ends up after all the oval cuts are made.

## □□ Degree (Oval Degrees)

The **oval degrees** value defines the **orientation** of the oval — the angle at which the long axis of the oval is positioned within the thumb hole. It is expressed using the thumb hole as a 360° circle, with  $0^\circ$  at the top toward the fingers.

- □ Because the thumb does not rest perfectly vertical or horizontal in the hole, the oval must be oriented to match the bowler's individual thumb angle — not defaulted to a generic horizontal or vertical cut.
- □ The degree value is observed directly from the bowler's hand during the fitting — the driller notes the clock position where the thumb presses most firmly against the hole wall

and converts that to a degree value.

- ☐ Spectre Cloud uses the degree value to decompose the oval cut into x-axis (horizontal) and y-axis (vertical) drill press movements — the trigonometry is handled by the system, not the operator.

| Degree value                                                        | Clock equivalent | Oval orientation                                                                   |
|---------------------------------------------------------------------|------------------|------------------------------------------------------------------------------------|
| <input type="text" value="0°"/> / <input type="text" value="360°"/> | 12:00            | Long axis runs directly toward and away from the fingers                           |
| <input type="text" value="90°"/>                                    | 3:00             | Long axis runs horizontally across the hole                                        |
| <input type="text" value="135°"/>                                   | ~4:30            | Long axis runs diagonally — common for right-handed bowlers                        |
| <input type="text" value="180°"/>                                   | 6:00             | Long axis runs directly away from and toward the fingers (same as 0° but inverted) |

**In plain terms:** Oval degrees tells the calculator which direction to elongate the hole — like specifying which way to point an oval on a clock face.

## ☐ Taper

The **taper** describes how much larger the top of the thumb hole is compared to the bottom. The thumb is not a uniform cylinder — it widens toward the base, and the degree of widening varies significantly between bowlers. Taper ensures the hole matches this widening profile so the thumb can seat fully at the correct depth without binding.

- ☐ A bowler with a **meaty or thick thumb base** — where the thumb widens significantly below the first knuckle — requires **more taper**. Without sufficient taper the base of the thumb binds against the lower portion of the hole before fully seating.
- ☐ A bowler with a **slender or gradually tapering thumb base** requires **less taper**. Too much taper on a slender thumb produces a hole that feels sloppy at insertion depth.
- ☐ Taper is assessed visually and by feel during the fitting — the driller observes how the bowler's thumb cross-section changes from the insertion point toward the base and selects a taper value accordingly.
- ☐ Taper is not the same as pitch — pitch describes the angle of the hole axis relative to the ball surface; taper describes the change in hole diameter from the surface of the ball to the bottom of the hole.

**In plain terms:** Taper is the amount of extra room built into the top of the hole to accommodate the wider base of the thumb. Think of it as the difference between a hole shaped like a perfect cylinder and one shaped like a very shallow cone.

# □□ How the Four Terms Work Together

| Term                | What it defines                           | Measured from                           | Used by Spectre Cloud to calculate              |
|---------------------|-------------------------------------------|-----------------------------------------|-------------------------------------------------|
| <b>Starting Bit</b> | Size of the initial round pilot hole      | Narrowest thumb dimension (depth)       | Baseline hole size; total oval cut travel       |
| <b>Oval Width</b>   | Finished size along the long oval axis    | Widest thumb dimension + fit allowance  | Total material to remove; x/y offset magnitudes |
| <b>Degree</b>       | Orientation of the oval long axis         | Observed thumb resting angle in hole    | x/y offset directions and proportions           |
| <b>Taper</b>        | Diameter difference top to bottom of hole | Visual assessment of thumb base profile | Depth profile of oval cuts                      |

## □ Tips for Keeping the Terms Clear

- □ Starting bit and oval width are both diameter measurements — but they describe different things. Starting bit is the size of the first cut; oval width is the size of the last cut. Never enter the same value for both.
- □ Degree is an orientation, not a size — changing the degree value does not change how wide or deep the hole is, only which direction it is elongated.
- □ Taper is independent of all three other values — a hole can have any combination of starting bit, width, and degree with any taper value. They do not constrain each other.
- □ Do not confuse taper with the depth of the hole — hole depth is determined by the bowler's thumb length and insertion depth, which is a separate measurement. Taper describes the shape of the hole walls, not how deep the hole goes.

## Related Sections

- 5.1.1 — What is an oval thumb hole and why is it used?
- 5.1.3 — Measuring the thumb for oval fitting
- 5.2 — Oval degrees — understanding hole orientation
- 5.3 — Taper — fitting the thumb base
- 4.5.2 — Entering starting bit, oval width, oval degrees and taper
- 4.5.3 — How the system calculates the oval cuts from your inputs

**Tip:** When explaining oval fitting to a bowler for the first time, the degree concept is usually the most surprising — most bowlers assume an oval hole is simply wider than it is tall, like a horizontal ellipse. Showing them that the oval is oriented specifically to match their thumb's natural resting angle in the hole is often the moment they understand why oval fitting produces a meaningfully better result than round.

