VKS TECH vkstech.com	# WRINKLE & CREASE — ACTION CARD **5 Pattern Visual Reference · Walk the Line Method · Slitter/Metalliser Use**	**Doc No:** VKS/MET/AC/03 **Issue:** 01 **Rev:** 00 **Print:** A4 Landscape + Laminate **Location:** Slitter & Metalliser rewind

WRINKLE ≠ CREASE **Wrinkle** = temporary fold, *disappears when web is stretched flat* (fixable). • **Crease** = permanent pressed-in fold, *stays even when stretched* (NOT fixable — downgrade). Every crease started as a wrinkle upstream that got pressed in by a nip or lay-on roller. **Prevent wrinkles → eliminate creases.**

WALK THE LINE — 4-Step Diagnostic (Total: 10-15 min)

1. **Identify Pattern (2 min)** — Match what you see to one of the 5 patterns below. Direction + symmetry = half the diagnosis.
2. **Walk Upstream (3-5 min)** — Start at winder. Walk backwards station-by-station with a portable lamp. Find the FIRST roller where the wrinkle (or its shadow) is still visible.
3. **Inspect That Component (3 min)** — Check roller deflection, bearing play, alignment, grooves, deposits, rubber damage. Fix THAT component — not tension.
4. **Verify (5 min)** — Run 50m at slow speed after fix. Inspect output roll. No wrinkle = resume. Still there = back to step 2.

5 WRINKLE PATTERNS — DIRECTION REVEALS THE CAUSE

PATTERN 1 · MD SYMMETRIC



Tin-Canning

Parallel vertical lines, uniform spacing — tin roof ribs

Cause: Web expanded (tension drop, heat, humidity). Extra width, nowhere to go.

Fix: Keep tension constant. Install bowed spreader roller or larger-diameter idler with shallow grooves.

PATTERN 2 · MD ASYMMETRIC



Broken MD

MD troughs collect into single bulge across width

Cause: Uneven web gauge, baggy area, non-uniform tension, spreader misalign.

Fix: Check unwind roll gauge with micrometer. Verify spreader alignment. Raise NCR if gauge >±3%.

PATTERN 3 · CD



Cross-Direction

Horizontal stripes perpendicular to web travel

Cause: Heated roller too hot, excess nip pressure, tension pulse from worn gearbox.

Fix: Reduce heated roller temp by 5-10°C. Check nip pressure. Inspect drive train for worn bearings.

PATTERN 4 · DIAG SYMMETRIC

Bow Wrinkle

Chevron/arrowhead pointing downstream

Cause: "Smile-shaped" roller — curved from excessive deflection. Too small diameter for web width.

Fix: Replace with larger-diameter roller. If nip roll, verify crown matches tension load.

PATTERN 5 · DIAG ASYMMETRIC

One-Side Diagonal

Diagonal from one edge only, web tracking sideways

Cause: Misaligned roller, one end higher or rotated. Worn bearing on one side only.

Fix: Laser alignment upstream from that point. Replace worn bearings. Check machine frame leveling.

PREVENTION — 8 HABITS THAT STOP WRINKLES

- ✓ **Weekly laser alignment** on all idlers, nip rolls, spreaders
- ✓ **Bearing play check every PM** — any perceivable play = replace
- ✓ **Taper tension enabled** at rewinder (reduce as diameter grows)
- ✓ **IPA wipe all idlers every shift** — deposits cause local MD wrinkles
- ✓ **Foam end caps** during roll handling — prevent edge damage
- ✓ **Vertical storage only** — stacked rolls create pressure creases
- ✓ **Ramp heated roller temp in 2°C steps** — sudden change = wrinkle
- ✓ **Strict FIFO, 48-hour max handling window** — old rolls develop stress

WHEN TO CALL WHO

Mechanical	Roller bearing replacement, laser alignment, frame leveling
E&I	Drive train issues, tension sensor, heated roller thermocouple
Quality + Supplier	Gauge band issue on unwind roll — raise NCR on batch
Shift Incharge	3+ rolls downgraded same shift — production halt decision