DOCUMENT SKU: ZPCP0003 | DOSSIER FORMAT



Custom Die Struck Pins: The Procurement & Manufacturing Playbook

A ZIGPAC guide to shifting from logo-upload transactions to risk-proof micro-manufacturing.

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Macro photography: Polished raised vs. sandblasted recessed surfaces under directional lighting.

THE POWER OF DIMENSIONAL CONTRAST

Custom die struck pins use a precision steel die to press raised and recessed details into metal. There is no enamel and no color fill. Contrast is shaped entirely by light.

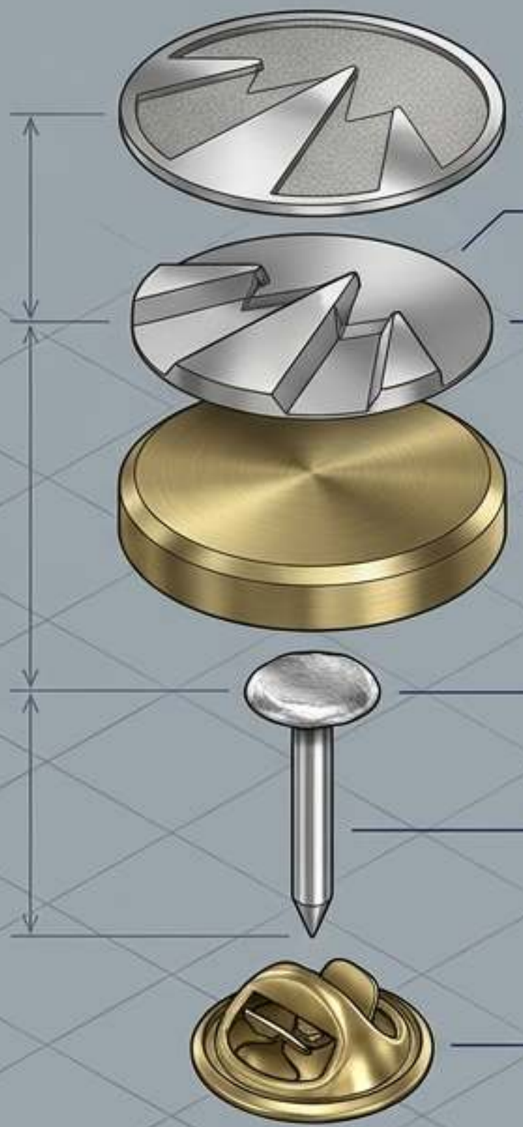
PRIMARY APPLICATIONS

- Employee Service Awards
- Military & Public-Service Insignia
- School Graduation Honors
- Executive Gifts
- Commemorative Releases

INSIGHT: The preferred choice for formal applications where heavy metal texture speaks louder than full-color artwork.

ANATOMY OF A DIE STRUCK PIN

A successful pin is a complete mechanical assembly, not just a stamped piece of metal. Every layer requires specific, intentional manufacturing controls.

