**ENGINEERING-FIRST AUTOMATION**

# HIGH-SPEED KNOCKOFF

Encoder-synchronized reject with product width targeting—triggered by a fail digital output to a matched reject conveyor.

SSI's High-Speed Knockoff is a fast, repeatable reject mechanism built for high throughput lines with tight reject windows. An SSI supplied **encoder mounts to the conveyor drive shaft** and tracks product position by pulse count (distance based). A **fail digital output** from upstream equipment triggers the reject event, and the HMI lets operators set **product width** and **offset** so only the appropriate knockoff fingers activate—directing the specific part onto a speed matched reject conveyor.

## SYSTEM OVERVIEW

• Triggered by a fail digital output (discrete I/O)
• Enter product width + offset on the HMI for targeting
• Selective finger window reduces disturbance
• Speed-matched reject conveyor handoff

## ENCODER-SYNCHRONIZED TRACKING

• Distance based tracking using pulse counts
• Maintains reject alignment through speed changes
• Eliminates time delay guessing

## PRODUCT-WIDTH TARGETING

• Operator enters product width on the HMI
• System fires only the fingers within that width window
• "Crescendo" activation for controlled contact

## DIGITAL TRIGGER INTERFACE

• Fail digital output triggers reject event
• Debounce/one shot behavior as required
• Counts every reject for reporting on HMI

## REJECT CONVEYOR HANDOFF

• Dedicated reject conveyor (speed-matched)
• Reject direction and layout customizable
• Stable handoff reduces jams and rework

## WHY ENCODER-BASED REJECT MATTERS

Encoder-synchronized tracking keeps the reject window tied to actual conveyor movement. Back-to-back products and variable spacing are supported, but a minimal gap is required based on product and speed.

# HIGH-SPEED KNOCKOFF | DETAILS

Drive-shaft encoder tracking • Width-based finger window • Digital fail trigger

## HOW IT WORKS

**1** **Configure** — On the HMI, enter product width and adjust the offset for your reject point.

**2** **Track** — The SSI supplied encoder on the conveyor drive shaft tracks product position by pulse count.

**3** **Trigger** — Upstream equipment asserts a fail digital output; the system assigns that product a tracked reject position.

**4** **Reject** — Only the fingers in the width window activate and knock the product onto the matched reject conveyor; reject counts increment.

## INCLUDED

• SSI supplied conveyor encoder + tracking setup
• Digital fail input integration (discrete I/O)
• HMI setup: width, offset, tuning, and reject counts
• Commissioning support and diagnostics foundation

## OPTIONAL

• Stack light and supervisor notification integration
• Custom reject conveyor and discharge configurations
• Additional I/O handshakes (ready/fault) as scoped

## PROJECT INPUTS (FOR SCOPING)

• Conveyor drive shaft details for encoder mounting (speed range, shaft access)
• Product width/length, weight, and stability
• Line speed and **minimum gap** between products
• Reject conveyor layout and discharge direction
• Trigger source (fail digital output) and required interlocks
SSI defines timing, finger window behavior, and safety scope based on real line constraints and acceptance criteria.

**Next step: Share line layout + speed/spacing targets • Request a Quote**