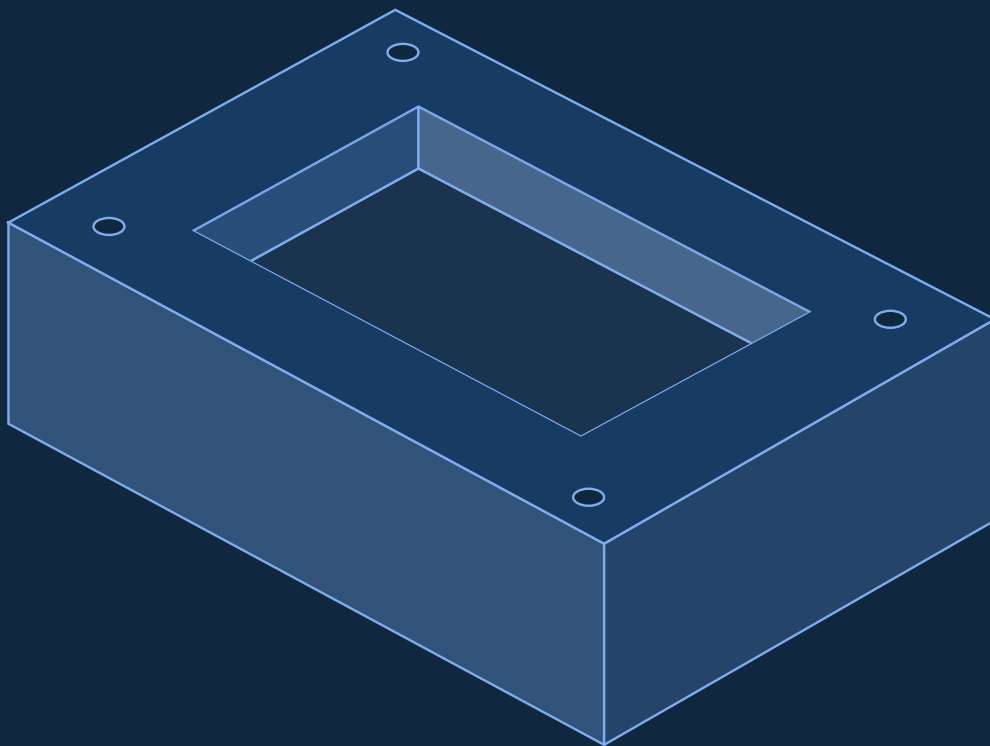


CNC Drawings & RFQs

A Practical Casebook

From incomplete requirements to
comparable quotes and a controlled handoff.



ANNOTATED DRAWINGS

WORKED CALCULATIONS

COMPLETED EXAMPLES

READER MAP

Use the case, not just the checklist

A practical guide for engineering buyers who need to understand what they are asking a machine shop to deliver.

The part, the incomplete request and its repair	03
Dimensions, tolerances, threads and tool access	06
Material, finishing and inspection decisions	12
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What is evidence, and what is a teaching assumption?

The CT-100 tray, all drawing extracts, suppliers A/B, quotes, reports and numerical examples are fictional teaching material created for this guide. They are not customer projects, measured production results or vetcnc capability promises. Dimensions are in millimeters unless stated. The example filenames identify a teaching package; CAD files are not bundled with this PDF.

Use the reasoning and information structure on your own part. Do not release the illustrated extracts as production drawings: the responsible engineer must validate function, loads, all omitted requirements and the agreed standards. Sources distinguish published scope, technical guidance and our original examples.

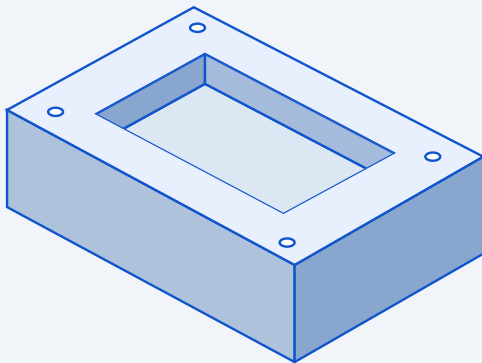
PRACTICAL ROUTE

Read pages 3-7 and 17 first. Then compare pages 19-25. Use the two blank sheets only after reviewing the completed examples; pages 32-33 are the only form-focused pages.

CASE FOUNDATION

Meet CT-100: a small equipment tray

The same part follows the journey from an ambiguous request to a documented sourcing decision.



CT-100 / EQUIPMENT TRAY

Four cover threads
Pocket for a removable insert
Bottom face seats on a fixture

Nominal envelope: 100 x 70 x 22 mm

Pocket: 70 x 40 x 14 mm

Assume a small indoor instrument uses a removable insert inside a machined tray. A lid is retained by four corner screws; the underside sits on a fixture. The insert needs clearance, not a press fit. This functional story is the starting point: it tells the buyer which information must remain stable when a supplier proposes a cheaper manufacturing route.

Case decision	Defined teaching basis
Identity and order	CT-100, released revision B; request 25 / 100 / 500 pieces. The main comparison uses 100.
Stock and state	6061-T6 plate, ASTM B209/B209M-21a reference, mill material report linked to the stock lot. No automatic substitution.
Delivered condition	Machined and deburred, no coating in the base quote. A black-anodized version is a separate, unresolved option.
Functional priorities	Pocket clearance, usable cover threads, an undamaged seating face and readable revision/evidence records.

This is a communication case, not a structural design. Screw pullout, cover sealing, electrical grounding, fatigue, service temperature and regulatory suitability are outside its verified scope. If any becomes part of the real duty, it changes the requirements before quoting.

FIRST USEFUL QUESTION

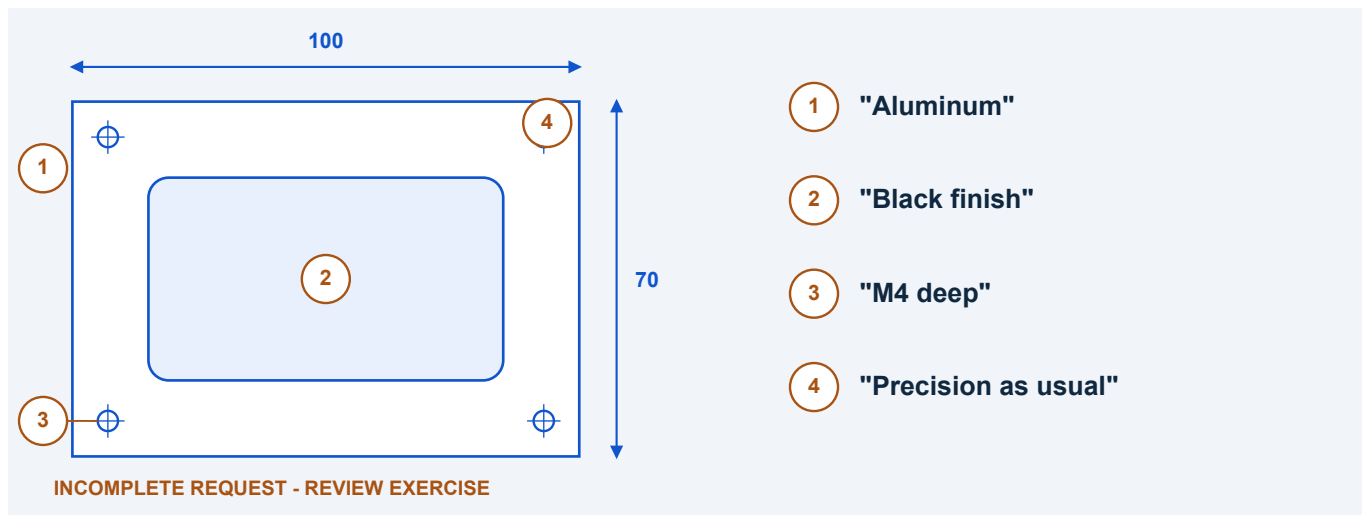
Which failure would stop this part working in the assembly? Ask that before applying a tight tolerance to every surface.

Sources: [07] ASTM International

01 / FIND THE MISSING DECISIONS

The incoming request looks plausible

An attractive model can still leave material, acceptance and delivery requirements undefined.



WORKED WORDING

"Please quote 100 aluminum trays like the model. Black finish. M4 holes as shown. Precision as usual, smooth everywhere. Need them quickly."

A supplier could reasonably price several different jobs from this note: a machined part or a coated part; a stated alloy or a substitution; usable blind threads or just a nominal hole representation. The request does not say whether dimensions apply before or after treatment, what records accompany the parts, or when the delivery clock starts.

