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SOURCING FRAMEWORK · WP-03 · 2026

SOURCING DRAWN AND STAMPED PARTS

A decision framework for qualifying a supplier, reading a quotation, structuring a second source and controlling change - written for the buyer who owns the programme after the price is agreed.

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A FRAMEWORK, NOT A PRICE LIST

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What this is

A set of questions and structures that hold whether you source in Asia, in Europe or domestically.

What this is not

It contains no market statistics, no tariff figures and no prices. Those change; the framework does not.

How to read it

Chapters 2 and 4 are the two that repay a second reading. The rest is sequencing.

Why a framework rather than a benchmark

Benchmark tables age badly and they hide the thing that matters: which cost line moves when you change a decision. A framework survives a change in duty rates, freight and exchange rates, because it tells you which line to re-examine rather than what the total should be.

Who this is written for

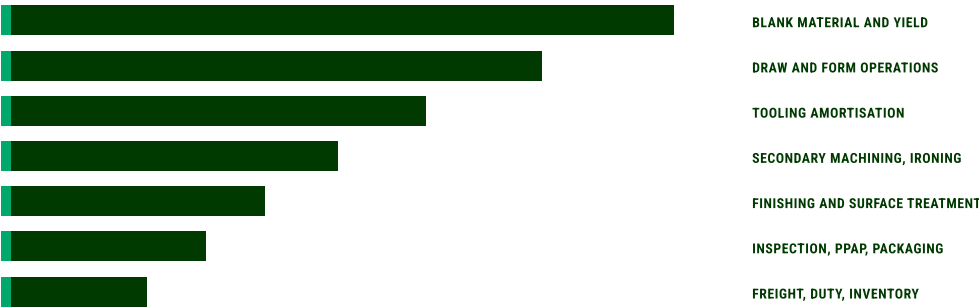
The engineer or buyer who inherits the part after the quotation is signed. Most sourcing risk is created at the quotation stage and discovered in the third year of production, so the document is organised around the decisions that are hardest to reverse.

CHAPTER 01

WHAT ACTUALLY DRIVES LANDED COST

A unit price is not a number. It is a stack of seven lines, and each line responds to a different decision. Sourcing well means knowing which decision moves which line.

ASK FOR THE QUOTE BROKEN INTO THESE LINES



BAR LENGTH IS ILLUSTRATIVE ONLY - THE SPLIT HAS TO COME FROM THE QUOTE ITSELF

FIG 1.1 The seven lines a stamped or drawn part quotation is built from. The split differs by part and volume; the lines themselves do not.

The three lines that scale with volume

Material, operations and secondary processing all fall as volume rises, because setup, scrap and handling are spread further. This is where a volume forecast turns into money.

The one line that scales against volume

Tooling amortisation. The die costs what it costs, so a lower annual volume spreads it over fewer parts. This is the line that punishes an optimistic forecast.

Why asking for the split is not rude

A supplier who can break a price into these lines knows their own process. A supplier who can only give a total is quoting from a template, and the total will not survive the first change order.

The question that reveals the most

"If annual volume halves, what happens to each line?"
Material barely moves, operations barely move, tooling amortisation roughly doubles. If the answer to that question is a shrug, the price was never built from these lines.

THE SEVEN LINES, AND THE DECISION THAT MOVES EACH ONE

LINE	WHAT MOVES IT	WHO CONTROLS IT
Tooling amortisation	Die cost divided by the volume actually ordered.	Buyer, through the forecast and the order pattern.
Secondary machining and ironing	Whether the call-out can be held as drawn, or has to be bought.	Joint: this is where a tolerance decision becomes a price.
Freight, duty, inventory	Incoterm, shipment size, lead time and the stock that lead time forces.	Buyer, through the logistics decision.

CHAPTER 02

FIVE QUESTIONS THAT QUALIFY A SUPPLIER

Price is the sixth question. These five establish whether there is a supplier to negotiate with at all, and each one has an answer that cannot be faked by a brochure.

QUESTION - WHAT A REAL ANSWER LOOKS LIKE - THE RED FLAG

QUESTION	A REAL ANSWER	THE RED FLAG
Do you design and build your own dies?	A named tool room, a number of toolmakers, and photographs or a visit of dies in build.	"We have a partner." Ask who owns the drawings.
Which operations are in house?	A specific boundary: drawing, ironing and annealing here; plating and heat treatment at named subcontractors.	"Everything." A supplier who claims every process usually subcontracts most of them.
How do you control incoming material?	Mill certificates held against heat number, and traceability from coil to shipment.	"We buy from a good mill." Not traceability.
What do you measure, and with what?	Named instruments, a control plan, and a first article report that shows actual values.	A certificate with no values on it.
What happens when the drawing is wrong?	A DFM note before the die is cut, naming the call-outs that cannot be held as written.	"No problem, we will make it." That is the answer that costs a programme.