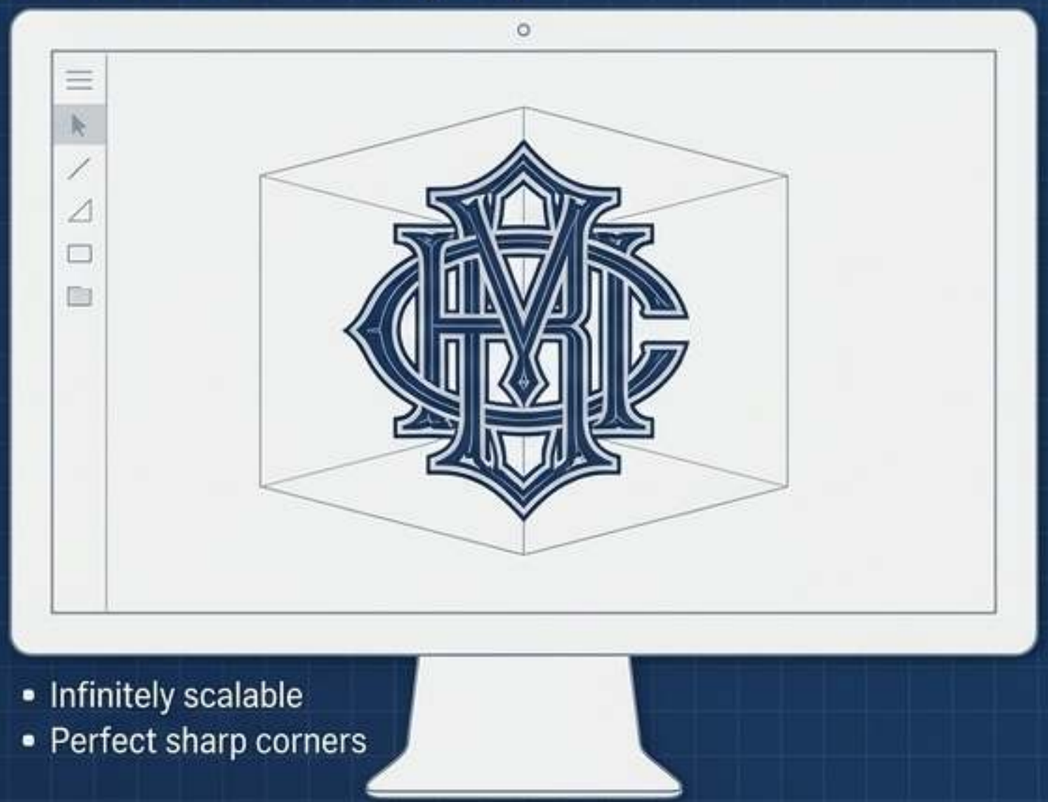


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THE “LOGO-UPLOAD” TRAP

A digital logo looks precise on a screen, but loses legibility the moment it is converted into physical relief.

DIGITAL SCREEN (2D)



- Infinitely scalable
- Perfect sharp corners

PHYSICAL STEEL (3D)



- Thin strokes close up
- Small negative spaces (counters) disappear
- Polished surfaces reflect surrounding details, destroying contrast

Upstream Failures Compound Downstream

2-column Risk Diagnostic

DOWNSTREAM DEFECT	UPSTREAM ROOT CAUSE
 Pin rotates or sags on clothing.	Attachment layout was never stress-tested against final weight; single post used on a heavy/wide badge.
 Production run rejected due to illegibility.	Artwork was reviewed at browser zoom instead of actual physical size; relief tolerances ignored.
 Budget destroyed by hidden costs.	Tooling, proofing, setup, and brokerage were not calculated into the fixed costs.

TAKEAWAY: Treat the project as a controlled manufacturing specification.

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ROUTE FINDER: MATCHING ART TO PROCESS

PROCESS	VISUAL STRENGTH	PRIMARY LIMITATION	BEST-FIT APPLICATION
Die Struck	Raised/recessed all-metal detail	Does not reproduce photos, gradients, or brand colors	Formal emblems, anniversaries
Soft Enamel	Bright recessed color with tactile metal lines	Exposed relief creates highly textured surface	Fan merch, colorful promos
Hard Enamel	Smooth, polished, jewelry-like color	Color boundaries constrain complex artwork	Premium branded gifts
Die Cast	Deep 3D relief, structural cutouts	Different tooling behavior; not for flat sheet-metal	Mascots, heavy sculptural forms
Printed	Photographic detail, gradients	Appearance relies entirely on print layer & coating	Short campaigns, intricate illustration

The Hardware System: Finish + Attachment

FINISHES



Polished Gold
For simple logos, formal awards

→ Control point: reflections reduce fine contrast



Antique Silver
For dense lettering, heritage marks

→ Control point: define desired darkness



Black Nickel
For modern, low-key branding

→ Control point: ensure dark recesses don't merge with thin lines

ATTACHMENTS



Butterfly Clutch
General programs

→ Control point: include spare clutches



Locking Clutch
Higher-value/repeated wear

→ Control point: test removal force



Two Posts
Wide, asymmetrical, or heavy pins

→ Control point: verify spacing against uniform/lapel

SYSTEM SYNTHESIS: A visually successful front does not compensate for a weak post or an incompatible clutch. Select as one integrated system.