Read in three passes

- **Identity:** Can you name the controlling model, drawing, revision and units without opening an email chain?
- **Acceptance:** Could two competent inspectors determine the same required condition from the supplied information?
- **Commercial scope:** Could two suppliers quote the same quantity, treatments, evidence and delivery boundary?

Do not solve missing requirements by inventing defaults for the customer. Separate a missing design decision from a missing supplier answer. The next page turns this request into an issue register, so each uncertainty has an owner and a closure action.

02 / ANNOTATED REVIEW REGISTER

Turn vague language into closeable issues

A review comment is useful when it identifies a consequence and a specific decision, not only an imperfection.

Incoming wording	Why it changes the job	Closure for CT-100
Aluminum	Grade and stock condition affect the intended material definition.	Designer specifies 6061-T6 plate and the purchasing reference. Supplier confirms availability.
Black finish	Appearance does not define process, masking or dimensional effects.	Base order is explicitly uncoated. Request the coated version only as a separate option.
M4 deep	Pitch, fit class and complete thread length are not established.	Define M4 x 0.7-6H, 8 MIN complete thread, 14 MAX total hole depth.
Precision as usual	A supplier default may not protect the assembly interface.	Apply selected limits in the revision-B requirement schedule; review omitted geometry.
Smooth everywhere	No surface, parameter or limit is identified.	Identify only the functional texture need; keep visual requirements separate.
100 parts quickly	Need date, ship date and approval dependencies differ.	Request a production start trigger, ship proposal and transit allowance.
Model attached	Filename alone does not establish revision authority.	Issue model, drawing and register together; resolve conflicts before release.
Quality certificate	Could mean a declaration, a material report or actual measurement results.	Name the required documents and link them to the part / revision / lot.

The buyer owns commercial dates and quantities. The design authority owns function and changes to the technical requirement. The supplier owns confirmation of its proposed process, price and evidence scope. Do not let one unanswered question disappear into an overall "accepted" email.

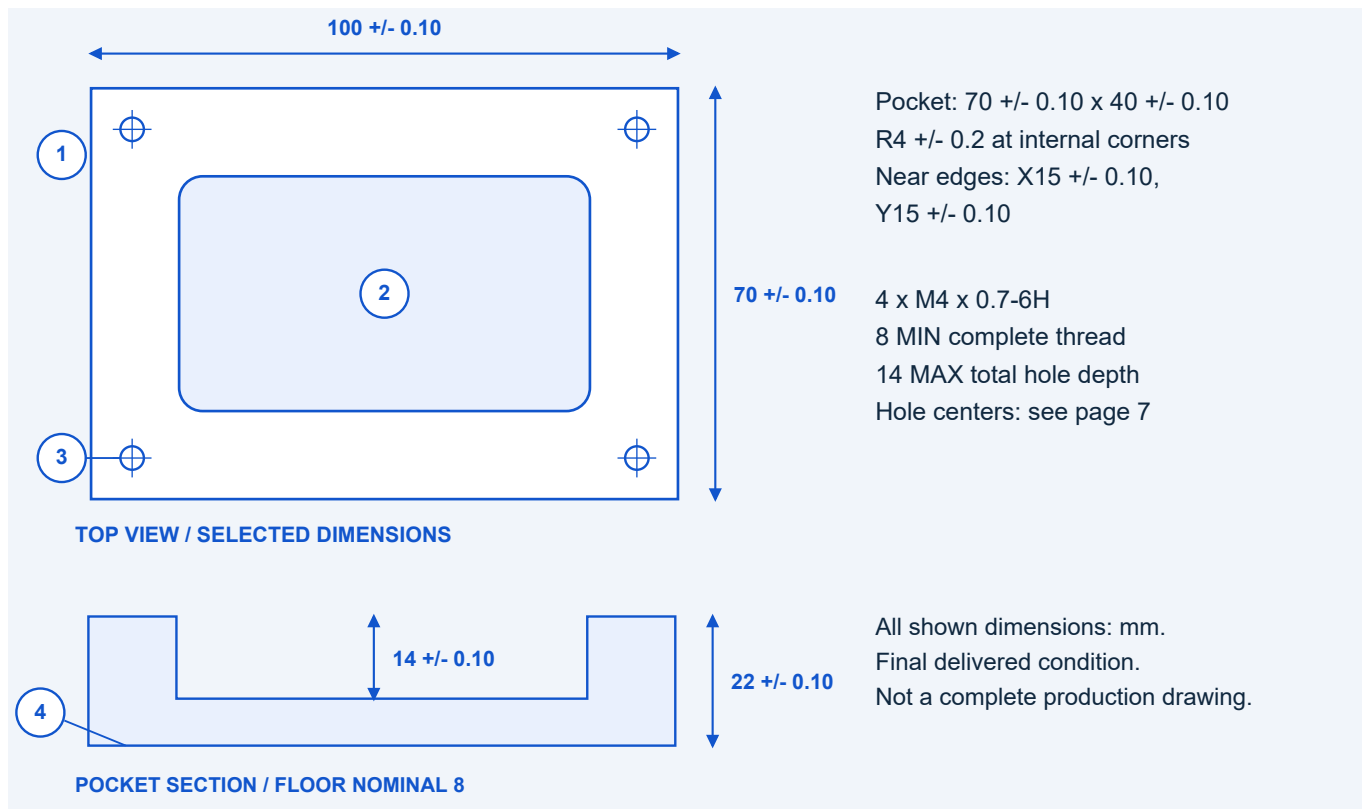
CLOSURE TEST

A third person should be able to read the final record and know what was decided, by whom, and in which revision it became effective.

03 / ORIGINAL ANNOTATED GEOMETRY

The repaired drawing extract

This extract gives selected dimensions and feature references for the worked case; it is not a complete manufacturing release.



The top view shows the pocket and four cover-thread positions. The pocket section is taken through the center, not through the corner threads. Numbered balloons are review references, not a substitute for a complete feature-control scheme. The schedule on page 7 records the requirements that the quotation and inspection plan must reference.

Nominal side material around the pocket is 15; nominal floor thickness is 22 - 14 = 8. These are geometric consequences, not independent tolerances to add blindly to the drawing. If minimum remaining material is functional, check the worst-case dimensions and the real corner/edge geometry explicitly.

WHAT IMPROVED

The request now distinguishes outside size, cavity geometry and usable thread from tool travel. It also declares the delivered condition. Before actual release, complete the missing drawing details and have the responsible engineer review the full model / drawing agreement.

04 / THE COMMON QUOTATION BASELINE

A completed requirement schedule

Treat this as a worked example of traceable requirements. The supplier must acknowledge the same revision and scope.

ID / requirement	CT-100 revision B	What to verify
F01 / envelope	100 +/- 0.10 x 70 +/- 0.10 x 22 +/- 0.10.	Identify size limits and the final, uncoated condition.
F02 / pocket	70 +/- 0.10 x 40 +/- 0.10; depth 14 +/- 0.10; internal R4 +/- 0.2. Near edges X15 +/- 0.10, Y15 +/- 0.10.	Cavity size, depth and corner compatibility with the insert. X/Y originate at the left/front outside edges in the top view.
F03 / cover threads	4 x M4 x 0.7-6H; 8 MIN complete thread; 14 MAX total hole depth.	All four positions and usable thread length; do not report only a tap setting.
F03 / locations	Centers (X,Y): (7,7), (93,7), (93,63), (7,63); each coordinate +/- 0.10.	These coordinate limits are a teaching choice, not a universal hole-pattern tolerance.
F04 / seating face	Bottom face flatness 0.05 in the free state.	Form of the defined face; flatness is not a location dimension or a datum-referenced orientation control.
F05 / pocket floor texture	Ra 3.2 micrometers MAX; evaluation details to be agreed in the inspection plan before release.	Surface location, texture parameter, units and suitable access / method.
F06 / condition and edges	Uncoated base; no loose burrs. Nonfunctional external edges: break 0.2-0.4; other edges reviewed by feature.	No uncontrolled rounding of mating edges or an assumed finishing allowance.

