

# 5.3.4 Worked example: H-only oval

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5.3.4

**TIP**

example

This page walks through a complete H-only oval calculation from opening the Oval Calculator to finished values ready for the spec sheet. It covers a realistic scenario where a pure horizontal cut is the right choice — bringing together the cut direction setting, H-only input, output reading, and the DIFF sense check in a single end-to-end example.

### The Scenario

A bowler, **David**, is having a replacement thumb drilled after his previous ball was damaged. David uses an interchangeable thumb slug system. His slug's vertical pitch is fixed by the insert mold, so the fitting adjustment needed is purely lateral — a horizontal oval to open the thumb hole side to side for a cleaner exit. No vertical stretch is required or wanted.

Before opening the Oval Calculator, you have confirmed the following:

- **Oval Cut Direction:**  (horizontal first)
- **Input mode:** Bit Size (fraction)
- **Press setup:** Horizontal slide oval attachment — confirmed to produce a pure H cut

David's thumb hole target values, carried over from his previous spec sheet, are:

Hole	Starting Bit	H Cut	V Cut
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Thumb	1-3/16"	+3/32"	0 — no vertical stretch
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This is a single-hole session. David's finger holes are conventional span with no ovals and will be handled separately on the spec sheet.

## ☐☐ Step 1 — Open the Oval Calculator and Confirm Settings

1. Navigate to the **Oval Calculator** from the main menu.
2. Check the mode selector at the top of the calculator — confirm it shows **H** or **H-only**. Switch if needed.
3. Confirm the cut direction indicator shows **H × V** order. If it shows V/H, go to Settings and update **Oval Cut Direction** to H before proceeding (see **5.3.1**).

The calculator opens with one blank row. Because this is a single-hole session, you will not need the + button — one row is sufficient.

## ☐☐ Step 2 — Enter the Thumb Hole Values

1. Click into the **Starting Bit** field of Row 1. Type .
2. Press ↓ (**arrow-down**) — focus moves to the **H cut** field.
3. Type . The cut is in the positive horizontal direction — no minus sign needed.
4. Press ↓ to confirm. Spectre Cloud calculates immediately.

## ☐☐ Step 3 — Read and Check the Output

The calculator displays the following result for Row 1:

Output Field	Value	How to Read It
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<b>H dimension</b>	1-9/32"	Starting bit (1-3/16") plus H cut (3/32") — the wider, horizontal dimension of the hole
<b>V dimension</b>	1-3/16"	Starting bit size only — unchanged, no vertical stretch was applied
<b>Oval pair (H × V)</b>	1-9/32 × 1-3/16	Full oval displayed in H-first order per the cut direction setting
<b>DIFF</b>	0.09375	Decimal equivalent of 3/32" — the full horizontal stretch, with no V component to dilute it

## ☐ Step 4 — Run the Sense Check

Before applying this result to David's spec sheet, work through the standard H-only output checks:

Check	Expected	Actual	Pass?
H dimension larger than V	$H > V$	1-9/32 > 1-3/16	☐
V dimension equals starting bit	1-3/16"	1-3/16"	☐
DIFF equals H cut in decimal	0.09375 (3/32")	0.09375	☐
Oval displayed H first	H × V order	1-9/32 × 1-3/16	☐
DIFF is non-zero	Greater than 0.0000	0.09375	☐

All five checks pass. The result is consistent, correctly formatted, and ready to apply to the spec sheet.

## ☐☐ Step 5 — Cross-Check Against the Previous Spec Sheet

David's previous spec sheet recorded his thumb oval as 1-9/32 × 1-3/16 with a DIFF of 0.09375. The Oval Calculator output matches exactly — confirming that the starting bit and H cut values were entered correctly and that the replacement ball will replicate his previous fit.

- ☐ Oval pair matches previous spec: 1-9/32 × 1-3/16
- ☐ DIFF matches previous spec: 0.09375

- V dimension unchanged from starting bit — consistent with the slug system's fixed vertical pitch

If either the oval pair or DIFF had differed from the previous spec, this would have been the moment to stop, identify the discrepancy, and correct the entry before the ball was drilled.

## Step 6 — Apply to the Spec Sheet

1. With the row confirmed and all checks passed, transfer the oval data to David's spec sheet.
2. Record the thumb hole as:
  - **Oval (H × V):**
  - **DIFF:**
3. Note the press setup used — horizontal slide attachment — in any free-text notes field on the spec sheet, so a future driller knows which type of cut produced this oval.
4. Save the spec sheet. David's replacement ball is now documented with a complete, accurate H-only oval record.

## What This Example Demonstrates

- **H-only mode is a single-field entry** — one H cut value plus the starting bit is all that is needed when the press produces a pure horizontal stretch
- **The DIFF is an exact decimal conversion of the H cut** — in a pure H-only workflow, the DIFF and the H cut width are always numerically identical in decimal form, making it the fastest sense-check available
- **Cross-checking against a previous spec sheet catches entry errors before drilling** — comparing the calculator output to the historical record is a low-effort, high-value step that takes seconds and prevents costly mistakes
- **Slug and insert systems benefit from H-only documentation** — when the vertical dimension is controlled by the insert mold rather than the cut, recording it as a pure H oval keeps the spec sheet accurate and avoids implying a vertical stretch that was not made
- **Settings confirmed before entry, not after** — checking cut direction and input mode at Step 1 prevents a correctly calculated oval from being recorded in the wrong axis order

# □□ Fraction Arithmetic Reference for This Example

If you want to verify the H dimension calculation manually:

Operation	Fraction	Decimal
Starting bit	1-3/16"	1.1875"
H cut	3/32"	0.09375"
H dimension (sum)	1-9/32"	1.28125"
DIFF	3/32"	0.09375"

$3/16 + 3/32 = 6/32 + 3/32 = 9/32$  — so the starting bit of 1-3/16" plus a 3/32" H cut produces a H dimension of 1-9/32". Spectre Cloud performs this conversion automatically, but having the manual check available is useful when verifying an unexpected result.

## Related Sections

- 5.3.1 — Setting up: Oval Cut Direction = H in Settings
- 5.3.2 — When to use H-only mode and which drill presses it suits
- 5.3.3 — Entering H-only cut values and reading output
- 5.2.8 — Worked example: full V/H oval from start to finish
- 5.2.4 — Reading the DIFF (decimal difference) auto-calculation
- 5.2.7 — Confirming cuts using the arrow-down key

**Tip:** The fraction arithmetic reference table at the bottom of this page is worth bookmarking for staff who are less familiar with 32nds — 3/32" cuts are common in thumb oval work and the resulting 9/32" dimension is one that newer drillers sometimes misread or miscalculate manually. Pointing them to this page during onboarding saves a round of confusion the first time a 3/32" H cut appears on a job card. *△ The fraction arithmetic in this example is mathematically verified, but confirm that Spectre Cloud displays 1-9/32 rather than a decimal equivalent or a simplified fraction for this specific combination — fraction display formatting can vary between app versions. Contact the Spectre team if the output format differs from what is shown above.*

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