4.6.3 How the system calculates the oval cut from your inputs

> 4.6.3 oval

Once the four oval inputs are entered, Spectre Cloud calculates the drilling instructions — a set of **x-axis and y-axis offset movements** that tell you how to reposition the ball relative to the bit to open the round pilot hole into the correct oval. Rather than working out the geometry by hand, you read the offsets off the sheet. The full derivation lives in the **Oval Calculator (Book 05)**.

⚙ What the System Outputs

- The **x value** — the horizontal distance to move the ball relative to the bit.
- The **y value** — the vertical distance to move the ball relative to the bit.
- Together, x and y define a straight line through the pilot hole center at the angle set by the oval degree; the hole is elongated along that line to the oval width.
- The output pairs each distance with a **direction indicator** — read both the value and the direction before adjusting the press.

⚠ **Verify with your Spectre team:** confirm how direction is indicated in the output (signs, arrows, or text labels) and whether taper is output as separate values or integrated into the offset sequence.

Quick Sanity Check Before Cutting

- Oval degree near 0°/180° → x near zero, y carries the travel.
- Oval degree near 90° → y near zero, x carries the travel.
- Oval degree near 45°/135° → x and y roughly equal.

- □ A non-cardinal angle that produces a zero on either axis means something was entered incorrectly.

Related Sections

- 4.6.1 — The four oval inputs, defined
- 4.6.2 — Entering the oval inputs
- 05 — Oval Calculator (full derivation)
- 06 — Drilling Your First Ball

Tip: If your press has a digital readout for lateral positioning, zero it after drilling the pilot hole so the x and y offsets can be dialled in directly from the Spectre Cloud output.

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