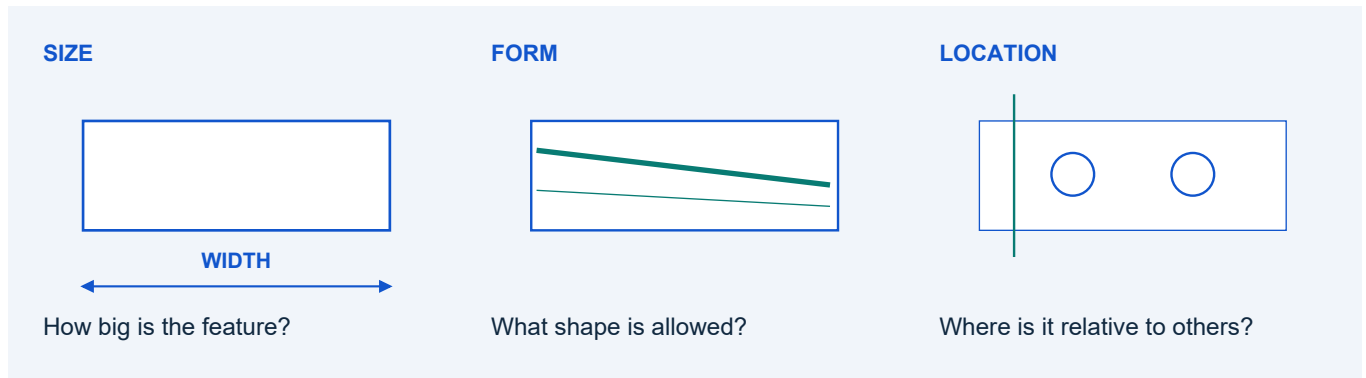
A precise number does not close every question. F05 still needs the agreed evaluation procedure, and any geometry absent from this extract needs its own complete definition. The simulated quotations assume the full revision-B package and those release questions have been closed; this page alone is not that package.

Keep this requirement list tied to the drawing. Copying selected limits into an email without an ID or revision can create a second, conflicting specification. When a requirement changes, update the controlling record and all affected quote / inspection references.

05 / INTERPRET THE REQUIREMENT

Size, form and location do different jobs

A tighter plus/minus number does not automatically control all the ways a feature can fail to assemble.



A pocket can meet its width limit while being in the wrong place. A seating face can have the right nominal height while being distorted. For CT-100, the pocket dimensions describe its size and position; the bottom-face flatness requirement describes form. A full design may also need orientation and location controls tied to functional references.

Start from contact, then choose the reference scheme

Ask which face seats first, which feature locates the assembly laterally, and which feature prevents rotation. Show those interfaces to the designer and inspector. They can then define the actual datum system and controls. A convenient machining edge is not necessarily the correct functional reference. Do not use informal A/B/C stickers as if they were a completed GD&T; specification.

Common shortcut	Better review action
"Use +/- 0.01 everywhere."	Identify the functions that need that control, the affected size range and whether the intended requirement is size, form, orientation or location.
"ISO 2768" with no context.	Confirm the part, edition, class and scope actually intended; do not assign one fixed tolerance to every dimension.
Replace an old title-block note automatically.	ISO 2768-2 is withdrawn, but migration to ISO 22081 requires a review of the specification scheme, not a blind text substitution.

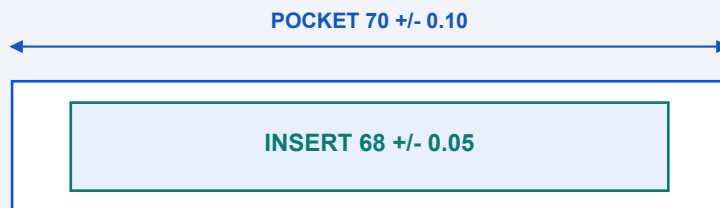
STANDARDS DISCIPLINE

Use the project's agreed ASME or ISO framework consistently. Public catalogue records identify scope and status; they are not enough to certify a drawing as compliant.

06 / WORKED TOLERANCE ARITHMETIC

Calculate the clearance you actually need

One-dimensional worst-case checks are useful screening tools, but they do not replace a complete assembly analysis.



Gap is shared between two sides.
A total gap is not a guaranteed minimum on each side.

Assume the insert length is 68 ± 0.05 and the pocket length is 70 ± 0.10 in the same delivered state. Treat their size limits independently for this simple worst-case calculation. We are calculating total end clearance, not centering, angular misalignment, corner interference or an individual side gap.

Calculation	Result / interpretation
Minimum total clearance	$69.90 - 68.05 = 1.85 \text{ mm.}$
Maximum total clearance	$70.10 - 67.95 = 2.15 \text{ mm.}$
If perfectly centered	Minimum clearance would be $1.85 / 2 = 0.925$ per end. The design does not automatically keep the insert centered.
Minimum floor from size limits	Minimum height 21.90 - maximum pocket depth $14.10 = 7.80 \text{ mm.}$ Local form and the actual geometry need separate review.

For a chain of three independent dimensions each limited to ± 0.10 , the worst-case sum can vary by ± 0.30 . Root-sum-square would give about ± 0.173 , but treating that as a guaranteed limit is unjustified without a defensible statistical model and process evidence. A shorter, function-based dimension chain can be more useful than merely tightening all three values.

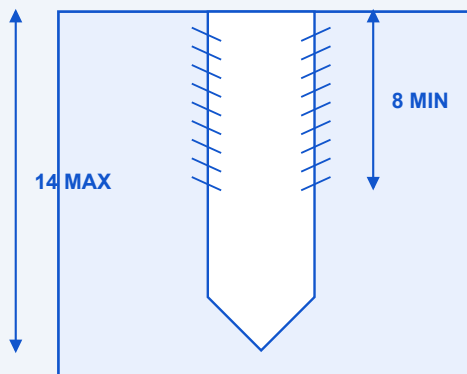
USE THE RESULT TO ASK A BETTER QUESTION

If 1.85 mm total clearance is sufficient, ask whether the selected pocket tolerance is justified by another function. If not sufficient, change the approved geometry or tolerance allocation; do not hope that all parts will land at nominal.

07 / BLIND-THREAD EXAMPLE

Separate usable thread from drilled depth

Three quantities matter: complete thread length, actual screw engagement and the total hole envelope.



SCHEMATIC / NOT TO SCALE

Complete thread

Usable full thread, not tap-tip travel.

Unthreaded allowance + drill tip

Chosen for the actual tool and process.

Total hole envelope

Must stay inside the permitted depth.

The case requires four M4 x 0.7-6H internal threads, 8 MIN complete thread and 14 MAX total hole depth. Pitch and internal-thread tolerance class belong in the thread designation. The entry, runout and drill tip are not interchangeable with the usable full-thread length. Tool selection must make the required thread inside the permitted material envelope [08].

An assembly check with explicit assumptions

Suppose a screw has 12.0 mm under-head length and the cover plus washer occupies 5.0 mm. Nominal penetration is $12.0 - 5.0 = 7.0$ mm. Comparing 7.0 with 8 MIN complete thread is only an axial screening check: review screw-length tolerance, stack tolerance, thread starts, tip form and the actual internal clearance before deciding it cannot bottom out.

Engagement strength is a separate design problem. Material, load, repeated assembly, insert choice and failure mode govern it. The case does not claim that 7 or 8 mm is a generally safe engagement for M4. A supplier can confirm how it will manufacture and inspect the specified thread; that does not substitute for the customer's joint-strength calculation.

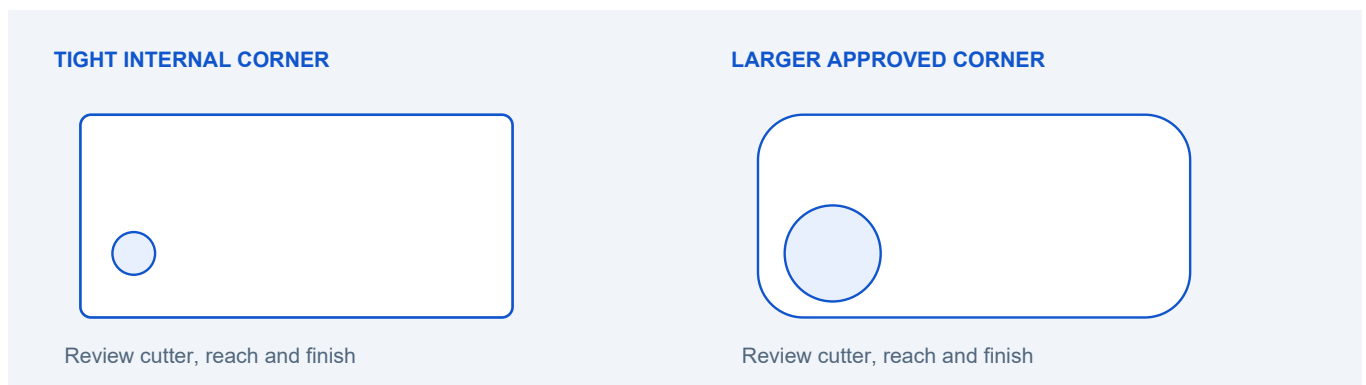
ASK FOR THE RIGHT EVIDENCE

A GO/NO-GO result addresses the thread characteristic being gauged. Agree separately how minimum complete length and maximum total depth will be verified. A screw that turns in is not a complete inspection report.