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Gate 1: Define Scope & Regulatory Compliance

Scoping Parameters

Start with the business event. Define the audience, quantity, in-hand deadline, and recurring status.

Timeline Note

Separate the requested delivery date from the production-complete date to reserve time for customs and inspection.

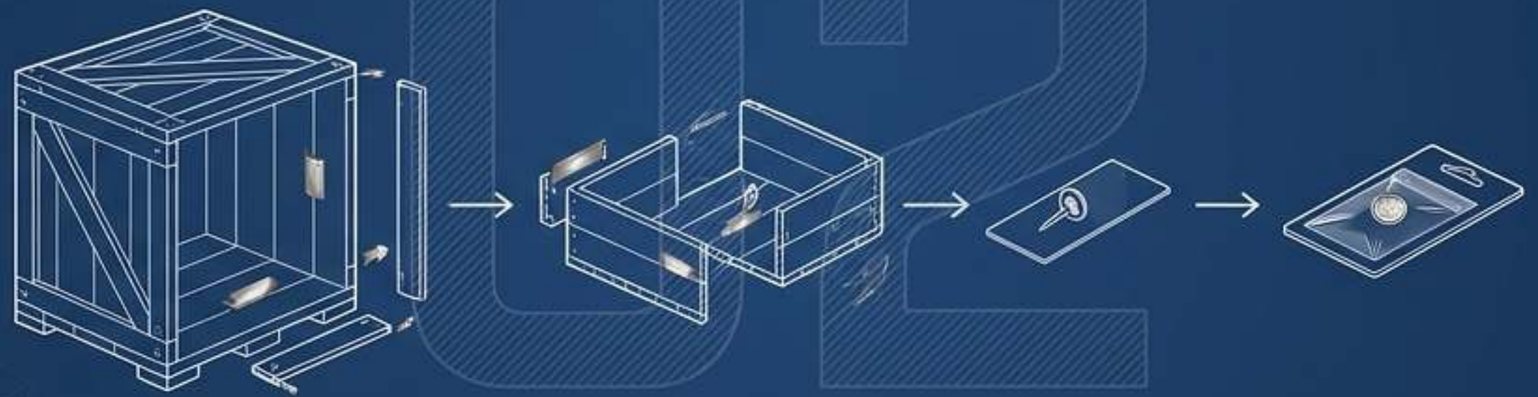


REGULATORY EXPOSURE

If intended primarily for children 12 or younger, U.S. CPSC safety obligations apply. Accessible components must not exceed 100 ppm total lead; surface coatings are subject to a 90 ppm limit. ASTM F2923-20 standards may also apply.

Gate 2: The Standardized Quotation Architecture

[Tooling] + [Qty × Production Price] + [Attachments/Pkg] + [Freight/Insurance] + [Duties/Brokerage] = TRUE LANDED COST



CALCULATION RULE

Divide the true landed cost by accepted units—not merely shipped units.

MANDATORY SPECIFICATION FIELDS

Dimensions | Base Metal | Thickness | Relief Type | Plating | Front Texture | Edge Treatment | Clutch Type | Overs/Unders Policy

INSIGHT

A low factory price loses meaning if the bid excludes tooling, air freight, or carries an elevated defect allowance.

Gate 3: Tooling Rights & IP Governance

03



THE TOOLING REALITY

Paying a tooling charge does not automatically transfer physical ownership of the die.

CONTRACT REQUIREMENTS

Put the owner, storage location, retention period, reorder conditions, modification policy, and destruction process in writing.

IP AUTHORIZATION

Verify authorization for logos/seals through the rights holder. Search official trademark/patent records via the USPTO.