Why the fifth question matters most

Every drawn part programme has at least one call-out the process cannot hold as written. The only variable is when that is discovered. A supplier who raises it at the quotation stage costs you a design change; one who raises it at first article costs you a schedule.

Ask the same question twice

Put the five questions to the sales contact, then put the third and fourth to the quality manager in a separate call. Divergence between the two answers is the single most useful signal in a supplier evaluation.

A ten-minute test you can run by email

Ask for three documents for a part similar to yours: the process flow, the control plan, and a first article report with actual values. A supplier who sends all three within a day has them ready. A supplier who sends a certificate has answered a different question, and that is worth knowing before the tooling order.

What the answer is really testing

Not whether the supplier is good, but whether the supplier knows what they are good at. A supplier who can describe the boundary of their own capability - and name the subcontractors on the other side of it - is a supplier you can plan a programme around.

CHAPTER 03

AUDITING WITHOUT FLYING

A plant visit is the best audit and the most expensive one. Most of what a visit establishes can be established beforehand from documents, which makes the visit shorter and better targeted.

DOCUMENT - WHAT IT PROVES - WHAT IT DOES NOT PROVE

DOCUMENT	WHAT IT PROVES	WHAT IT DOES NOT PROVE
Process flow diagram	That the supplier has thought about the route, including outsourced steps.	That the route is what actually runs on the floor.
Control plan	That each feature has a named method and frequency.	That the plan is followed on a Tuesday afternoon.
First article report for a similar part	Whether the supplier measures real values or copies a certificate.	Anything about your part specifically.
Material certificates with heat numbers	Traceability from mill to shipment exists as a practice.	That the coil in the press matches the certificate.
Die list with ownership	How many programmes the supplier has run, and who owns the tooling.	Whether the dies are maintained to a schedule.
Corrective action records	How the supplier responds when something goes wrong.	How often something goes wrong - ask for the rate.

The two documents worth insisting on

A control plan with named methods, and a first article report for a part similar to yours with actual values in it. Those two documents separate a supplier who measures from one who certifies.

Then make the visit count

With the documents in hand, a plant visit can be spent on the three things documents cannot show: the die maintenance area, the first article bench, and whether the scrap bin contains the shape of your part.

CHAPTER 04

READING A QUOTATION LINE BY LINE

Two quotations for the same part are rarely comparable as totals. They become comparable when both are broken into the same lines, and the differences are read one line at a time.

LINE - WHAT IT SHOULD CONTAIN - WHAT TO ASK WHEN IT IS MISSING

LINE	WHAT IT SHOULD CONTAIN	WHAT TO ASK WHEN IT IS MISSING
Material	Grade, thickness, and the yield assumption used for the blank.	"What blank size is this price based on?"
Operations	Number of draws or stations, and whether a sizing pass is included.	"How many operations, and is sizing one of them?"
Tooling	Total die cost, whether it is amortised or invoiced, and who owns it.	"Is the tooling in the unit price, and who holds title?"
Secondary	Machining, ironing, annealing, plating - named, not bundled.	"Which of these are in house and which are subcontracted?"
Quality	First article, PPAP level, and the inspection frequency assumed.	"What PPAP level is included, and what does the next level cost?"
Packaging	Pack type, quantity per pack, and whether returnable.	"What is the pack quantity, and is dunnage included?"
Logistics	Incoterm, port, and the assumed shipment size.	"Which Incoterm, and what shipment size is assumed?"

The comparison that actually works

Normalise both quotations to the same seven lines, then compare line by line. The total will rarely be the deciding factor; the tooling line and the operations line usually are, and they point at different questions.

Watch for the price that assumes the easiest part

A quotation that assumes no sizing pass, general tolerance only, and a simple pack will be the lowest number on the table and the most expensive programme. Compare the assumptions, not the totals.

CHAPTER 05

TOOLING OWNERSHIP AND EXIT

The die is usually the largest single payment in a drawn part programme and the item most often left undefined. Everything in this chapter is cheaper to agree before the first invoice than after the last one.