08 / TOOL ACCESS AND SETUP

Allow useful DFM proposals, not silent edits

A quotation can improve when the supplier is allowed to propose a change, provided the protected function stays explicit.



The CT-100 pocket has an internal R4. A supplier proposes R5 to suit its tool path. That proposal is not automatically better, worse or acceptable. Compare it against the insert corners, required volume and local wall geometry. A larger radius may permit a different cutter, but cost also depends on reach, tool engagement, finish, setup and the supplier's actual process.

Change request	Keep fixed	Evidence to request
Internal corner R4 to R5	Insert compatibility and minimum clearance.	Marked-up changed geometry, mating check and separate revised price / schedule.
Stepped rather than uniform pocket depth	The insert support and required envelope.	Which regions change, where contact remains and how cleaning/access are affected.
Different stock or setup route	Released material and final requirements.	Any effects on stock evidence, surface marks, distortion and inspection state.

Workholding belongs in the discussion. If the part is measured while restrained, a good result can hide movement after release. Define protected surfaces and the allowed inspection state; avoid prescribing a fixture layout unless the function requires it. Carr Lane's support principles are useful here, but they do not establish a ready-made fixture for this tray [12].

REUSABLE APPROVAL WORDING

"Quote revision B as the base. List geometry alternatives separately with a marked-up view, functional effects, price and timing. Changes require an updated, approved release."

Sources: [12] Carr Lane Manufacturing

09 / MATERIAL EVIDENCE

Specify a material, then verify its identity

The purchasing description and the delivered material record must describe the same product, not just a similar alloy name.

Weak description	Improved CT-100 example	Why it helps
"Aluminum"	6061-T6 plate; ASTM B209/B209M-21a purchasing reference; no substitution without approval.	Adds alloy, condition and product form. The selected product specification must match the actual stock.
"Certificate required"	Mill material report identifying alloy / temper and stock lot; maintain a link from the report to this production lot.	A generic catalogue sheet does not identify the metal used in your parts.
"Equivalent is OK"	Supplier must identify proposed alternative grade, condition and governing specification for engineering review.	A similar trade name alone does not establish equivalent performance or acceptance.

Read the evidence in a chain

Start with the ordered material requirement. Match it to the supplier's stock purchase record and the mill report. Then check the lot identifier carried into the machining traveler or production record. Finally, check that the delivery documents identify the part, revision, quantity and applicable lot. A broken link anywhere leaves the actual stock identity uncertain.

ASTM B209/B209M is a sheet-and-plate specification [07]; do not cite it indiscriminately for a bar, forging or casting. The case's 6061-T6 selection is a teaching assumption, not a recommendation for every tray. Thickness-dependent availability, service conditions and required properties still need review. Do not copy a strength value from an unrelated product form into the purchase specification.

IF STOCK IS UNAVAILABLE

Ask for the exact proposed alternative and its evidence before approving. Separate a material substitution from a harmless process-route change: they need not have the same decision owner or verification burden.

10 / FINAL-CONDITION CONTROL

Make finish and texture separate decisions

The base CT-100 quotation is uncoated. A black-anodized variant is a separate option until its specification is approved.



In the diagram, g means a uniform net outward growth at one surface. If a shaft is 10.000 and g is assumed to be 0.010, its diameter becomes 10.020. The same growth into a 10.000 bore would leave 9.980. This arithmetic is not an anodizing thickness-conversion rule: pretreatment removes material and oxide growth includes conversion of the substrate. The actual process must supply the dimensional allowance [09].

Question	A useful instruction or review outcome
What is the process?	For an option, request the exact treatment specification, class/type, thickness range, color, sealing and appearance acceptance. Do not release "black finish" alone.
Where does it matter?	Mark threads, mating contacts and other protected surfaces. Agree masking and contact/racking locations when function or appearance requires it.
Which condition is accepted?	State final limits after all operations; confirm whether the required texture is pre-treatment or delivered-state.
What does "smooth" mean?	For F05, name the pocket floor and Ra 3.2 micrometers MAX. Agree measurement/evaluation settings; keep visual acceptance separate.

A texture parameter is not a color or gloss specification. A photograph may help communicate appearance, but it does not define the measurement method for Ra. ISO 21920-1 addresses indication of profile-based surface texture [06]; citing its number alone does not finish the inspection plan.

KEEP THE TWO QUOTATIONS COMPARABLE

If one supplier includes coating and another prices an uncoated part, they are not competing on the same deliverable. Price the same approved variant first; show an optional finish on a separate line.

11 / FROM FEATURE TO VERIFICATION

An inspection plan with actual entries

This is a proposed teaching plan for the 100-piece case, not a universal sampling standard or a ready-to-use acceptance contract.

Feature	Proposed check	Record / state
F01 / outside sizes	Suitable calibrated dimensional method; verify resolution, contact access and uncertainty.	Actual results for the defined size limits; final clean, uncoated part.
F02 / pocket	Coordinate or other validated method for width / length / location; depth measurement at defined locations.	Actual values and the selected measurement locations. Confirm the corner shape against the model.
F03 / threads	Appropriate thread gauges plus an agreed complete-length check and total-depth check.	All four threads identified; record method and any failures, not only "thread OK".
F04 / seat flatness	Defined surface sampling and evaluation in a documented free-state setup.	State the evaluated surface and method; a few unspecified contact points do not establish the full result.
F05 / floor texture	Suitable profile method with access and evaluation settings agreed.	Parameter, units, settings, trace locations and actual result.
F06 / edges and cleanliness	Feature-specific visual / dimensional check as needed.	No loose burrs; protected edges checked against the released requirement.

For this mock RFQ, record F01-F06 on parts 001-005, then F01, F02 and F04 on parts 010, 020, 030, 040, 050, 060, 070, 080, 090 and 100. Check F03 and visible burr/cleanliness condition on all 100 parts. Retain part IDs with the results. This illustrative negotiated scope is not a statistically validated acceptance plan or a guarantee of every unmeasured feature.

If a check fails, stop the affected release, identify the suspect interval and agree containment, reinspection and disposition. Do not average an out-of-limit result away. Agree escalation for a tool change, setup change or material-lot change; sampling that ignores those events may miss the actual source of variation.

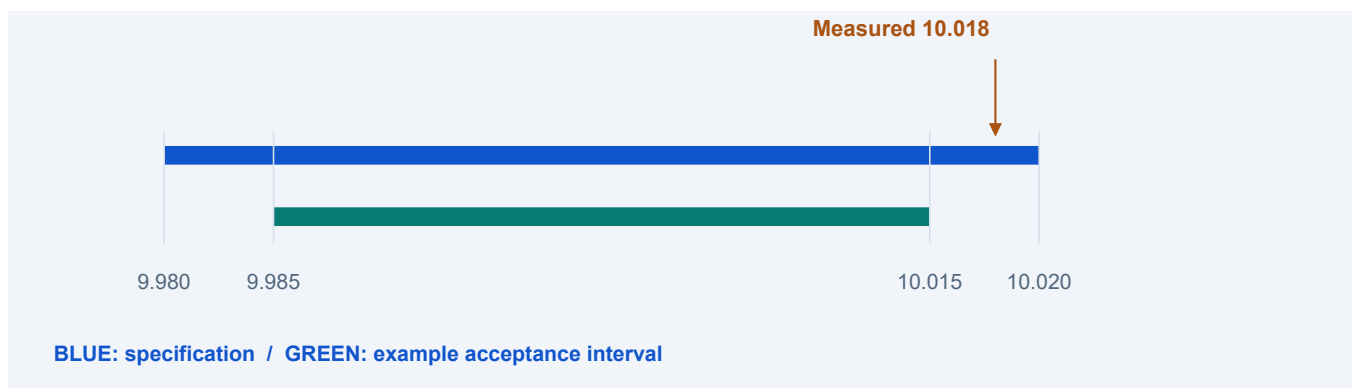
USEFUL BUYER REQUEST

Ask the supplier to confirm feasibility and price for this exact inspection scope, or identify a justified alternative before the order is placed.

12 / MEASUREMENT UNCERTAINTY

A number near the limit needs a rule

A result is not more trustworthy merely because an instrument displays more decimal places.



Separate teaching example: a feature has specification limits 9.980 to 10.020 mm. Assume a measurement result of 10.018 mm and expanded uncertainty $U = 0.005$ mm, with a stated coverage factor $k = 2$. The result lies inside the specification, but its stated uncertainty interval extends to 10.023 mm.

Agreed decision rule	Result for this example
Simple acceptance at the limits	10.018 lies within 9.980-10.020, so it is accepted under that rule. This does not remove measurement decision risk.
Illustrative guard band of one U	Acceptance interval becomes 9.985-10.015. The same result is not accepted under this rule; that does not prove the true size exceeds 10.020.