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## 5.1.3 Vertical cut (V) vs. Horizontal cut (H) — what they mean physically

## Vertical cut (V) vs. Horizontal cut (H) — what they mean physically

5.1.3

concept

When making oval cuts at the drill press, the operator physically moves the ball relative to the drill bit along one of two axes to remove material and elongate the pilot hole. These two directions of movement are referred to throughout pro shop practice — and throughout Book 05 — as **vertical cuts (V)** and **horizontal cuts (H)**. Understanding what each means physically is essential before working with the x/y offset values Spectre Cloud calculates.

### ↕ Vertical Cut (V)

A **vertical cut** is made by moving the ball along the **y-axis** — toward or away from the fingers — while the drill bit remains in the hole. The bit removes material along the vertical plane, elongating the pilot hole in the direction of movement.

- □ A V cut toward the fingers moves the hole opening in the direction of the span — relevant to the span allowance discussion in 4.5.4.

- ☐ A V cut away from the fingers moves the hole opening toward the back of the ball — the most common direction for single-direction oval cuts.
- ☐ For larger ovals requiring more material removal than a single pass can cleanly achieve, multiple V cuts are made in sequence — each pass removing an incremental amount of material until the full y-axis offset is reached.
- ☐ A V cut does not move the ball side to side — any lateral component of the oval requires an H cut.

**In plain terms:** A vertical cut is the drill press equivalent of sliding the ball forward or backward while the bit is running — the hole gets longer in the direction you move it.

## ↔ Horizontal Cut (H)

A **horizontal cut** is made by moving the ball along the **x-axis** — side to side, left or right — while the drill bit remains in the hole. The bit removes material along the horizontal plane, elongating the pilot hole laterally.

- ☐ An H cut to the right or left elongates the hole in the corresponding lateral direction.
- ☐ Like V cuts, larger ovals may require multiple H cut passes to reach the full x-axis offset cleanly without taking too much material in a single movement.
- ☐ An H cut does not move the ball toward or away from the fingers — any vertical component of the oval requires a V cut.

**In plain terms:** A horizontal cut is the drill press equivalent of sliding the ball left or right while the bit is running — the hole gets longer in the direction you move it.

## ☐☐ How V and H Work Together

Most oval thumb holes require **both** a V cut and an H cut — because most oval degree values are neither perfectly vertical ( / ) nor perfectly horizontal (). Spectre Cloud's x/y calculation output tells the operator exactly how much V movement and how much H movement is needed to produce the oval at the correct angle.

| Oval degrees                                                        | V cut required?                            | H cut required?                            | Relationship between V and H            |
|---------------------------------------------------------------------|--------------------------------------------|--------------------------------------------|-----------------------------------------|
| <input type="text" value="0°"/> / <input type="text" value="180°"/> | <input type="checkbox"/> Yes — full travel | <input type="checkbox"/> No                | Pure V cut — all movement is vertical   |
| <input type="text" value="90°"/>                                    | <input type="checkbox"/> No                | <input type="checkbox"/> Yes — full travel | Pure H cut — all movement is horizontal |

| Oval degrees    | V cut required?              | H cut required?              | Relationship between V and H                                       |
|-----------------|------------------------------|------------------------------|--------------------------------------------------------------------|
| 45° / 135°      | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes | V and H travel are equal — movement split evenly between axes      |
| Any other angle | <input type="checkbox"/> Yes | <input type="checkbox"/> Yes | V and H travel differ — proportions determined by the degree value |

**Note:** The combined result of the V and H movements traces a straight line through the pilot hole center at exactly the oval degrees angle. Spectre Cloud calculates the correct V and H distances so the operator does not need to resolve the angle manually — the output tells you precisely how far to move in each direction.

# Multiple Passes on Larger Ovals

For ovals with a large difference between the starting bit diameter and the oval width, attempting to reach the full V or H offset in a single pass risks tearing the ball material or producing an uneven cut. In these cases the total offset is divided across multiple passes — each pass removing a controlled amount of material until the cumulative movement reaches the calculated V or H distance.

- ☐ Divide the total V or H offset into equal increments — for example, a total V offset of 3/16" might be executed as three passes of 1/16" each.
- ☐ Take the same number of passes on both V and H axes to keep the oval shape developing evenly — an oval that is cut fully on one axis before the other is started can produce an uneven or asymmetric finished hole.
- ☐ Smaller increments per pass produce a cleaner edge on the finished oval — particularly important for urethane and reactive resin ball surfaces.
- ☐ Do not attempt to reach the full offset in one pass on a large oval — the risk of material tearout or a ragged hole edge outweighs the time saved.