Who owns the die

Paid for by the customer, or amortised into the unit price? These are different arrangements with different exit rights. If it is amortised, say when title transfers - immediately, on completion of payment, or never.

Where the die is, and in what state

A die list, updated, with location and condition. If the die is held by a subcontractor rather than the supplier, that is a second exit risk and it belongs on the list too.

What happens on exit

A transfer clause covering: die release against payment, drawing and programme data, a last-time buy window, and who pays for the die refurbishment needed before transfer.

The die condition question

A die that has run a million strokes is not the same asset as one that has run ten thousand. Ask for the stroke counter, and for the maintenance record. A transfer of a worn die is a transfer of someone else's problem.

Put the exit in the first contract

Negotiating an exit at the moment you want to leave is negotiating from the weakest position you will ever hold. The clause costs nothing at the start and everything at the end.

FIVE CLAUSES WORTH HAVING IN THE TOOLING AGREEMENT

CLAUSE	COVERS
Title and transfer point	Who owns the die and at what moment ownership passes.
Die list and location	Every die for the part, including those held by subcontractors.
Maintenance obligation	Who maintains, to what schedule, and who pays for wear.
Transfer and release	Condition of the die at transfer, and who pays to bring it back to specification.
Last-time buy	A window and a quantity, so a transfer does not stop the line.

CHAPTER 06

A SECOND SOURCE THAT DOES NOT DOUBLE THE COST

Splitting a part 50/50 between two suppliers looks balanced and costs the most. Splitting by part family costs less and gives a better answer when one supplier stops.

Split by family, not by percentage

Give one supplier the whole family of parts that share a die set, a material and a process route. Each supplier then runs a stable process, and a failure at one supplier takes out a family rather than half of every family.

Duplicate the tool, not the part

The expensive part of a second source is the die, not the unit price. Where a part is critical, budget for a second die and keep it qualified but idle. A second source with no qualified die is a supplier list entry, not a contingency.

THREE WAYS TO STRUCTURE A SECOND SOURCE

STRUCTURE	WHAT IT COSTS	WHAT IT BUYS
Split volume, one die	Lowest tooling cost. Both suppliers share one die or one supplier makes all of it.	Very little. It is a single source with extra paperwork.
Two dies, one part	Two tooling payments, two first articles, two control plans.	Full redundancy on the part that matters most. Usually justified only for a line-stopping part.
Two dies, split by family	Tooling follows the part family. Each supplier has a coherent route.	Redundancy across the portfolio rather than on one part, at a lower total tooling cost.

The test of a second source

Ask what would happen tomorrow if your first supplier stopped shipping. If the answer involves a new die, a new first article and a customer concession, you do not have a second source - you have a second name on a list.

FREIGHT, DUTY AND INVENTORY

Landed cost is the number that competes with a domestic supplier, and it is the number most often calculated from the unit price plus a guess. Four items belong in it, and two usually do not.

Belongs in landed cost

- Unit price at the agreed Incoterm.
- Freight, insurance and terminal charges to the destination.
- Duty and any applicable trade measures, at the rate in force on the import date.
- Inbound handling and the cost of the safety stock the lead time forces you to hold.

Usually does not

- Supplier tooling, which is a one-off capital item, not a per-unit cost.
- Quality inspection at the supplier, which is already inside the unit price.

The lead time is a cost, and it is the one people forget

A longer lead time forces more safety stock and less ability to react to a demand change. That inventory carries cost, occupies space and can be obsoleted by an engineering change. Compare lead times as a cost, not as a convenience.

The shipment size assumption

Freight per part depends on how the shipment is built. A quotation that assumes a full container and an order pattern that ships pallets will not produce the quoted landed cost. State the assumed shipment size in the quotation, in writing.

Re-run the comparison when any input changes

Duty rates, freight rates and exchange rates all move. A landed cost comparison is a snapshot with a date on it, not a permanent conclusion.

THE LANDED COST MODEL, AS A LIST OF INPUTS

INPUT	WHERE IT COMES FROM	HOW OFTEN IT HAS TO BE REFRESHED
Unit price at the Incoterm	The quotation, with its assumption list.	At each price review, or when the assumption changes.
Freight and insurance	Forwarder quote for the actual shipment size, not the assumed one.	At each rate change, and before each annual budget.
Duty and trade measures	The rate in force on the import date, for the correct commodity code.	Whenever the code or the rate changes - and the code is worth verifying once.
Inbound handling	Your own receiving cost per shipment.	Annually.
Inventory carrying cost	Lead time multiplied by your cost of capital, plus space and obsolescence risk.	Annually, and whenever the lead time changes.