ILAC G8 explains decision rules and guard bands [11]. Agree the applicable rule before inspection; do not choose a different one after seeing an inconvenient reading. The numerical example is original and does not prescribe a guard band for every purchase. A claimed coverage probability also depends on the uncertainty evaluation, not just writing $k = 2$.

Do not forget temperature

NIST identifies 20 degrees C as the dimensional reference temperature [10]. With an assumed expansion coefficient of $23 \times 10^{-6} /K$, a 100 mm length changing by 5 K changes by 0.0115 mm. That assumed coefficient is not a certified property of this stock. Record relevant temperature and stabilization conditions, and evaluate uncertainty rather than blindly correcting with a generic material number.

Sources: [10] NIST | [11] ILAC

13 / MODELS, DRAWINGS AND REVISIONS

Build a file package that survives handoff

A readable file, a correct unit system and a consistent release are three separate checks.

Teaching filename / revision	Role in the example package
CT-100_RevB.step	Exchanged solid geometry. Verify import, units, bodies and required PMI with the recipient.
CT-100_RevB_Drawing.pdf	Controlling feature requirements and notes, coordinated with the model and approved package authority.
CT-100_RevB_Requirements.pdf	Material, delivered condition and any supplementary acceptance details.
CT-100_RevB_InspectionPlan.pdf	Feature IDs, methods, sampling and evidence scope agreed before release.
RFQ-CT100-01_Register.pdf	Lists the exact files sent, revisions, quantity breaks and unresolved questions.

These filenames illustrate a package; they are not downloadable attachments hidden in this PDF. In a real job, use your controlled naming convention and do not rely on a folder called "final". Remove obsolete alternatives from the outgoing package or mark their status unambiguously.

Three checks before the supplier programs the part

- **Open it:** confirm that the target system reads the intended solid(s). NIST's STEP tools can examine entities, PMI and validation properties [01]; a successful check is not design approval.
- **Check scale:** if a 100 mm envelope appears as 3.937 inches, compare units before concluding geometry changed. A 25.4 scale discrepancy is a diagnostic clue, not permission to rescale automatically.
- **Resolve conflict:** if the model shows depth 14 and the drawing says 12, stop the affected release and obtain one approved definition. Do not assume a universal model-versus-drawing priority.

KEEP GEOMETRY AND VISUALIZATION DISTINCT

A tessellated viewing file may be helpful for review, but ask whether it is suitable for the intended manufacturing workflow. Confirm format and version support rather than assuming that every CAD export carries the same information.

14 / FILLED EXAMPLE, NOT ANOTHER BLANK FORM

The completed RFQ: CT-100, revision B

This brief references a complete teaching package; its inspection and unresolved drawing details are assumed closed before the offers are compared.

RFQ item	Filled example
Part and quantities	CT-100 equipment tray, revision B. Quote 25 / 100 / 500 pieces separately. Main evaluation: 100 pieces in one delivery.
Material and finish	6061-T6 plate, ASTM B209/B209M-21a reference. Uncoated, deburred and cleaned base. No substitutions without written approval.
Critical information	F01-F06 in the released drawing / requirements package. Cover-thread usable length, pocket fit and free-state seating face must be preserved.
Required evidence	Stock-linked mill report; dimensional / texture results and thread checks to the agreed inspection plan. Delivery documents identify part, revision and lot.
Timing	Quote requested within 3 business days. Arrival target: day 25 from the start of release review, including its two-day allowance. Confirm the actual calendar dates.
Commercial boundary	USD; one lot packed for shipment to the stated buyer destination. Separate freight. Identify excluded taxes, duties and payment assumptions.
Requested alternatives	Black-anodized version may be proposed separately after its specification is resolved. Do not replace the uncoated base with that option.
Change control	List all exceptions and DFM proposals with affected feature IDs. No geometry, material or finish change without approval.

In a real RFQ, replace the relative timing with the relevant dates and supply the exact delivery address through the approved channel. A destination is necessary for a defensible freight quote; a generic country name may not be enough. Separate forecast repeat demand from a committed purchase quantity.

WHAT THE SUPPLIER SHOULD SEND BACK

A referenced offer with revision, quantity, currency, included work, separately charged work, exceptions, production start trigger, proposed ship timing, delivery assumptions and validity.

15 / WORKED ENGINEERING CORRESPONDENCE

A clarification exchange that closes a gap

The purpose of the log is to turn a question into a traceable decision, not to create more paperwork.

Record	Worked entry
Q-01 / supplier question	"For CT-100 Rev B, may we use R5 instead of R4 in the pocket? Please confirm the mating insert corner geometry."
Designer response	"No change approved. Retain R4 +/- 0.2 for the base offer. An R5 option may be reviewed separately with the insert model and clearance check."
Q-02 / buyer question	"Does your quoted inspection include complete thread length and all four positions, or only a fit-gauge check?"
Supplier response	"Fit gauging is included. We will add the agreed length/depth method and identify it in the revised inspection scope before release."
Q-03 / scope question	"Your offer states black finish, but our base RFQ is uncoated. Which variant has been priced?"
Supplier response	"Base quotation revised to uncoated, deburred and cleaned. The coating option is excluded pending its separate definition."

Each response must point back to the controlling revision or an approved exception record. "Discussed on the phone" is not enough to tell the next shift what to make. Keep a distinction between acknowledgement, technical approval and commercial acceptance: they can be made by different people.

Close with a three-line decision record

WORKED WORDING

Issue: Q-02, thread verification scope.

Decision: approved method and sampling added to the inspection plan referenced by the final quote.

Closure: buyer technical owner and supplier confirm the updated document reference before production release.

If agreement cannot be reached, retain the open item and ask for the effect on price or timing. Do not mark an entire RFQ approved while leaving a critical exception buried in an attachment.

16 / MOCK QUOTATION A

Offer A: why the low headline is incomplete

Fictional supplier and numbers for comparison practice. This is not a vetcnc offer or a market price benchmark.

Offer A, as first received	What the buyer should notice
100 pieces x USD 28.00 = USD 2,800	The headline covers machined pieces, not every required delivery item.
Setup / programming: USD 240 per lot	A one-time-looking charge can recur on each release; ask when it applies again.
Inspection report: not included	The requested evidence is a cost and scope gap, not a free assumption.
Deburr / clean: to be confirmed	The base RFQ requires this final condition. It must be clarified, not deleted to match the price.
Shipping extra; lead time 10 days	Neither delivered cost nor end-to-end lead time is established. What work is in the 10 days?
6061 or equivalent; shop tolerances	Substitution and tolerance defaults conflict with the specific revision-B request unless explicitly resolved.

At this stage A is not eligible for a like-for-like price ranking. The correct action is not to estimate away the missing scope. Ask the supplier to confirm the requested stock identity, F01-F06 and the inspection plan, then issue a revised offer with the missing charges and time included.

A useful clarification request

WORKED WORDING

"Please reissue Offer A against CT-100 Rev B without material substitution or shop-default overrides. Confirm all requested evidence and final deburr/clean condition. Add any charges, and split the stated 10 days into the work it covers and the work it excludes."

Keep the original and revised offers for traceability. A changed total is not necessarily a surprise charge if the original request or response omitted work; the aim is to make that work explicit before committing.

17 / MOCK QUOTATION B

Offer B: more complete is not self-proving

A well-organized offer still needs its attachments, exceptions and delivery assumptions checked.

Offer B, as received	Buyer verification
100 pieces x USD 31.00 = USD 3,100	Includes setup, deburr/clean and the referenced inspection scope. Confirm each inclusion in the offer, not only in a sales email.
6061-T6 plate; no substitution	Match the purchasing reference and material evidence to the RFQ.
CT-100 Rev B / F01-F06 acknowledged	Confirm the actual received drawing / model filenames and the approved inspection-plan reference.
Packing included; freight USD 140	Confirm the same destination, shipment size and delivery boundary as Offer A.
Production: 15 business days from release	Includes manufacturing, completion and inspection. Transit and pre-release approvals are separate.
Validity and payment: stated in final offer	Check whether lead time, quote validity or commercial conditions change when the order is finally placed.

Do not infer a quality-system certification, process capability or production capacity from the completeness of a quotation. Verify any credentials actually required for the project, including scope and current validity. A supplier can write a clear offer and still lack the process or inspection route your part needs.

Use an inclusion matrix, not a marketing comparison

For each mandatory requirement, classify the answer as INCLUDED, EXCLUDED, EXCEPTION or OPEN, with a document reference. "Can do" is not as useful as an acknowledged requirement and an agreed verification route. Do not average a critical OPEN item into a numerical score and declare the offer acceptable.

