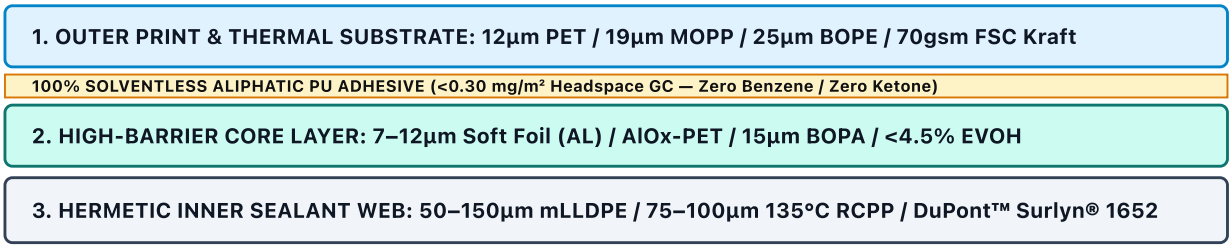
2026 Master Flexible Packaging & High-Barrier Rollstock Engineering Catalog

Complete Polymer Structures, Cleanroom Equipment Matrix, Dieline Standards & Factory FOB Reference

1. MULTI-LAYER CROSS-SECTIONAL POLYMER STACK



Functional Layer	Verified Polymer & Micron Gauge	Converting & Lamination Process
Outer Print Layer	12µm PET / 19µm MOPP / 25µm BOPE / 70gsm FSC Kraft	Reverse Gravure (10-Color Bobst) or HP Indigo 25K Digital
Tie / Barrier Core	7–12µm Soft Foil (AL) / AlOx-PET / 15µm BOPA / <4.5% EVOH	Nordmeccanica Super Combi 100% Solventless (<0.30 mg/m²)
Inner Sealant Web	50–150µm mLLDPE / 75–100µm 135°C RCPP / DuPont™ Surlyn® 1652	Totani High-Speed 8-Side-Seal & Spout Welding Lines

2. LABORATORY PHYSICAL, BARRIER & MIGRATION TEST MATRIX

Parameter	Verified Factory Value	Instrument / Condition	Standard
Cleanroom Manufacturing	ISO Class 8 (100,000-Class) Positive-Pressure Plant	18,500 m² Guangzhou Facility	ISO 14644-1
Digital Print Platform	HP Indigo 25K Wide-Web ElectroInk ($0 Cylinder Fee)	MOQ 500 pcs / 300 kg · 7–9 Workdays	Delta-E ≤ 1.8 Pantone
Rotogravure Platform	Bobst Electronic-Shaft 10-Color High-Speed Press	10,000 – 5,000,000+ pcs · 12–15 Days	±0.08 mm Registration
Oxygen Transmission (OTR)	Foil: ≤0.015 | AlOx: ≤0.40 | EVOH Mono-PE: ≤0.58 cc/m²·24h	MOCON OX-TRAN 2/22 (23°C, 0% RH)	ASTM D3985
Moisture Vapor (WVTR)	Foil: ≤0.02 | Metallized: ≤0.35 | Mono-PE: ≤1.15 g/m²·24h	MOCON PERMATRAN-W 3/34 (38°C, 90%)	ASTM F1249
Residual Solvents & Odor	Total <0.30 mg/m² · Benzene/Toluene/Ketone = 0.00 mg/m²	Agilent 8890 Headspace GC-FID	EN 13628 / GB/T 10004

FlexPouchMFG™ Line Qualification & CAD Standards

3. HIGH-SPEED FILLING MACHINE & HEAT-SEALING OPERATING WINDOW

Pre-Made Rotary & Inline Pouch Fillers

Validated on Toyo Jidoki, Mespack, Volpak, Bossar & Rezpack (35–90 ppm). Bag flat camber <1.0 mm ensures 99.8% vacuum pick-up reliability. Recommended jaw pressure: 0.28–0.35 MPa; dwell: 0.45–0.70 s.