*Verify with Spectre team: confirm whether Spectre Cloud's oval cut output includes recommended pass increments for larger ovals, or whether the number of passes is left to the operator's discretion based on the total offset distance.*

# Tips for Clean V and H Cuts

- ☐ Zero your drill press lateral and forward/back adjusters after drilling the pilot hole — this gives you a clean reference point from which to measure the V and H offsets precisely.

- □ Make V cuts before H cuts as a consistent practice — establishing a standard sequence reduces the risk of losing track of which axis has been cut and by how much.
- □ After completing all V and H passes, return the ball to the zero position and check the hole visually — the oval should be centred on the pilot hole with clean, even edges on all sides.
- □ If the finished oval looks off-centre or asymmetric, check whether the V and H offsets were applied in both directions (bidirectional) or only one direction — a missing return pass is the most common cause of an oval that looks right on one side and wrong on the other.
- □ Do not mix up V and H directions mid-sequence — if you lose track of which axis you are on, stop, return to zero, and restart the pass sequence from the beginning rather than guessing.

## Related Sections

- 5.1.1 — What is an oval thumb hole and why is it used?
- 5.1.2 — Oval terminology: Starting Bit, Oval Width, Degree, Taper
- 5.2 — Oval degrees — understanding hole orientation
- 4.5.3 — How the system calculates the oval cuts from your inputs
- 4.5.4 — Entering the span with an oval thumb
- Book 06 — Drilling Your First Ball

**Tip:** The V and H cut sequence becomes second nature after a handful of oval drillings. Until it does, keeping the Spectre Cloud spec sheet visible at the drill press — with the calculated V and H values clearly in view — and calling out each movement aloud before executing it is a simple habit that prevents the most common oval drilling errors.

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# 5.1.4 How oval degree affects pitch inside the oval

## How oval degree affects pitch inside the oval

5.1.4 concept

When a thumb hole is round, vertical pitch and lateral pitch act independently — each one influences the thumb along its own axis without affecting the other. When the hole is oval, this independence breaks down. The elongated axis of the oval rotates the effective geometry of the hole wall, meaning the thumb no longer contacts a symmetric surface. The result is that a pitch value drilled at face value into an oval hole produces a **different felt angle** than the same value drilled into a round hole — and the degree of the difference depends directly on the oval degree angle.

Because Spectre Cloud does not automatically compensate for this interaction, the operator needs to understand it and adjust pitch entries accordingly before the spec sheet is finalised.

## □□ Why the Oval Changes How Pitch Feels

In a round hole, every point on the hole wall is equidistant from the center — the thumb contacts a uniform surface all the way around. Pitch tilts this uniform surface at a consistent angle, and the thumb feels exactly that angle regardless of where it contacts the wall.

In an oval hole, the wall is no longer uniform. Along the short axis (the starting bit dimension), the wall is close to the thumb surface. Along the long axis (the oval width dimension), the wall is further away. The thumb sits in an asymmetric space, and the angle at which it contacts the wall varies around its perimeter. When pitch is applied to this asymmetric hole, the thumb does not experience the pitch angle cleanly along a single axis — it experiences a **blended effect** that combines both vertical and lateral pitch influence in proportions determined by the oval degree.

# How Oval Degree Determines the Blend

The oval degree angle determines which pitch axis is most affected by the oval geometry — and by how much.

| Oval degree                          | Effect on vertical pitch                                                                                             | Effect on lateral pitch                                                                                             |
|--------------------------------------|----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| 0° / 180° (oval along vertical axis) | Strongly amplified — the long axis of the oval runs in the same direction as vertical pitch, intensifying its effect | Largely unaffected — the short axis runs horizontally, leaving lateral pitch close to its drilled value             |
| 90° (oval along horizontal axis)     | Largely unaffected — the short axis runs vertically, leaving vertical pitch close to its drilled value               | Strongly amplified — the long axis of the oval runs in the same direction as lateral pitch, intensifying its effect |
| 45° / 135°                           | Moderately amplified — the long axis is diagonal, partially overlapping the vertical pitch axis                      | Moderately amplified — the long axis is diagonal, partially overlapping the lateral pitch axis equally              |
| Any other angle                      | Amplified in proportion to how much the oval long axis aligns with the vertical pitch direction                      | Amplified in proportion to how much the oval long axis aligns with the lateral pitch direction                      |

**The key principle:** The more the oval long axis aligns with a pitch axis, the more that pitch is amplified by the oval geometry. At 45° both pitches are affected equally. At 0° or 180° only vertical pitch is meaningfully affected. At 90° only lateral pitch is meaningfully affected.

