

Injection molding with Fast Radius



Introduction

From design through fulfillment, your step-by-step guide to the injection molding process.

Whether you're new to injection molding or an experienced pro, it can be helpful to take a closer look into our production process before getting started. Use this seven-step guide to get a deeper understanding of what to expect when injection molding your part and how Fast Radius can help you take your project from a part file to a completed product.



Your Fast Radius team

Before you begin, it's beneficial to know who you can expect to work with.

Here's a quick rundown of the team members you'll meet and the ones who will be working on your behalf behind the scenes.

Who you're working with

Account Executive

Your resource for quoting, scoping, and launching your project.

Customer Application Engineer

Your go-to technical guide. They provide engineering support to define requirements and validation, ensuring your parts meet expectations.

Customer Success Manager

Your primary point of contact once your order kicks off. They coordinate every detail of your project to meet your needs.

The additional resources on your team

Injection Molding Engineer

Your injection molding specialist. They check every injection molding project that comes to Fast Radius to ensure your project is set up for success.

Supply Chain Manager

Your sourcing and logistics guide. They work across our manufacturing network to ensure all aspects of the manufacturing process are coordinated and your parts are made on time.

Quality Engineer

Your resource for part and process compliance. They develop a quality plan to ensure your project meets your requirements.

Design and Development Engineer

Your innovation resource. They bring concepts to life with the latest digital design and manufacturing technology and can assist as a resource to augment your engineering team.

The seven stages of the injection molding process



1. Project kick-off

When you have a [CAD model for your part](#) ready, it's time to begin the injection molding process. If you're working with Fast Radius, there are a few ways you can start:



Contact your Account Executive

Contact your sales representative, if you have an existing relationship.



Upload your part

Upload your part to os.fastradius.com and request a quote.



Get in touch

Reach out to our sales team via the [contact form](#) on our website.

2. Quoting

Your Account Executive will contact you to better understand your opportunity and the requirements for your project.

Once you've discussed the project with your Account Executive, they will ask a Customer Application Engineer to review your parts. Your Account Executive and Customer Application Engineer will work with you to review your part drawing, align on necessary specifications and tolerances, help you decide on materials, determine your quality assurance needs, and discuss any critical features or key characteristics your part has.

Using this information, your team will provide a cost estimate for your parts, including tooling, part production, quality assurance, and post processing. There are four important things to remember about your Fast Radius estimate:

- 1 We manually review costing for injection molding to ensure you get the most accurate estimate possible.
- 2 Your quote may include contingencies, like design for manufacturing (DFM) constraints and optimizations.
- 3 Revisions to parts may result in changes to the quoted price and lead time.
- 4 Full DFM reports are only completed after a quote is provided and an order is received. DFM reports may further outline necessary changes or optimizations to parts in order to facilitate molding.

Once you agree to the quote, you will be able to move forward with the optimization and production of your part. Typically, you will need a 50 percent down payment to support engineering, material purchasing, and tooling.

3. Design for manufacturing (DFM) reporting

Fast Radius works closely with our network of suppliers to ensure your final parts will meet the needs of your design.

At this stage in the injection molding process, we engage our suppliers to provide the model, drawing, notes, and supporting documentation for your part and to place your order. Your Fast Radius account team will work with the supplier to create a DFM report that defines the manufacturability of your part before starting production.

Your DFM report is an analysis of your part that identifies features that may need to be changed and clarifies mold-specific features. Your Account Executive and Customer Application Engineer will provide feedback to make your design manufacturable. They will also evaluate needs unique to injection molding your part, like parting lines, gating, and ejector placement.



Once you have updated your design to reflect the DFM feedback, we engage in a verification process. Both you and our Fast Radius team will check that the supplier's manufacturability feedback has been implemented and sign off on the DFM report. After this signoff, lead time will be confirmed and the manufacturing process can start.

4. Tooling manufacture

Before your parts can be produced, the supplier will need to manufacture your mold.

All injection molded parts require unique tooling, specific to your part. Tooling can be manufactured in as little as two weeks, depending on the complexity of your part.



5. Sample approval

Once your mold has been created, the manufacturer will produce a small series of sample parts called T1 samples.

These samples give you an opportunity to confirm that all agreed-upon requirements of the DFM report are met. There are two key things to remember about your T1 samples:

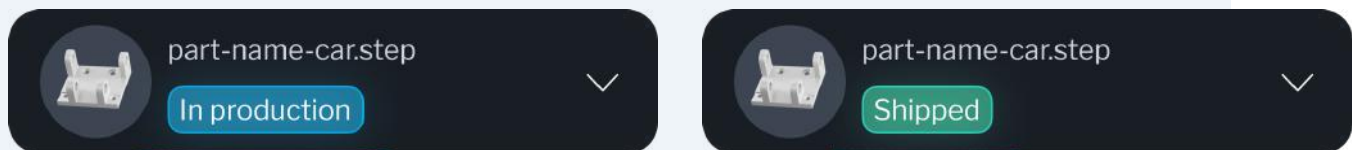
- 1 Any post-processing or assembly requirements are not reflected in T1 samples.
- 2 Because tooling has already been made, reviewing T1 samples is purely to confirm that the parts match existing requirements. This is not an opportunity for design iterations.

After you approve your T1 samples, the full production run of your parts can begin.

6. Production

At this stage, the supplier will manufacture the full quantity of your parts and execute the quality assurance and post-processing procedures that you agreed to in the quoting process.

You will be notified when production begins and a completion date will be confirmed. You will also receive shipping information when your parts have shipped.



7. Part delivery and re-ordering

Your parts will arrive.

If you choose to re-order the same parts with the same mold, the process will be faster since you won't need DFM review or tooling. Simply log into your Fast Radius account or contact your Account Executive to start the re-ordering process.



Ready to begin your next injection molding project?

Get started [here](#).