VFFS / HFFS / Stick-Pack Web Tracking

Calibrated kinetic COF (μk = 0.19 ± 0.03) prevents forming-collar stick-slip on Syntegon/Bosch, Viking Masek, Rovema & Ilapak lines up to 600 packs/min. Heavy-wall 76 mm / 152 mm cores.

4. PRE-PRESS ARTWORK BLEED, PHOTO-EYE MARK & ZIPPER/VALVE CLEARANCES

CAD Dieline Element	Mandatory Tolerance	Production & Filling-Line Purpose
Outer Bleed & Safety Margin	+3.0 mm bleed · -4.0 mm inner text safe zone	Eliminates white edge flash during high-speed rotary slitting (±0.15 mm)
Heat-Seal & Gusset Ink Mask	Optional matte/heat-resistant overprint lacquer	Prevents jaw ink transfer at 145°C–195°C sealing temperatures
Photo-Eye Registration Mark	10 mm × 5 mm solid high-contrast block (≥85%)	Clear unobstructed track for SICK / Keyence optical cut-off sensors
Laser Tear Score & Zipper Axis	Zipper center 32–38 mm from top; laser score -12 mm	Clean consumer thumb-opening without tearing into zipper flange
Barcode / DataMatrix Contrast	Opaque double-white ink backing (≥82% reflectance)	Guarantees ANSI Grade-A retail & GS1 / Chestny ZNAK scan rates

Complimentary Pre-Production Line Trial Policy: Prior to bulk printing, Alex Gao's engineering lab dispatches free unprinted trial pouches or 50–100m test rolls matching exact micron structure so your co-packer can verify jaw temperatures, autoclave F0 profiles, or 50°C cosmetic stability.

5. FACTORY-DIRECT TIERED REFERENCE MATRIX (HP INDIGO DIGITAL VS. 10-COLOR ROTOGRAVURE)

Format / Specification	HP Indigo Digital	Mid-Scale Run	High-Volume Rotogravure
8-Side-Seal Coffee Bag (250g + Wipf® Valve)	500 pcs ($0.295)	5,000 pcs ($0.152)	**25,000+ pcs ($0.088 – $0.104)**
135°C Retort Stand-Up Pouch (250g RCPP)	2,000 pcs ($0.185)	10,000 pcs ($0.108)	**50,000+ pcs ($0.068 – $0.085)**
Spouted Refill / Baby Puree Pouch (100–1000mL)	2,000 pcs ($0.195)	10,000 pcs ($0.118)	**50,000+ pcs ($0.069 – $0.095)**
DuPont™ Surlyn® Cosmetic Sachet (2–5mL)	5,000 pcs ($0.052)	20,000 pcs ($0.032)	**100,000+ pcs ($0.018 – $0.024)**
VFFS / Stick-Pack / Cold-Seal Rollstock	300 kg ($5.90/kg)	1,000 kg ($4.55/kg)	**3,000+ kg ($3.85 – $4.25/kg)**
Bag-in-Box 3L–20L (Vitop® Tap) & 220L Aseptic	1,000 pcs ($0.42)	5,000 pcs ($0.285)	**20,000+ pcs ($0.215 / $2.85 Drum)**

6. CLEANROOM EXPORT CARTON, PALLETIZATION & BATCH COA PROTOCOL

Stage	Standard Operating Specification	Verification Document
Inner Sanitary Liner	Antistatic food-grade virgin PE inner bag heat-sealed inside cleanroom	ISO Class 8 Lot Traceability Label
Export Corrugated Box	Double-wall 5-ply BC-flute Kraft carton (ECT ≥ 44 lb/in · gross ≤ 18 kg)	Drop-Tested Carton Corner Guards
FCL / LCL Palletization	Heat-treated ISPM-15 fumigation-free pallets + LLDPE stretch hood + desiccant	Container Loading Photo Report
Mandatory Release COA	MOCON OTR/WVTR, Instron ASTM F88 seal curve & Agilent 8890 GC solvent chromatogram	PDF + Printed COA in Carton #1

Request Your Custom 1:1 Vector Dieline & Free 25-Pouch Sample Kit (2-Hour SLA):

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