BEFORE RANKING

Both suppliers must first quote the same released job. The next page records the specific assumptions needed to make the numerical comparison meaningful.

18 / CLOSE THE QUOTE BASIS

The written answers establish comparability

These are assumed responses in the teaching scenario, not verified statements from real suppliers.

Question closed	Revised A	Confirmed B
Material and revision	6061-T6 plate; Rev B / F01-F06 acknowledged; no substitution.	Same released definition and stock requirement.
Inspection and reports	Agreed scope confirmed: + USD 180. No remaining method exception.	Same scope included in unit price.
Deburr and clean	Required delivered condition: + USD 200 per lot.	Included in unit price.
Setup / programming	USD 240 per lot; repeat-charge condition documented.	Included for this quoted lot.
Packing / freight	Packing included; freight USD 120.	Packing included; freight USD 140.
Time basis	10 machining + 4 completion/queue + 1 inspection business days after release.	15 business days production, including completion and inspection.
Common exclusions	Taxes, duties, financing and buyer receiving work excluded from the comparison.	Same exclusions; actual applicability still to be reviewed.

Assume both written offers now cover the same part, quantity, delivered condition, evidence and destination; transit is assumed to be five business days in each case. The comparison can proceed on that basis. If a supplier instead retains a material or feature exception, keep its offer in a separate alternative column until the exception is approved.

An assumed inclusion must not remain an assumption in a real purchase. Obtain a revised document or an explicit incorporated clarification. Retain the offer ID, date and validity. If a price changes after a drawing revision, compare the new offers again rather than carrying forward an old ranking.

STOP CONDITION

If a critical item cannot be confirmed, stop price ranking for that variant. A precise total built on unresolved technical scope is still an unreliable comparison.

19 / REPRODUCIBLE COST COMPARISON

Normalize the total, not just the unit price

All amounts are fictional USD values. The calculation includes only the common scope established on page 21.

Cost line for 100 pieces	Revised A	Confirmed B
Machined piece / included package	100 x 28.00 = 2,800	100 x 31.00 = 3,100
Setup / programming	240	0 additional - included
Agreed inspection / reporting	180	0 additional - included
Deburr / clean	200	0 additional - included
Packing	0 additional - included	0 additional - included
Freight to the same destination	120	140
Comparable subtotal	3,540	3,240
Subtotal / 100 ordered pieces	35.40 per piece	32.40 per piece

A: $2,800 + 240 + 180 + 200 + 120 = 3,540$. B: $3,100 + 140 = 3,240$. On this stated basis, B is USD 300 lower despite a USD 3 higher headline unit price. The difference is an arithmetic result from the case, not a prediction of a supplier's efficiency.

Check the denominator and boundary

The per-piece figures divide by ordered quantity and assume all 100 pieces become acceptable deliveries without additional cost. If rejection, replacement, sorting, split shipment or extra receiving work occurs, record actual costs and accepted quantities separately. Do not assign a made-up defect rate to make one supplier look better.

This subtotal is not a complete landed-cost analysis. Taxes, duties, financing, exchange effects and buyer receiving work remain outside the model. State exclusions alongside the result. If an excluded cost differs materially between offers, the current comparison is incomplete and needs another line.

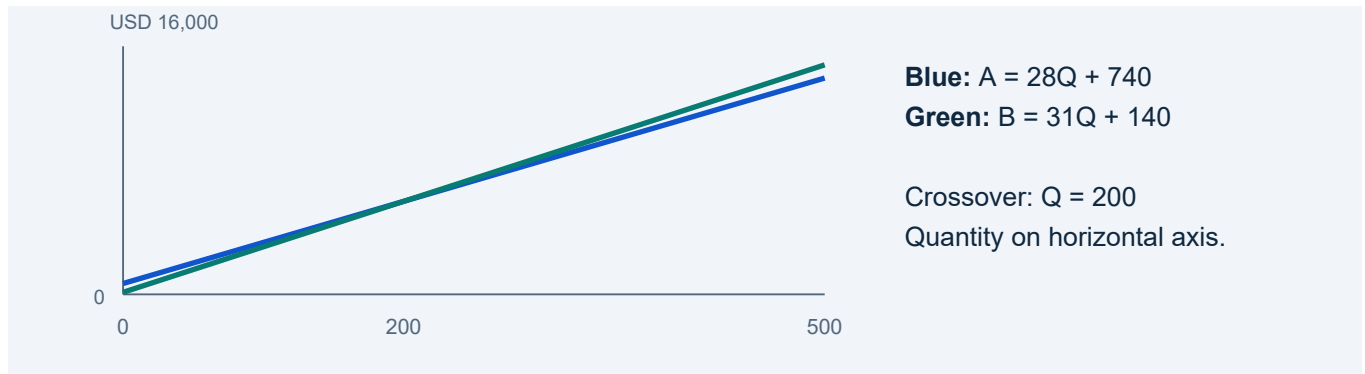
A ZERO IS A CONCLUSION

Use zero only when the supplier confirms that the item is included or not applicable. Unknown is not zero. Check that no item is added twice under different names.

20 / SENSITIVITY, NOT A UNIVERSAL PRICE CURVE

Quantity can reverse the ranking

Hold the teaching prices and lot charges fixed only to examine the arithmetic. Actual quantity breaks must be requoted.



Quantity Q	$A = 28Q + 740$	$B = 31Q + 140$
25	1,440 total / 57.60 each	915 total / 36.60 each
100	3,540 total / 35.40 each	3,240 total / 32.40 each
200	6,340 total / 31.70 each	6,340 total / 31.70 each
500	14,740 total / 29.48 each	15,640 total / 31.28 each

Set $28Q + 740 = 31Q + 140$. Then $600 = 3Q$, so the model crosses at $Q = 200$. Below 200, B has the lower modeled subtotal; above 200, A does. This does not establish which supplier is actually cheaper at 500, because unit pricing, inspection effort, finishing-lot fees, packing and freight may all change with quantity.

There is another trap: ten releases of 100 are not automatically the same purchase as one release of 1,000. If A's USD 740 charges recur each release, the simplified ten-release total is $10 \times 3,540 = 35,400$; a one-release model gives $28,000 + 740 = 28,740$. The USD 6,660 difference is entirely conditional on those charges being avoidable. Inventory, storage and demand risk are not included.

ASK FOR THE COMMERCIAL STRUCTURE

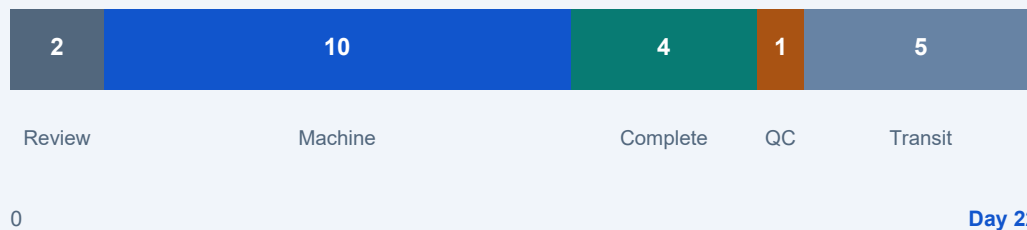
Request pricing for the actual lot sizes and release pattern, including which charges repeat. Do not use the crossover model as an argument that a supplier must honor an unquoted volume price.

21 / END-TO-END SCHEDULE

A ten-day quote may take twenty-two days

The headline production number becomes useful only when its start trigger, included work and transit are clear.

BUSINESS-DAY TEACHING SCHEDULE / NO OVERLAP ASSUMED



Stage / assumed business days	What closes the stage
Release review: 2	All technical questions resolved, released files acknowledged, and commercial prerequisites met.
A machining: 10	Machining covered by the headline offer completed; this is not yet arrival.
Completion / queue: 4	Deburr, clean and any agreed queue allowance completed. No coating is included in the base case.
Inspection / dispatch preparation: 1	Required checks, report review and shipment release completed.
Transit: 5	Teaching allowance only; actual transport and border delays are not guaranteed.

Total for A is $2 + 10 + 4 + 1 + 5 = 22$ business days. B's 15 production days include the middle three stages, so $2 + 15 + 5$ is also 22. A's headline 10 and B's headline 15 do not demonstrate a five-day delivery advantage.

This timeline assumes no overlapping stages and aligned business-day calendars. The RFQ requests arrival by day 25, leaving a modeled three-day margin. That margin is not a guaranteed contingency allowance: agree the actual holiday calendars, start event, approval deadlines, transport route and notification rules. A late release or reopened technical question moves the schedule.

WRITE A VERIFIABLE DATE PROMISE

Ask for a proposed ship date and delivery assumption tied to an explicit release event. If the buyer must approve a first article before the remaining lot, put that hold point and response time into the schedule.

