The DFM & RFQ Checklist for Injection Moulding

The files, decisions and checks to prepare before requesting a tooling and production quote.

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General planning guidance. Confirm geometry limits, material approvals, inspection scope, contract terms and dates for the specific project.

Free to share with your team. No registration required to use the checklist internally.

1 Part data - what every quote starts from

A moulder prices from files and numbers. These six items make an RFQ easier to assess.

- ☐ **3D model in STEP format (.stp / .step), one file per part**
  The geometry the tool is priced from. Native CAD files can provide additional design context.
- ☐ **2D drawing (PDF) with tolerances**
  Include threads, finishes, cosmetic faces and critical dimensions that the solid model cannot specify.
- ☐ **Material specification - resin and grade, or required properties**
  State stiffness, impact, temperature, chemical and UV exposure, and any required flammability rating.
- ☐ **Annual volume and lifetime volume**
  These inform tool class, steel and cavitation. Give a range if forecasts are uncertain.
- ☐ **Target price or budget range (optional but useful)**
  This helps compare tooling routes and cavitation against whole-life cost.
- ☐ **Assembly context - mating parts, photos or an assembly model**
  This reveals tolerance stack-up, weld-line constraints and functional surfaces.

2 DFM readiness - check the geometry before you send it

Fix geometry in CAD where possible. Flag constraints that cannot change. The values below are starting points, subject to resin, geometry and tool design.



Uniform wall



Thick section: uneven cooling / sink risk

- ☐ **Aim for uniform wall thickness**
  Abrupt thick-to-thin transitions can cause sink, warpage and voids. Core out thick sections and use ribs for stiffness.
- ☐ **Provide draft on pull-direction faces**
  Around 1 degree per side is a starting point for smooth faces; textures often need 3-5 degrees. Agree the required draft and any zero-draft surfaces.
- ☐ **Use internal radii appropriate to the wall and load**
  Sharp corners concentrate stress in the part and tool. A radius around half the nominal wall is a useful starting point.
- ☐ **Check rib and boss proportions**
  Ribs around 40-60% of the adjoining wall are a starting point. Resin, surface requirements and loading determine the final dimensions.

- [ ] **Identify and flag undercuts**
  Side holes, hooks and windows may need a side action, lifter or redesign. State which features are functional.
- [ ] **Note gate-location preferences or request a proposal**
  The gate affects fill, weld lines and the visible gate mark. Agree its location before tooling.
- [ ] **Mark cosmetic surfaces on the drawing**
  Identify customer-facing, visible-in-use and hidden faces. Apply the required finish only to relevant faces.

Tip: apply tight tolerances to functional features. A blanket ±0.05 mm across a drawing can increase machining and inspection cost without adding function.

3 Material decisions

- [ ] **Select a resin and grade, or list properties for grade selection**
  Ask for current supplier datasheets. Property requirements can avoid unnecessary over-specification.
- [ ] **State filler or reinforcement - for example GF30, talc or unfilled**
  Glass fibre affects shrinkage, warpage, finish and tool wear, which can change tool steel selection.
- [ ] **Define colour - RAL / Pantone, masterbatch or natural**
  State match tolerance and assessment lighting. Agree the colour approval step.
- [ ] **List regulatory and compliance requirements**
  State the intended market and application. Request current grade-specific food-contact, flammability, medical or other relevant evidence; EU BPA rules include Regulation 2024/3190. A resin listing alone does not qualify the finished product.
- [ ] **Agree the regrind policy**
  State whether regrind is allowed, its source and its limit. Cosmetic or safety requirements may restrict it.

4 Tooling decisions

Ask for proposals where needed, and keep the assumptions comparable between quotes.

Decision	What to state in the RFQ
Cavity count	Your expectation (1 / 2 / 4 / 8+), or ask for optimisation against volume and cost.
Tool-life target	Expected lifetime shots, for example 50k, 500k or 1M+. These are planning targets, not tool-life guarantees.
Tool material	Aluminium, pre-hardened steel or hardened steel. Confirm suitability for volume, resin, finish and expected life.
Runner system	Cold or hot runner. Compare investment, runner waste, cycle time and maintenance for the actual part.
Ownership terms	Ownership, storage, maintenance and supplier-transfer terms in writing.
Sampling milestone	T1 trials and the agreed sample-approval step before series production.

5 Quality - define acceptance before the tool is cut

- ☐ **Mark critical dimensions (CTQs) on the drawing**
  Identify functional dimensions and agree tolerances for other features. State any intended ISO 20457 tolerance class and its applicability.
- ☐ **State the required FAI / PPAP scope**
  Agree dimensional reports, material certificates, process records and any PPAP level with the quote. Required documents and approvals depend on the application.
- ☐ **Agree inspection frequency - per batch, shipment or SPC**
  Define measurements, gauges, frequency and acceptance limits. Specify CMM reporting where needed.
- ☐ **Define sample approval**
  Agree dimensional and cosmetic approval before series production; use boundary samples where appearance matters.

6 Logistics - packaging, terms and dates

- ☐ **Specify packaging - bulk, layered, returnable or ESD-safe**
  Cosmetic parts may need interleaves or trays to protect visible surfaces in transit.
- ☐ **State delivery terms, ship-to address and call-off schedule**
  Agree Incoterms, responsibilities and any scheduled call-offs against a blanket order.
- ☐ **Give target dates for the quote, T1 samples and series start**
  Dates affect tooling choices and availability. Confirm the schedule for the specific project.
- ☐ **Specify labelling and traceability**
  State required batch numbers, date codes, barcodes or moulded part markings.

7 The seven most common RFQ mistakes

1. Sending only a STEP file. Add a drawing for tolerances, cosmetic faces and CTQs.

2. Over-tolerancing every surface. Apply tight limits where the function requires them.

3. Naming a resin when you mean properties. List requirements so suitable grades can be compared.

4. Comparing unit prices alone. Compare tooling plus unit price times lifetime volume. Break-even depends on the price difference and the actual volume.

5. Hiding undercuts. Flag features that need side actions or redesign before tooling is priced.

6. Omitting ownership terms. Agree storage, maintenance and transfer conditions in writing.

7. Giving the deadline too late. Tooling takes roughly 4-11 weeks; confirm the project schedule and dependencies before committing.

How to use this checklist: tick completed items, note open questions, and send it with your RFQ. A complete package reduces clarification rounds. Quote timing is confirmed after the project scope and files are reviewed.

About Nordmould

Nordmould provides injection-moulding services for the Baltic and Nordic region, with one point of contact for tooling and production enquiries.

Tooling starts from €3,000 and production orders from 100 pieces. Tooling lead time is roughly 4-11 weeks; the tooling route, material, quality scope and delivery schedule are agreed for the project.

Request a free DFM review

Send your STEP file and drawing for a free design-for-manufacturability review. Include the requirements and open questions from this checklist so the review can address the features that affect cost and quality.

Send your RFQ: info@nordmould.com

Request a quote online: nordmould.com/quote

Before sending CAD files

If you require an NDA or specific data-handling terms, request and agree them before transferring confidential files. Do not assume an agreement is already in place.

This checklist is general planning guidance. Supplier datasheets, applicable regulations, project drawings and agreed quotation terms determine the actual requirements.