Aluminum Casting RFQ Checklist

A useful aluminum casting RFQ defines one controlled part, one supply boundary, and the evidence needed for acceptance. Send the current drawing and model revisions, annual volume, material and temper, casting and machining scope, critical features, inspection requirements, packaging, and approval milestones. Mark every unresolved input as an open assumption with an owner.

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Start with the minimum package

A supplier can begin a useful review when the package identifies the controlled geometry, the required material or performance, and the expected demand. Everything else should either be defined or listed as an open assumption.

1. **Controlled files.** List the 2D drawing, 3D model, revision, issue date, and which file controls if they do not match.
2. **Part function.** State whether the part carries pressure, locates bearings, transfers structural load, manages heat, provides a cosmetic surface, or forms a sealing interface.
3. **Material basis.** Name the alloy, governing specification and version, temper or delivery condition, permitted equivalents, and required evidence.
4. **Demand.** Give annual volume, first order quantity, program stage, and expected ramp pattern. A range is acceptable if the forecast is not fixed.
5. **Supply boundary.** Say whether the quote is for an as-cast blank, a semi-machined casting, or a finished part with treatment, inspection, and packing.

For file-level guidance, use the casting drawing requirements. If the manufacturing route is open, attach the same inputs and use the casting process selection guide.

Complete one scope worksheet before comparing quotes

Use the worksheet to ask every supplier to quote the same delivered scope. Put unclear items in an open-assumption list rather than allowing different defaults to remain hidden.

Aluminum casting RFQ scope worksheet

RFQ field	Buyer input	Why it changes the quote
Part and revision	Part name, drawing revision, model revision, issue date, design status	Fixes the geometry and notes being reviewed
Function and risks	Load path, fluid or pressure boundary, sealing faces, bearing seats, thermal or cosmetic zones	Directs DFM and inspection attention to functional features
Material	Alloy, governing standard and edition, temper, allowed equivalent, certificate needs	Defines chemistry, condition, and evidence
Quantity	First order, annual volume range, program stage, ramp assumptions	Influences process and tooling decisions
Casting scope	Preferred route or supplier recommendation, cores, heat treatment, cleaning	Prevents unlike process assumptions from being compared
Machining scope	Datums, bores, ports, threads, faces, grooves, stock, fixture ownership	Defines operations, setups, and dimensional evidence
Surface and assembly	Coating, masked zones, finish state, inserts, cleaning, protection	Fixes the delivered condition
Inspection	Method, acceptance basis, sampling, report format, approval owner	Defines the evidence included in the quote
Delivery	Destination, Incoterm, packing, labeling, shipment documentation	Makes logistics assumptions visible

Separate the casting boundary from the finished-part boundary

A raw-casting quote and a finished-part quote are not comparable. Mark every machined feature and state the inspection condition: as cast, after heat treatment, after machining, after coating, or at final delivery.

- Identify primary, secondary, and tertiary datums on the controlled drawing.
- Mark bearing seats, sealing lands, gasket faces, O-ring grooves, bores, ports, and threads.
- State machining stock where it is controlled and identify dimensions checked before and after CNC.
- Define whether tooling, casting fixtures, CNC fixtures, gauges, and checking fixtures are included and who owns them.
- List heat treatment, impregnation, coating, assembly, cleaning, labeling, and packing as separate scope items.

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T5/T6 heat treatment and CNC machining are performed in-house. The machining department has 16 vertical machining centers, 2 CNC engraving and milling machines, 22 CNC lathes, and 2 large lathes. List the operations and records you need in the delivered scope so we can review what to include in your quotation.



CNC machining centers along a central aisle

Define the evidence, not just the test name

Each inspection line needs a risk, method, acceptance basis, stage, sampling rule, record, and disposition authority. List those details under “Inspection report required” so each supplier quotes the same inspection coverage and records.

Inspection inputs to define in the RFQ

Evidence	Buyer should define
Material	Alloy and temper specification, lot basis, chemistry or property evidence, and certificate format
Dimensional	Drawing revision, datum scheme, ballooned features, method, stage, sampling, and report format
Radiography	Drawing zones, governing standard and edition, reference severity, technique, sampling, and disposition
Leak or pressure test	Medium, pressure basis, duration or cycle, leakage acceptance, test stage, sampling, and record
Surface	Functional and cosmetic zones, finish requirement, coating checks, visual reference, and handling protection
Approval package	FAI or PPAP level, customer forms, sample quantity, submission timing, approval owner, and resubmission rule

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PPAP support is available through Level 5. Dimensional inspection equipment includes Hexagon Global S and NANO Metrology CMMs, and internal inspection includes Unicomp UNC-160 and Y.MU2000-D X-ray systems. Air-under-water immersion testing is available at 3 bar or more. The project drawing and customer specification must still define the method, acceptance criteria, and sampling.



Coordinate measuring machine for dimensional inspection

Use the Bohua quality control and inspection page to check available methods before writing the evidence list.

State what kind of quotation the package can support

Label a preliminary package for feasibility review and list the decisions still open. Release the production basis after the required approval gates are complete.

Feasibility or budget basis

Provide available geometry, function, demand, material direction, desired condition, and a written list of open assumptions.

Production quotation basis

Align file revisions, material, critical features, quantities, tooling ownership, inspection, packing, and delivery terms.

Drawing-based RFQ submission

Send the controlled project context after the package has a named owner for each unresolved input.

1. **Close quotation questions.** Record supplier assumptions and exclusions against the controlled revision.
2. **Approve process and tooling design.** Name the buyer and supplier outputs at the gate.
3. **Approve first-part evidence.** Define samples, reports, deviations, correction, and resubmission.
4. **Release production.** Confirm the approved revision, packaging, labeling, and shipment records.

Use Bohua-specific facts when screening fit

Bohua quotes by annual volume, and small batches are negotiable. For gravity and tilt-pour projects, Bohua works with A356 and ZL114. Mold design and manufacture are in-house, using UG and SolidWorks for design and AnyCasting for simulation.

Quotation volume basis

Annual volume

Gravity and tilt alloys

A356 and ZL114

PPAP support

Up to Level 5

Confirmed drawing to first part

5–6 weeks

The 5–6 week figure applies from confirmed drawing to the first part for Bohua's in-house mold route. It is not a complete production or shipping schedule. Ask the quotation to name dependencies and approval owners.

Remove these common RFQ gaps

Before sending the package, check that another reviewer can tell exactly what is controlled and what remains open.

- No annual volume or project stage, leaving tooling and process assumptions unaligned.
- A material family without a governing specification, temper, or evidence requirement.
- A 3D model without a 2D source for tolerances, GD&T, finishes, and acceptance notes.
- Every dimension marked critical, with no priority for functional interfaces.
- No part function, leaving pressure, structural, thermal, sealing, or cosmetic risks invisible.
- Machining, treatment, inspection, or packing added after suppliers have priced different boundaries.
- A test name without method, acceptance basis, sampling, report, or disposition rule.

For an application-specific example, the automotive suspension bracket RFQ guide shows how manufacturing scope and evidence should follow the part. Return to all aluminum casting buyer resources for drawing, process, and supplier-evaluation guides.