22 / WORKED SOURCING DECISION

Make an evidence-based selection memo

An offer becomes eligible through technical and commercial closure. A score cannot repair a missing requirement.

Decision gate	CT-100 teaching conclusion
Same released deliverable?	Yes, only after the written clarifications on page 21. Any remaining material or feature exception would reopen this gate.
Evidence and inspection feasible?	Assumed confirmed for the case. In reality, verify the method, report scope and any required supplier qualification.
Schedule acceptable?	Both model to 22 business days against the requested 25-day arrival, subject to the stated assumptions.
Comparable cost?	At 100 pieces, B = USD 3,240 and A = USD 3,540, with identical stated exclusions.
Decision and condition	B is the lower-cost eligible offer in this simulation. Revalidate if quantity, release, finish or delivery assumptions change.

A short, useful decision memo

WORKED WORDING

"Select B for the 100-piece CT-100 Rev B teaching order on the acknowledged uncoated scope. The normalized subtotal is USD 300 lower and the modeled delivery timing is equivalent. Confirm current validity, required supplier qualification and final release references before commitment. The 500-piece scenario requires a new comparison."

The memo records why the conclusion follows, and what would invalidate it. It does not claim that B is a better supplier in every respect or that price is the only criterion. For a real part, mandatory quality approvals, business continuity, communication, prior delivery evidence and service risk may outweigh a small price difference.

If your organization uses weighted scoring, set criteria and evidence definitions before scoring. Treat unverified capability as unverified, not an optimistic middle score. Keep mandatory pass/fail requirements outside a weighted average so a low price cannot compensate for an unacceptable technical exception.

23 / RECEIVING AND EVIDENCE

Know what the delivery documents prove

A declaration, a material report and a dimensional report answer different questions. None replaces all the others.

Document / evidence	Useful content	What it does not prove alone
Supplier conformity declaration	Part, revision, quantity, lot and the declared requirements / scope.	That every characteristic was individually measured, or that a mill report is linked to the used stock.
Mill material report	Material identity, condition, relevant results and stock-lot identity matched to the purchasing requirement.	Final dimensions, surface condition or the geometry of the shipped part.
Dimensional / texture report	Feature IDs, actual results, method context, sample identities, condition and decision rule where relevant.	Unmeasured features of every part, or an unlimited process-capability claim.
Thread / visual checks	Defined check, part / feature identity and results to the agreed inspection scope.	Joint strength, service life or all possible thread attributes.

A receiving check with a real decision

Check	Required / expected	Fictional received record
Revision identity	CT-100 Rev B	Box: Rev B; report: Rev A.
F02 pocket depth	13.90-14.10 mm for Rev B	Report: 12.00 mm; outside the Rev B interval.

Contain the delivery and establish which requirement and parts the report covers. Do not edit the header yourself or assume a clerical error. The discrepancy could be a report error, a measurement mismatch or an obsolete build; validate identity and evidence before disposition.

Record quantity and lot, photograph identifying labels where useful, retain the received report, and ask for a documented investigation. Define who may authorize sorting, reinspection, rework, replacement or an approved deviation. A later corrected report needs a clear link to the original issue and the inspected parts.

AVOID AN UNDEFINED "FAI" REQUEST

If a first-article report is required, name the applicable format, scope and approval hold point. Do not assume that the acronym means a specific industry-standard package is included in every quote.

24 / REVISION B TO REVISION C

Control a revision after quoting

Changing the model is only one part of changing the manufacturing instruction.

Change record	Worked CT-100 example
Change requested	Increase pocket width from 40 +/- 0.10 to 42 +/- 0.10; near Y edge changes from 15 to 14 to retain nominal centering.
Keep fixed / re-evaluate	Keep envelope and cover threads. Re-evaluate insert fit, remaining side material, corner geometry and the inspection path.
Documents affected	Model, drawing, requirement schedule, inspection plan, file register and quote reference. New release: Rev C.
Commercial effect	Ask each supplier whether price, tool path, existing stock or work in progress and schedule are affected. Do not assume no effect from a small size change.
Disposition of old work	Identify quantities not started, in process and complete. Agree whether they remain usable, can be reworked or require a different disposition.
Release evidence	Authorized change record, new package issued, old instruction status controlled, and supplier acknowledgement recorded.

The numerical quotes and clearance calculations earlier in this guide remain Rev B examples. Do not combine the 42 mm Rev C pocket with Rev B prices and call it the same comparison. Mark the old evaluation superseded or explicitly retained only for the old revision.

A useful acknowledgement request

WORKED WORDING

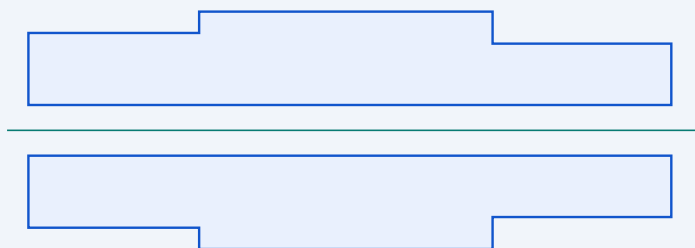
"Confirm receipt of the complete CT-100 Rev C register. Identify any remaining Rev B work and its proposed disposition. Confirm revised price and timing before the affected work resumes. Do not implement C from a screenshot or an unapproved model alone."

A typed name in a worksheet is not necessarily the organization's approval mechanism. Use the actual authorized process. The goal is that purchasing, programming, production and inspection all work from the same effective release.

25 / TRANSFER CASE: ROTATIONAL FEATURES

Apply the method to a turned sleeve

A sleeve often needs relationships between surfaces, not only a list of diameters.



Bore size
Axis relationship
Shoulder seating
Free-state inspection

Consider a thin sleeve whose bore locates on a shaft and whose shoulder seats against a face. The first RFQ says "bore 20, outside 24, length 30, precision turning." The missing questions are whether the bore is a clearance or interference fit, which axis and face relationships matter, and whether the sleeve is accepted free or restrained.

Before	More useful information
"Bore 20"	The designer establishes the bore limits from the intended fit, mating shaft and service condition; the drawing identifies the controlled bore length.
"Concentric" as an informal note	Identify the functional axis relationship and choose the correct control within the agreed standards framework. Do not substitute a vague word for a requirement.
"Inspect diameter"	Agree locations along the bore, relevant shape checks, temperature and free-state support. Thin-wall distortion needs attention.
"Any grip is fine"	Identify surfaces that must not be marked or permanently distorted and confirm the process / inspection sequence.

Workholding pressure can change a flexible ring while it is clamped. A correct diameter in that state may not establish the delivered free-state shape [12]. Ask the supplier to connect the proposed grip, finishing operation and inspection state. If the assembly actually constrains the sleeve, the design authority must define that accepted condition explicitly.

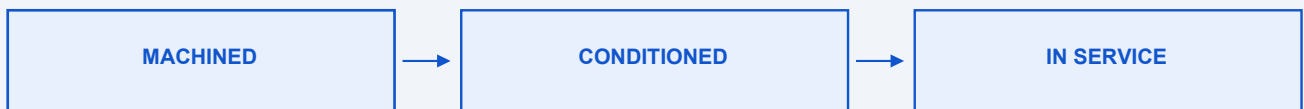
DO NOT COPY THE TRAY TOLERANCE

CT-100's +/- 0.10 was a teaching choice. It is not a default for this bore. The fit requirement and the allowed form / axis relationship determine what must be specified and verified.

26 / TRANSFER CASE: DIMENSIONAL STABILITY

Apply the method to a polymer part

The requirement needs a defined condition, not just a drawing size taken from a metal part.



State temperature, moisture condition and time at measurement. A metal-part inspection habit is not automatically suitable for a polymer part.

Assume a buyer requests a nylon locator and writes "same dimensions and tolerances as the aluminum version." Before accepting that instruction, ask what polymer grade, filler, stock form and moisture condition are intended. The end-use temperature and humidity may matter to the functional clearance. The process and acceptance state cannot be inferred from the word nylon.

Question to close	Why it affects the RFQ
Exact grade / filler / stock condition	The supplier needs a defined material rather than a family name. Alternatives require review of the actual application.
Condition at inspection and use	Specify the agreed preparation, environment and stabilization condition; otherwise two measurements may describe different states.
Allowed support and contact force	A compliant part can respond to the fixture or measuring contact. Confirm a suitable method.
Intermediate treatment, if proposed	Ask what grade-specific instruction supports it, which dimensions may change and when final sizing / verification occur.

Ensinger identifies moisture uptake, thermal effects and stress relaxation as influences on dimensional stability [13]. Those mechanisms justify asking for a grade-specific plan; they do not justify applying one universal shrinkage correction, annealing cycle or blanket tolerance multiplier to every plastic.