RULE

A factory's ability to reproduce an image is not evidence that the buyer has permission to commercialize it.

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Gate 4: Preflighting the Blueprint

FILE STANDARDS

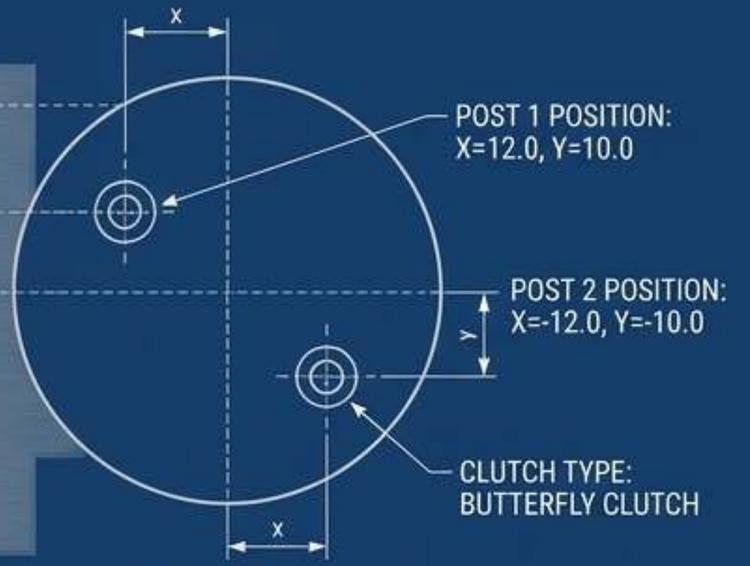
AI, EPS, SVG, or vector PDF with fonts converted to outlines.

PROOFING MANDATES

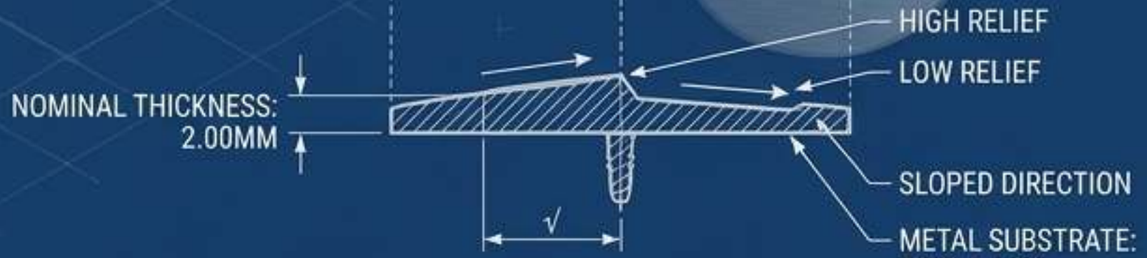
A production proof must explicitly show dimensions, relief direction, polished vs. textured zones, metal, thickness, post positions, clutch, and revision number.



Top-down View



Back View



Side-profile Cross-section View

STRICT RULE

Do not rely on chat messages (e.g., "antique silver") without a marked visual reference on the official proof.

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Gate 5: The Physical Sample Checkpoint

Evaluation Gate



05

THE LIMIT OF DIGITAL

Digital proofs verify layout. They cannot prove plating tone, edge feel, reflectivity, weight, or clutch performance.

WHEN TO SAMPLE

High-value programs, complex emblems, special finishes, children's applications, or strict deadlines.

