4.3.4 CLT (Corrected lateral tilt) angle and its effect on lateral pitch

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https://www.youtube.com/embed/KVp3njbLgFY?si=D_GTkJ2VdMHaalHv

When a bowler places their hand on a ball during a fitting, the natural resting angle of the fingers is rarely perfectly vertical. **Corrected Lateral Tilt (CLT)** is a measurement — taken in degrees — that captures how far the bowler's fingers deviate from vertical when seated in the grip. Spectre Cloud uses this value to automatically apply a correction to the lateral pitch, ensuring that what gets drilled matches the bowler's actual hand angle rather than an idealized flat-hand measurement.

CLT is entered by the operator as a direct measurement taken during the fitting process. Spectre Cloud handles the correction calculation internally — you do not need to do the math yourself.

□□ What CLT Measures

When a bowler grips a ball, gravity, hand anatomy, and finger flexibility all cause the fingers to tilt slightly to one side. A lateral pitch value entered without accounting for this tilt may feel correct on paper but produce a grip that pulls or torques the fingers during the release.

CLT quantifies this tilt by measuring the angle — in degrees — between the bowler's finger axis and true vertical, taken while the bowler's hand is actually in the ball during the fitting.

- □ A CLT of `0°` means the bowler's fingers sit perfectly vertical — no correction is needed.
- □ A positive CLT value means the fingers tilt in one direction; a negative value means they tilt the other way. *Verify with Spectre team: confirm the sign convention — which direction is positive and which is negative, and how this maps to toward-thumb vs. away-from-thumb tilt.*
- □ Most bowlers will show a small but measurable CLT — a reading of `0°` is the exception rather than the rule.

□□ How to Measure CLT During a Fitting

1. Have the bowler place their hand in the ball in their natural grip position — fingers and thumb seated, hand relaxed, not forced.
2. Observe the angle of the middle and ring fingers relative to vertical. Use a protractor, fitting gauge, or tilt measurement tool to capture the angle.
3. Record the measurement in degrees. Note the direction of tilt.
4. Enter the value into the **CLT field** in the Spectre Cloud spec sheet.

Verify with Spectre team: confirm the recommended measurement tool or technique for taking the CLT reading — whether a specific gauge, a phone-based level app, or a visual estimation method is standard practice, and whether middle and ring finger CLT are measured and entered separately or as a single shared value.

⚙ How CLT Affects Lateral Pitch

Once a CLT value is entered, Spectre Cloud applies a correction formula to the raw lateral pitch value. The corrected lateral pitch — not the raw value — is what is used for the actual drilling.

- The correction is applied **automatically** — you enter the raw lateral pitch and the CLT measurement independently, and Spectre Cloud computes the adjusted drilling value.
- The greater the CLT angle, the more the effective lateral pitch deviates from the raw entered value.
- For bowlers with a CLT close to `0°`, the correction is negligible — the drilled result will be very close to the raw lateral pitch entry.
- Do not manually pre-adjust your lateral pitch entry to try to compensate for CLT yourself — entering both a manually adjusted pitch *and* a CLT value will result in double correction and an inaccurate drilling.

Verify with Spectre team: confirm and document the exact formula Spectre Cloud uses to derive corrected lateral pitch from the raw lateral pitch and CLT values, for operators who want to understand the underlying calculation.

CLT in Practice — What to Expect

CLT reading	What it indicates	Effect on lateral pitch
`0°`	Fingers sit perfectly vertical in grip	No correction applied — drilled lateral pitch equals entered value
Small angle (e.g. `2°–5°`)	Slight natural tilt — very common	Minor correction; noticeable on precise fittings
Moderate angle (e.g. `6°–10°`)	Pronounced tilt — often seen in bowlers with larger hands or strong release habits	Meaningful correction; skipping CLT entry would produce a noticeably off lateral pitch
Large angle (`>10°`)	Significant tilt — worth double-checking the measurement before proceeding	Substantial correction; verify the reading is genuine and not a measurement error

Verify with Spectre team: confirm the realistic expected range of CLT values seen in practice, and whether Spectre Cloud flags or warns on unusually large CLT entries.

Tips for Accurate CLT Entry

- Always measure CLT with the bowler's hand in a **relaxed, natural grip** — a forced or exaggerated position will produce a CLT value that does not reflect real drilling conditions.
- If a bowler reports that a previously drilled ball pulls their fingers sideways during the release, check whether CLT was measured and entered on that spec sheet. A missing or incorrect CLT entry is a common cause of lateral discomfort.

- For returning bowlers with a known CLT, clone their existing spec sheet — the CLT value carries over with all other measurements, saving time and ensuring consistency across balls.
- Do not skip CLT for bowlers who seem to have a "normal" grip. A small but consistent tilt left uncorrected compounds across multiple balls and can contribute to long-term finger strain.
- Do not enter CLT in a lateral pitch field by mistake — they are separate inputs and serve different purposes in the spec sheet.

Related Sections

- 4.3.3 — Inputting vertical and lateral pitch for fingers
- 4.3.5 — Inputting thumb pitch
- 4.3.2 — Entering span measurements (Full Span and Cut to Cut)
- 4.5 — IBPSIA auto-suggestions
- 4.2.5 — Cloning a spec sheet to preserve old measurements

Tip: CLT is one of the measurements that separates a precise professional fitting from a basic one. Taking the extra minute to measure and record it — especially for competitive bowlers who care about consistency across their arsenal — is a tangible demonstration of the quality of service your shop provides.

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