

6.1.5 Step 5 — Select layout (VLS, 2LS, PAL, or manual)

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workflow

With the bowler's grip measurements and thumb information in place, Step 5 moves to the **ball layout** — the drilling angle that determines how the ball's core is oriented relative to the bowler's positive axis point (PAP). Layout selection in Spectre Cloud is handled through a dedicated layout section on the spec sheet, where you choose from a set of standard layout systems or enter a fully custom layout manually. The layout does not affect the grip fit, but it is recorded on the spec sheet as a permanent part of the drilling record and used in Arsenal tracking.

☐ What a Layout Is and Why It Is Recorded

A ball layout describes the geometric relationship between the bowler's PAP and the ball's pin and mass bias (MB) positions. Different layouts produce different ball motion profiles — earlier or later breakpoint, more or less flare potential, stronger or weaker backend reaction. Recording the layout in Spectre Cloud means it is permanently tied to this ball's drilling history, making it easy to replicate a ball that worked well or deliberately adjust a ball that did not.

- ☐ Layout is stored on the spec sheet and visible in the bowler's drilling history.

- It is linked to the ball's Arsenal entry, so the bowler's equipment list shows not just what ball they have but how it is drilled.
- Cloning a spec sheet copies the layout — useful when drilling a backup ball to the same setup.
- With the **Arsenal Plus plugin** (\$5 USD/month), layout data feeds into suggested layout recommendations and 3D layout rendering.

☐☐ The Four Layout Entry Options

Spectre Cloud supports four ways to enter a layout on a spec sheet, covering the most widely used layout systems in the pro shop industry as well as fully custom entry for shops that work outside standard frameworks.

☐☐ VLS — Val Siebert Layout System

VLS defines a layout using three measurements from the PAP: **pin distance**, **VAL angle**, and **mass bias distance**. It is one of the most widely taught layout systems in IBPSIA education and is familiar to the majority of trained pro shop operators.

- Enter the **pin-to-PAP distance** in inches.
- Enter the **VAL angle** in degrees — the angle between the val (vertical axis line) and the pin, measured from the PAP.
- Enter the **mass bias distance** in inches — the distance from the PAP to the mass bias marker.

☐☐ 2LS — Two-Layout System

2LS uses two primary measurements to define the layout: the **pin buffer** (distance from the pin to the nearest finger hole edge) and the **CG placement** relative to the PAP. It is a streamlined system favoured by fitters who prefer a smaller number of input values.

- Enter the **pin buffer distance** in inches.
- Enter the **CG (centre of gravity) placement** — position relative to PAP or grip centre, depending on the system variant your shop uses.

☐☐ PAL — Positive Axis Point Layout

PAL is a pure PAP-referenced layout system. All measurements are taken directly from the bowler's PAP — pin distance, pin angle, and MB angle are all expressed relative to that single reference point. It is commonly used by coaches and competitive bowlers who track layouts in relation to PAP

position precisely.

- Enter the **pin-to-PAP distance** in inches.
- Enter the **pin angle** in degrees from the PAP.
- Enter the **MB (mass bias) angle** in degrees from the PAP.

☐☐ Manual — Custom Layout Entry

Manual layout entry is a free-form option for shops that use a proprietary layout system, work from manufacturer-specific drilling guides, or simply prefer to record layout information in their own terms. When Manual is selected, Spectre Cloud provides open text and numeric fields rather than a structured layout form.

- ☐ Use manual entry for **symmetrical ball layouts** that do not fit cleanly into PAP-referenced systems.
- ☐ Use manual entry when following a **manufacturer's recommended layout** expressed in the ball's drilling documentation rather than a standard system.
- ☐ Use manual entry for **balance hole documentation** or any supplementary drilling note that does not have a dedicated field in the structured layout options.
- ☐ Avoid manual entry for layouts you intend to replicate precisely in future — structured layouts (VLS, 2LS, PAL) are easier to reproduce from a spec sheet than freeform notes.

☐☐ Selecting and Entering a Layout on Desktop

1. In the open spec sheet, locate the **Layout** section.
2. Click the layout system selector and choose **VLS, 2LS, PAL, or Manual**.
3. The relevant input fields appear based on your selection.
4. Enter each layout value from your drilling plan or PAP measurement.
5. If using Manual, type your layout notes and any relevant measurements into the open fields provided.
6. Review your entries — a layout recorded incorrectly is difficult to reconstruct after the ball has been drilled.

☐☐ Selecting and Entering a Layout on Mobile

1. Scroll to the **Layout** section of the open spec sheet.
2. Tap the layout system selector and choose the appropriate system.
3. Tap through each field that appears and enter your values using the numeric or text keyboard as required.
4. Allow auto-save to capture entries before moving to the next step.

☐ Arsenal Plus: Layout Recommendations and 3D Rendering

With the **Arsenal Plus plugin** active, the layout section gains two additional capabilities that go beyond record-keeping:

- ☐ **Suggested layouts** — based on the ball's core specifications (pulled from the bowlingdatabase.com integration) and the bowler's PAP, Arsenal Plus can suggest layout options appropriate for the ball and the bowler's desired ball motion.
- ☐ **3D layout rendering** — once layout values are entered, Arsenal Plus renders a three-dimensional visualisation of the pin and MB placement on the ball surface, giving both driller and bowler a clear picture of how the ball will be oriented.
- ☐ **Layout conversion** — Arsenal Plus can convert between layout systems, so a layout recorded in VLS can be viewed in PAL terms without manual recalculation.

☐ **Note:** Layout suggestions and 3D rendering require the ball's core specifications to be on file via the bowlingdatabase.com integration. If the ball is not in the database, layout entry proceeds manually as normal and the rendering feature is unavailable for that ball.

⚖ Choosing the Right Layout System for Your Shop

Layout system	Best for	Requires
VLS	IBPSIA-trained operators, shops following standard curriculum	PAP location, val angle measurement
2LS	Shops preferring streamlined entry, high-volume operations	Pin buffer and CG placement measurement

Layout system	Best for	Requires
PAL	Coaches, competitive bowler specialists, PAP-focused fitters	Accurate PAP location, pin and MB angle measurement
Manual	Custom workflows, manufacturer-guided layouts, supplementary notes	Nothing structured — open entry

☐ **Note:** Most shops settle on one primary layout system and use it consistently across all spec sheets. Mixing systems across a bowler's history makes it harder to track how layout changes have affected ball motion over time. If your shop is transitioning from one system to another, note the changeover point in the bowler's profile so future reference is clear.

► What Comes Next

With the layout recorded, the spec sheet is now complete except for the span and pitch values for the finger holes — and the oval cuts that flow from them. Step 6 covers entering span and pitch, after which the Oval Calculator can be run to finalise the finger hole geometry before drilling begins.

Related Sections

- 6.1.4 — Step 4: Enter thumb information (round or oval)
- 6.1.6 — Step 6: Enter span and pitch values
- 6.1.7 — Step 7: Run the Oval Calculator
- 04.x — Spec Sheets: layout field reference
- 07.x — Arsenal: how layout data appears in ball tracking

☐ **Tip:** If you are drilling for a bowler who does not know their PAP — common with newer bowlers or those coming from a shop that did not track it — take a few minutes to locate it before committing to a layout. A layout entered against an estimated PAP is less reliable than one anchored to a measured position, and it is much easier to find the PAP now than to explain an unexpected ball reaction after the ball has been drilled.

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