THE LOCK-IN

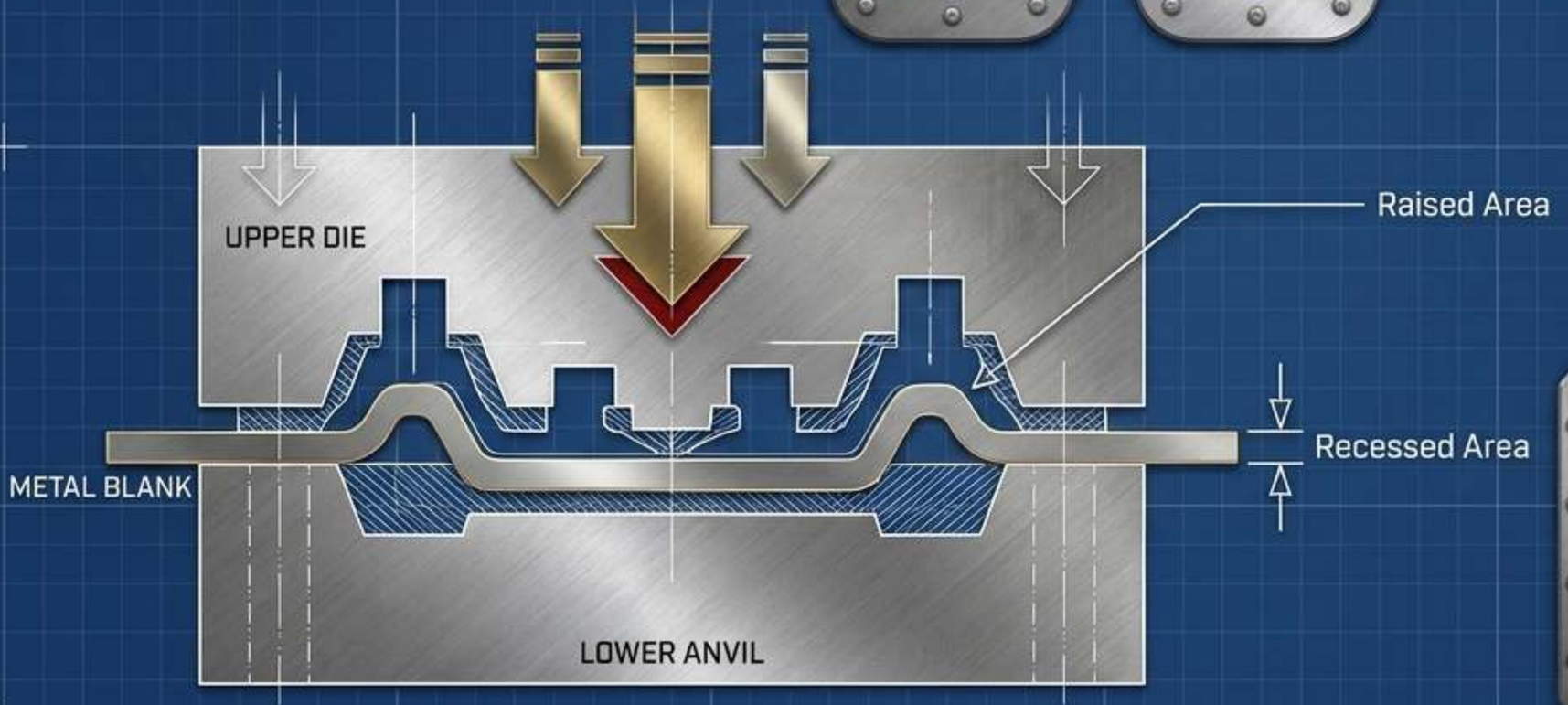
Sign and date the accepted sample. Record its mass (grams), dimensions (mm), die number, and attachment configuration. This physical object becomes the absolute reference for mass-production inspection.

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Gate 6: The Striking Sequence

CORE SEQUENCE

Artwork approval → Die preparation → Metal striking → Profile cutting → Deburring → Polishing/ Texturing → Plating/ Antiquing → Post attachment → Cleaning → Inspection



⚠ COMPLEXITY RISK

Every added feature (complex relief, cutouts, dual finish, mixed enamel) adds a distinct operation and an additional failure point.