A BETTER RFQ SENTENCE

"Please review the selected polymer grade and our stated inspection / service conditions. Identify any dimension whose achievable final-state control depends on conditioning, support or a change to the inspection method before confirming price."

27 / PRACTICAL TROUBLESHOOTING

Useful answers to recurring RFQ questions

Use the answer to define the next action, rather than treating it as an automatic rule for every supplier.

Can I request a quote with only a 3D model?

You can ask what the supplier can assess from it. If important requirements are absent or not reliably exchanged, supply an agreed supplementary definition. The test is whether the full requirement survives the handoff, not whether a file extension is popular.

Should I put a tight tolerance on every dimension?

No blanket value establishes the right design. Identify the controlled function and allowable variation, then make the measurement and process implications visible. Do not loosen an existing approved requirement merely to reduce price without engineering approval.

Why are the quotations so far apart?

First compare revision, material, quantity, final condition, report scope, setup and delivery boundary. A price gap can reflect a scope gap. Only after those align should you investigate process route, capacity, commercial strategy or other reasons.

Does a material certificate mean the parts are acceptable?

It addresses material evidence within its actual scope. Check its link to the used lot and separately verify the part's dimensions, finish and other ordered requirements. Do not use one document as a substitute for the entire acceptance package.

What if the supplier finds a cheaper geometry?

Request the changed feature, reason and measurable effect, then review the mating geometry and function. Keep the base quote and proposed alternative separate. Record approval and issue a consistent revision before it becomes a manufacturing instruction.

What if I do not know the right inspection method?

Describe the characteristic and acceptance condition, show access constraints, and ask the supplier or metrology specialist for a justified method. Do not fill a worksheet with an instrument name just to make the box look complete.

WHAT TO ESCALATE

A conflict involving fit, material identity, load-bearing behavior, an inaccessible critical feature or an unverified special process needs the responsible technical owner, not an improvised purchasing answer.

28 / WORKED EMAIL AND OUTGOING PACKAGE

A complete inquiry you can adapt

Replace the case details with your own released requirements; do not send the teaching dimensions as a real order.

WORKED WORDING

To: ruofan@ruojufanxing.com

Subject: RFQ - CT-100 Rev B - 25 / 100 / 500 pieces

Hello vetcnc team,

Please quote CT-100 Rev B at the listed quantity breaks. The package register identifies the released model, drawing, requirement schedule and inspection plan. Our main evaluation is for 100 pieces in one delivery.

The base is 6061-T6 plate to the stated purchasing reference, machined, deburred and cleaned, without coating. Please confirm F01-F06 and the inspection / material evidence scope. List any exceptions separately; no substitution or geometry change is approved by this inquiry.

Please identify unit pricing, setup, reporting, completion and freight charges, quote currency and validity. Confirm the production start trigger, included operations and proposed ship timing against our requested arrival. The actual destination is supplied in the project brief.

A black-anodized option may be discussed separately after its finish requirements are resolved. Please acknowledge the received revision and flag missing information before confirming an offer.

Thank you,
[Your name and company]

What to include - and what to leave out

Include the current file register, the approved geometry/requirements, the actual quantity schedule, delivery information and relevant open questions. Verify your authority to share sensitive designs and use the agreed transfer route. Do not attach another supplier's pricing, internal scoring, superseded models or undocumented alternatives.

The PDF itself does not upload files or transmit entries. Save a copy, verify every selected page and attachment, and send manually. After receipt, ask for a referenced acknowledgement so the next conversation starts from the same part and revision rather than a fresh interpretation.

APPENDIX A / REUSABLE FORM

Your one-page RFQ brief

Use the completed example on page 17 first. Summarize here and attach detailed requirements by reference.

Company / reply contact**Part / revision / quantity breaks****Released model / drawing / file register****Units / governing specification****Material grade / state / evidence****Finish / masks / delivered condition****Critical features / drawing references****Inspection scope / report / sampling****Requested dates / delivery location****Open items / permitted proposals****Owner of technical decisions / attachment for longer entries**

Use a form-capable PDF reader. Save, reopen and check that entries persist and are visible. This form does not transmit data. Send only approved files through the agreed channel.

APPENDIX B / BUYER INTERNAL

A compact comparison and release check

Use after clarification, not instead of it. Keep other suppliers' prices out of the outgoing RFQ.

Part / revision / quantity / currency

Common included scope / exclusions

Offer A: total / lead-time basis / reference

Offer B: total / lead-time basis / reference

Unresolved difference / owner / evidence needed before selection

- ☐ Both offers cover the same revision and final-condition limits.
- ☐ Material, inspection and delivery scope are aligned in writing.
- ☐ Setup, finish, reporting and freight are counted once each.
- ☐ Schedule triggers and open approvals are visible.
- ☐ The release package contains no private comparison notes.

Decision and approval-record reference (not an electronic signature)

REFERENCE REGISTER / 1

Sources, scope and verification

Primary sources checked 20 September 2026. Select a title to open the publisher's original record.

[01] NIST**STEP File Analyzer and Viewer**

Public tool documentation: exchange-file structure, PMI and validation properties. Used for the handoff checks on page 16, not to approve a design.

[02] ASME**Y14.5-2018 (R2024): Dimensioning and Tolerancing**

Public edition and scope record only. It identifies the GD&T; framework; this publication does not reproduce the standard or claim a clause-by-clause drawing audit.

[03] ISO**ISO 2768-1:1989 - General dimensional tolerances**

Public record: published and under revision at the check date. General tolerances are not a single universal CNC accuracy value. No tolerance table is reproduced.

[04] ISO**ISO 2768-2:1989 - Withdrawn standard record**

Public status record, used to flag legacy drawing notes for review. Withdrawal does not itself authorize changing a customer-controlled drawing.

[05] ISO**ISO 22081:2021 - General geometrical and size specifications**

Public scope and status record, confirmed in 2026. Used to distinguish standards systems, not as a one-line replacement instruction for legacy title blocks.

[06] ISO**ISO 21920-1:2021 - Indication of surface texture**

Public scope record for profile-based surface-texture indication. Measurement details require the applicable associated standards and project requirements.

[07] ASTM International**ASTM B209/B209M-21a - Aluminum-alloy sheet and plate**

Public active record and scope. The case selects this product-specification reference; alloy, temper, thickness and certification still need purchasing and engineering review.

REFERENCE REGISTER / 2

Sources and how to use them

Primary sources checked 20 September 2026. Select a title to open the publisher's original record.

[08] OSG Corporation**AT-2 Carbide Thread Mill with End-Cutting Edge (2020)**

Manufacturer explanation of blind-hole access for cutting taps and thread mills. Used qualitatively; product-specific cutting performance is not transferred to vetcnc.

[09] NASA / Johnson Space Center**PRC-5006 Rev. D - Process Specification for Anodizing of Aluminum Alloys**

Public process document, especially design information in section 3.1. Shows why anodizing affects geometry. Its process defaults are not adopted as universal requirements.

[10] NIST**Engineering Metrology Toolbox - dimensional FAQ**

Public technical explanations of reference temperature and dimensional measurement. The coefficient and calculation in this guide are explicitly assumed examples.

[11] ILAC**ILAC-G8:09/2019 - Decision Rules and Statements of Conformity**

Public guidance, sections 3-4 and 7: uncertainty, guard bands and agreement on decision rules. Page 15 uses original numerical values, not a mandatory universal rule.

[12] Carr Lane Manufacturing**Locating & Clamping Principles for Jig & Fixture Design**

Manufacturer guidance on support and workholding distortion. Used for the access and sleeve discussions; no fixture-force table is copied.

[13] Ensinger**Frequently asked questions - machinable plastics**

Manufacturer discussion of moisture, heat and residual stress in dimensional stability. No universal conditioning cycle, shrinkage percentage or tolerance is inferred.

[14] Protolabs Network**How to prepare a technical drawing for CNC machining**

Supplier-authored drawing guidance, used for the value of supplementary feature information. Its platform rules, default tolerances and drawing illustrations are not copied.

References establish source scope, not certification or endorsement. Use agreed licensed standards and project-specific engineering review for a real release. All case data and drawings are original teaching examples.

PUT THE METHOD TO WORK

Bring the part. Bring the questions.

The useful starting point is a clear release, a defined requirement and an honest list of open decisions.

01 YOUR RELEASE

Part number, current model, drawing and revision register.

02 YOUR PRIORITIES

Mating features, material, final finish and verification needs.

03 YOUR RFQ

Quantities, destination, timing and the questions still open.

vetcnc.com

ruofan@ruojufanxing.com

