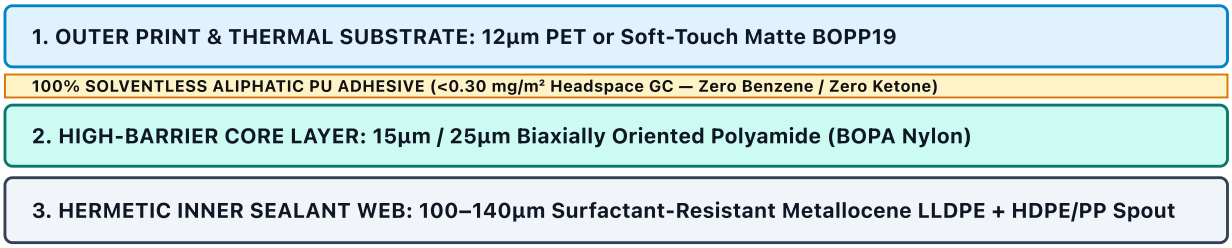
3D Die-Cut Shaped Pouches, Choke-Safe Baby Spouts & Liquid Refill Bags — Dieline & TDS Guide

360° Canoe-Boss Fitment Welding, EN71 Choke-Safe Caps, Corner Spouts & Rotary Die-Cut Tolerances

1. MULTI-LAYER CROSS-SECTIONAL POLYMER STACK



Functional Layer	Verified Polymer & Micron Gauge	Converting & Lamination Process
Print & Rigidity Layer	12µm PET or Soft-Touch Matte BOPP19	High-iffness Bottle-Contour Die-Cut Edge Smoothness
Drop-Impact Toughener	15µm / 25µm Biaxially Oriented Polyamide (BOPA Nylon)	Absorbs 1.5m Hydrostatic Shock without Flex-Pinholes
ESCR Liquid Sealant	100–140µm Surfactant-Resistant Metallocene LLDPE + HDPE/PP Spout	Zero Stress-Cracking with Detergents, Oils & Alcohol

2. LABORATORY PHYSICAL, BARRIER & MIGRATION TEST MATRIX

Parameter	Verified Factory Value	Instrument / Condition	Standard
Spout Bore Portfolio	8.6mm Baby Choke-Safe | 10–16mm Center | 22–32mm Corner	Pre-Capped or Rail-Fed for Mespack / Volpak / Toyo	`Torque: 1.1–1.8 N·m`
360° Canoe-Boss Weld	Dual-Stage Thermal Copper Jaw + Ultrasonic Pre-Tack	Zero Micro-Channel Leaks @ 0.16 MPa Vacuum Decay	`ASTM D3078`
Rotary Die-Cut Precision	Custom Bottle, Hourglass, Fruit & Ampoule Contours	Corner Radius R ≥ 3.0mm · Tolerance ±0.25mm	`Zero Sharp Burrs`
Plastic Reduction Ratio	82% Less Polymer Weight vs Rigid HDPE/PET Bottles	8:1 Empty Inbound Truck & Warehouse Savings	`ISO 14040 LCA`

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.

FlexPouchMFG™ Commercial & Logistics Specification

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

Format / Specification	HP Indigo Digital	Mid-Scale Run	High-Volume Rotogravure
100mL Baby Puree / Energy Gel Pouch (8.6mm EN71 Cap)	3,000 pcs ($0.145)	15,000 pcs ($0.089)	**50,000+ pcs ($0.068)**
500mL Die-Cut Bottle Refill Pouch (13mm Corner Spout)	2,000 pcs ($0.195)	10,000 pcs ($0.125)	**50,000+ pcs ($0.092)**
2L–5L Heavy-Duty Detergent / Washer Fluid Handle Spout	2,000 pcs ($0.340)	10,000 pcs ($0.225)	**30,000+ pcs ($0.165)**

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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