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Gate 7: Inspect Measurable Data, Not Adjectives

CHARACTERISTIC	OBSERVABLE EVIDENCE	DEFECT SIGNAL
Dimensions & Profile	Caliper measurements vs spec	Distorted outline, bad trim
Relief & Lettering	Comparison to sample under steady light	Filled counters, die marks, reversed relief
Plating & Surface	Batch photos, reference sample	Blisters, peeling, pits, base metal showing
Post & Clutch	Fit and mechanical test	Loose post, spinning product, poor solder
Edges & Cleanliness	Visual/handling	Burrs, sharp points, polish residue

RULE: “Premium quality” is not an inspection criterion; a signed sample plus measurable requirements is.

Gate 8: Tariff Navigation & Environmental Claims

CUSTOMS & TARIFF EXPOSURE



- **HTS Classification:** Do not assign an HTS classification solely from the phrase 'lapel pin.' Verify current codes via the USITC Harmonized Tariff Schedule.
- **Section 301 Risk:** USTR records show List 3 duties increased from 10% to 25%. Require a DDP quote to expose true destination charges.

ENVIRONMENTAL SCRUTINY



- **FTC Green Guides:** 'Zero impact' or 'Eco-friendly' claims require substantiation.
- **Requirement:** Demand percentage by weight, pre/post-consumer basis, and batch traceability rather than generic green labels.

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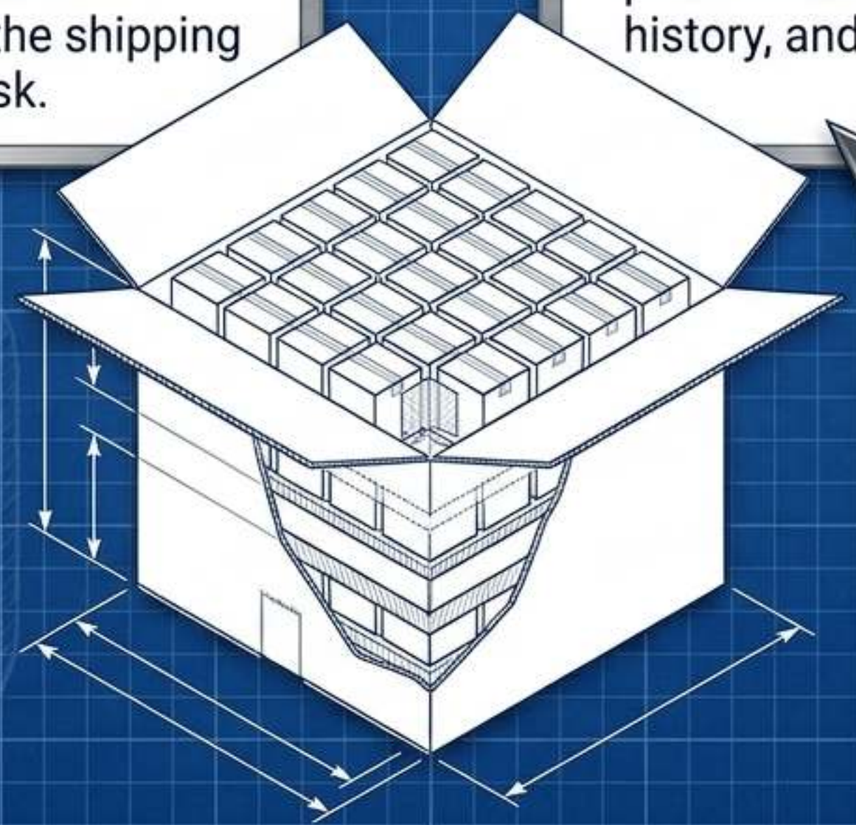
Gate 9: Transit Protection & Reorder Data

PHYSICAL PROTECTION

Individual poly bags reduce abrasion; fitted boxes support premium programs. Packing must control movement and isolate incompatible finishes to match the shipping route's vibration and moisture risk.

