9 inputs determine the right actuator.

A distributor-facing pre-quote checklist. If the customer answers most of these at the first call, the second call is the quote.

01 **How many positions does the cycle actually need to hit?**

Two positions = rotary-pneumatic. **Three or more positions = electric, no exceptions.** Pneumatic actuators only know "end of stroke A" and "end of stroke B": anything mid-travel needs a closed-loop electric or a stack of mechanical stops that won't hold tolerance long.

02 **What's the angular travel and the torque the load actually demands?**

Standard pneumatic rotaries cover 90°, 180°, 270°; non-standard angles get expensive fast. **Torque scales with bore and pressure** for vane designs and with rack length for rack-and-pinion. Get the load inertia alongside the static torque : high-cycle indexing under-spec'd on torque will stall.

03 **For electric, is this a drop-in retrofit or a new machine build?**

Retrofit conversations lead with the **SMC LEY drop-in story**: same mounting bolt pattern as the existing cylinder, same stroke, no machine rework. New builds get the full LEY + LEC controller + fieldbus conversation. Don't quote a clean-sheet servo when the customer just wants the cylinder gone.

04 **What's the duty cycle, shift hours and cycles per minute?**

Electric actuator payback math hinges on duty. **24/7 multi-shift duty above 30 cycles/min** pays back the electric capex in 18-36 months on air-cost savings alone. Single-shift light-duty work doesn't: pneumatic rotary stays right.

05 **What positioning accuracy does the application need?**

Pneumatic rotary holds end-of-rotation to mechanical stops: typically ±1-2° repeatability. **Anything tighter than ±0.5° angular or ±0.5 mm linear demands electric closed-loop.** Spec'ing pneumatic for precision work is the most common over-promise in this category.

06 **Is there an air-quality or air-cost conversation already happening at this plant?**

If the customer is doing an energy audit, has had a recent compressor upgrade conversation, or is paying $500-2,000/year per drain on timer-vented condensate, **they're already primed for the electric-migration story**. Lead with the SMC LEY retrofit; the math sells itself.

07 **How will the actuator be controlled, PLC discrete, IO-Link, or fieldbus?**

Pneumatic rotary needs a 5-port valve and two PLC outputs: that's the whole control stack. **Electric needs a controller, power supply, and a PLC fieldbus integration plan** (LEC controller runs EtherNet/IP, EtherCAT, Profinet variants). Scope the controls integration before quoting.

08 **Does the cycle need profiled motion, soft-start / soft-stop, mid-stroke pause?**

Any time the answer is yes, the spec is electric. **Pneumatic can't profile** without proportional valves and external controls that cost more than just switching to electric outright. Profiled motion = electric.

09

Is the end-of-rotation impact controlled, or will the actuator slam to stop?

Pneumatic rotary at end-of-rotation slams into the mechanical stop at full cycle speed unless cushioned. **High-cycle indexing duty needs internal cushions or external shock absorbers** (see Motion Control). Skipping that destroys the actuator and the tooling alongside it within months.