# How to Adjust Pitch Entries to Compensate

Because the oval amplifies pitch along the axis it aligns with, the operator should **reduce the intended pitch value** on the affected axis before entering it into Spectre Cloud. The goal is to enter a pitch value that, once amplified by the oval geometry, produces the pitch the bowler

actually wants to feel.

# General adjustment approach

1. Identify the bowler's intended pitch — the vertical and lateral values that would produce the correct feel in a round hole.
2. Note the oval degree value for the fitting.
3. Determine which pitch axis the oval long axis most closely aligns with — this is the axis most in need of downward adjustment.
4. Reduce the pitch entry on that axis to compensate for the amplification. The greater the oval width relative to the starting bit, the more amplification occurs and the more the pitch entry should be reduced.
5. For diagonal ovals (  ,  , or similar), apply a moderate reduction to both vertical and lateral pitch entries.
6. Enter the adjusted values into the spec sheet — not the original intended pitch values.
7. Note the original intended pitch values and the adjustments made in the **Notes** field — this is critical context for future visits and re-drillings.

*Verify with Spectre team: confirm whether Spectre Cloud provides any on-screen guidance, suggested adjustment values, or a pitch correction calculator to assist operators with this compensation — or whether the adjustment is entirely at the operator's discretion based on experience and observation.*

## Practical Adjustment Reference

| Oval degree                                                                           | Vertical pitch adjustment                                  | Lateral pitch adjustment                                  |
|---------------------------------------------------------------------------------------|------------------------------------------------------------|-----------------------------------------------------------|
| <input type="text" value="0°"/> / <input type="text" value="180°"/>                   | Reduce — vertical pitch is amplified by the oval long axis | None — lateral pitch is unaffected                        |
| <input type="text" value="90°"/>                                                      | None — vertical pitch is unaffected                        | Reduce — lateral pitch is amplified by the oval long axis |
| <input type="text" value="45°"/> / <input type="text" value="135°"/>                  | Moderate reduction — partial overlap with vertical axis    | Moderate reduction — partial overlap with lateral axis    |
| Angles closer to <input type="text" value="0°"/> or <input type="text" value="180°"/> | Larger reduction — stronger alignment with vertical axis   | Smaller reduction — weaker alignment with lateral axis    |
| Angles closer to <input type="text" value="90°"/>                                     | Smaller reduction — weaker alignment with vertical axis    | Larger reduction — stronger alignment with lateral axis   |

**Note:** The exact amount of reduction depends on the specific oval dimensions — a large oval (wide width relative to starting bit) amplifies pitch more than a small oval. There is no universal formula that applies to all fittings. Experienced operators develop a feel for the adjustment over time; for new oval fitters, starting with a conservative reduction and refining based on bowler feedback is a

sound approach. *Verify with Spectre team: confirm whether specific adjustment increments or a calculation method will be documented in a later Book 05 section.*

# □ Practical Tips for Managing Pitch in Oval Fittings

- □ Always note the **original intended pitch values** in the Notes field alongside the adjusted values actually entered — if the bowler returns with fit feedback, knowing the starting intention makes it far easier to diagnose and correct.
- □ For a bowler's first oval thumb fitting, schedule a follow-up conversation after a few sessions — pitch feel in an oval hole sometimes takes a game or two to assess accurately, and having the adjustment notes on record makes any refinement straightforward.
- □ When cloning an oval spec sheet for a new ball, verify that the cloned pitch values are the **adjusted** values — they should be, since they were what was entered — but confirm the oval degree is unchanged before drilling. A different oval degree on the new ball requires a fresh pitch adjustment calculation.
- □ Do not enter the bowler's intended round-hole pitch values without adjustment when drilling an oval — the amplification effect is real and consistent, and ignoring it will produce a hole that feels different from what the bowler expects even if all other measurements are correct.
- □ Do not assume the same pitch adjustment applies across different oval sizes for the same bowler. A wider oval on a new ball requires a larger adjustment than a narrower oval, even at the same degree angle.

## Related Sections

- 5.1.2 — Oval terminology: Starting Bit, Oval Width, Degree, Taper
- 5.1.3 — Vertical cut (V) vs. Horizontal cut (H)
- 5.2 — Oval degrees — understanding hole orientation
- 4.3.3 — Inputting vertical and lateral pitch for fingers
- 4.4.4 — Entering vertical and lateral pitch for thumb
- 4.5.2 — Entering starting bit, oval width, oval degrees and taper

**Tip:** The pitch-oval interaction is one of the subtler aspects of oval thumb fitting — and one of the reasons experienced oval fitters produce consistently better results than those who apply oval drilling purely mechanically without accounting for it. A bowler who gets an oval fitting from an operator who understands this interaction will feel the difference immediately compared to one who does not.

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