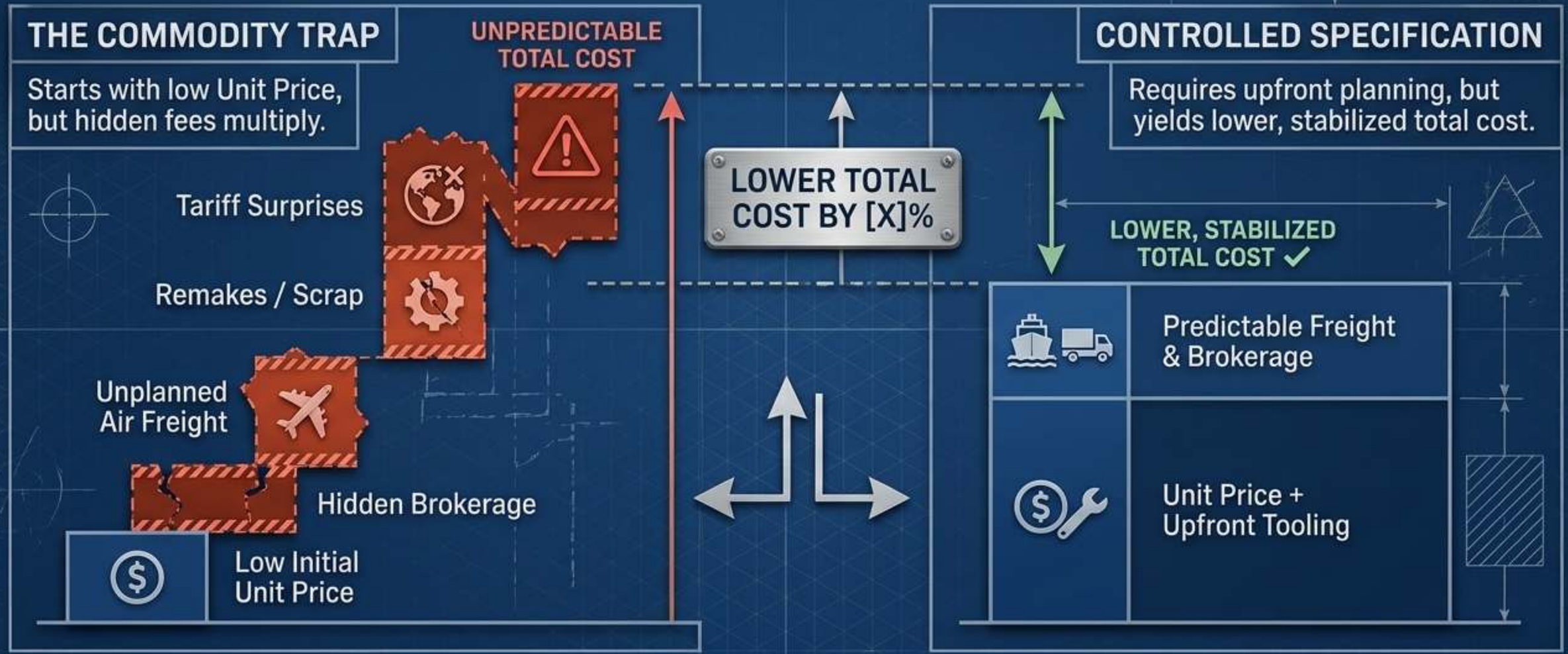
THE REORDER RECORD

At receipt, inspect within the contractual claim period. Archive the exact vector file, proof revision, die number, accepted defect history, and tooling-retention date.





THE SYNTHESIS: **PRICE VS. TRUE COST**



PARADIGM SHIFT: A 'Logo-Upload Transaction' looks cheap initially but results in hidden fees.
A **"Controlled Manufacturing Specification"** protects landed cost.

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Precision is not an accident. It is specified.

A successful custom die struck pin is the product of controlled decisions: readable relief, stable attachments, documented tooling rights, measurable inspection criteria, and total landed-cost calculation. Turn your artwork into a production-ready specification with a ZIGPAC factory-direct evaluation.

Request an itemized production quote. | ZIGPAC Manufacturing Guidelines