CHAPTER 08

CHANGE CONTROL AND REQUALIFICATION

On a drawn part, three changes always invalidate the previous first article. Two of them are obvious and one is not, and the one that is not is the one that causes recalls.

CHANGE - WHY IT INVALIDATES THE FIRST ARTICLE - WHAT HAS TO BE REDONE

CHANGE	WHY IT INVALIDATES THE PREVIOUS APPROVAL	WHAT HAS TO BE REDONE
The die is modified	Radii, clearance and pressure set the wall and the diameter. Any change moves both.	Full dimensional report and a new sectioned sample.
The material changes, including a new mill or a new heat	Drawability, springback and magnetic properties are material properties.	First article, magnetic check if applicable, and the certificate.
A process step moves, including to a subcontractor	Annealing, ironing and finishing all change the part. A different furnace is a different part.	First article, plus evidence from the new process step.
The press changes	Bed deflection and cushion behaviour change the blank holder pressure.	Setup validation and a first article sample.

The change that is missed

Moving an annealing or plating step to a different subcontractor. It is not a die change and not a material change, so it passes unnoticed - and it is the change most likely to alter the magnetic properties or the surface of a housing.

The one-page rule

Write the change control rule into the purchase agreement in one page: what counts as a change, who must be notified, how long before the change, and what evidence is required. One page, agreed at the start, prevents most of the disputes in this document.

THE ONE-PAGE CHANGE CONTROL RULE

ELEMENT	WHAT IT HAS TO SAY
What counts as a change	The four items above, plus any change of subcontractor, press or material source.
Notice period	Long enough to qualify the change before it ships. Anything shorter is a notification, not a control.
Evidence required	Dimensional report, sample parts, and any functional check the change affects.
Approval before shipment	No changed part ships before the customer approves the evidence. This is the clause that prevents the surprise.
Records	Change log, with date, reason and approval, held by both sides.

CHAPTER 09

A FIRST-PROGRAMME PLAN

The decisions happen in an order, and reversing two of them is what turns a six-month programme into a twelve-month one. This is the order.

TWELVE MONTHS, IN THE ORDER THE DECISIONS ACTUALLY HAPPEN

WHEN	DECISION	WHY IT COMES HERE AND NOT LATER
Month 1	Release the drawing for DFM, not for quotation	A DFM note changes the drawing. A quotation against a drawing that will change is wasted work for both sides.
Month 1-2	Settle the tolerance block and the measurement plan	Everything downstream - die design, control plan, first article - depends on these two documents.
Month 2-3	Qualify two suppliers against the five questions	Before tooling money is committed, because the tooling decision locks in the supplier.
Month 3	Agree tooling ownership and exit clauses	Cheapest before the purchase order, most expensive after.
Month 3-6	Die design, build and tryout	Tryout is where the blank size and the radii are settled. It needs the tolerance block, not a price target.
Month 6-7	First article and PPAP	Against the measurement plan agreed in month 2, so the report answers the questions that were asked.
Month 7-8	Pilot shipment and incoming inspection	Confirms that the measurement agreement holds across two sites, not just one.
Month 8-12	Qualify the second source by family	After the first source is stable. Qualifying a second source during ramp-up doubles the risk.

The two decisions that are usually made too late

The tolerance block, and the exit clause. Both are cheap in month one and expensive in month seven. Everything else in this table can be recovered from a delay; those two cannot be recovered at all.

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DEEP DRAWN AND STAMPED METAL PARTS, FROM TOOLING TO PPAP

Zhejiang Balford Mechatronics makes deep drawn housings, cups and shells for sensor, solenoid valve and automotive programmes, with in-house tooling, drawing, ironing and inspection.

Process

Deep drawing, redrawing, ironing, progressive die stamping, secondary machining and surface treatment.

Materials

Deep drawing steel, stainless 304 and 316L, ferritic stainless, electrical pure iron, aluminium, copper and brass.

Quality

First article, PPAP, material certificates, and IMDS data where the programme requires it.

Send a drawing

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This whitepaper

WP-03 Sourcing Drawn and Stamped Parts, edition 2026.
Contains no market data and no pricing. Companion to WP-01 and WP-02.