

# Injection Molding at Protolabs Network

Everything you need to get started





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## The advantage of a global network

Protolabs Network gives you access to a huge breadth of injection molding capabilities at competitive prices. Through our growing number of trusted manufacturing partners, we can manufacture quality components at scale, with production capacity for up to a million parts.

We also offer a broad range of secondary operations and tooling services. If you have an order that requires tight tolerances and/or includes post-mold finishes such as painting, laser engraving or UV coating, just let your account manager know. The breadth of our network offering means that the options are virtually endless. You can have your parts injection molded in a variety of complexities and sizes, from 3 mm (0.18 in) to 2 meters (78.7 in). This means everything from computer keys to car bumpers.

There are many reasons to choose us, including:

- Competitive pricing thanks to our network of manufacturing partners
- Enormous variety of capabilities – large and complex parts plus thousands of materials and finishes on request
- Expert support from our team

## Better parts faster with Protolabs

Protolabs Network is made up of more than 250 trusted manufacturing partners around the world and is part of Protolabs' global manufacturing services. Previously known as Hubs, it was acquired by Protolabs in 2021 to provide expanded capabilities and volume pricing options to designers and engineers.

By working together, Protolabs and its network bring you one supplier that can manufacture almost any type of custom part, no matter the scope or complexity of your project. Protolabs offers high-quality molded parts and bridge tooling with automated in-house machines. Protolabs Network expands on this with capacity for complex parts in higher-volume production quantities. The combination provides engineers with the world's most comprehensive digital manufacturing solution.

## How to get started

To get a quote, submit your request on [hubs.com](https://hubs.com) or send an email to [networksales@protolabs.com](mailto:networksales@protolabs.com), including your CAD files. Within 24 hours, a member of our sales team will be in touch to discuss your project and prepare a quote.

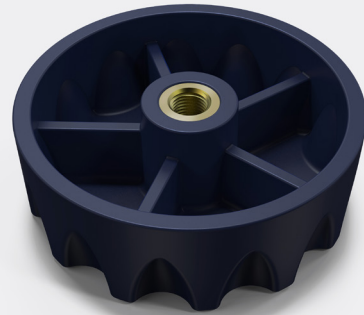


# Our capabilities



## Plastic injection molding

Injection molding is the manufacturing process of injecting high-pressure thermoplastic into a mold. Ideal for larger-volume production.



## Insert molding

A manufacturing process in which a part is molded around a pre-installed insert in the tooling.



## Overmolding

A manufacturing process in which one plastic material is molded over another to create a single component.



## Liquid silicone rubber molding

A thermoset process that involves mixing a two-part solution together to produce flexible and durable parts.

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Part dimension 3mm (min) – 2000 mm (max)

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Types of post-processing: cosmetic and functional

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Tolerances: DIN 16901-130 & tighter tolerances available on request

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Production locations: local and overseas

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Minimum order quantity: none

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Machine types: 20 – 3000 Ton

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T1 sample lead times: as fast as 10 days

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# Tooling - prototyping vs. production

Within our network, we can build the injection molding tooling in line with what your project requires. Whether your part design involves a multi-cavity or family mold, an insert mold or Master Unit Die (MUD), or even 2K or 3K molding for injecting multiple materials simultaneously, we can arrange a custom solution. Parts that require undercuts can also be produced using tooling with internal movements and lifters.

Any custom tools we develop are owned by you and these are stored at the manufacturing partner's facility.

## Prototyping

Ideal for rapid prototyping and low-volume production.

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Tool shot life – 1k to 100k units

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Fast turnaround and cost-efficient construction

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Aluminium or steel

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## Production

Longer-lasting tooling for larger volumes.

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Tool shot life – 100k to 1M

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Automated production for cost-efficiency at higher volumes

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Hardened steel for longer life and a scalable unit price

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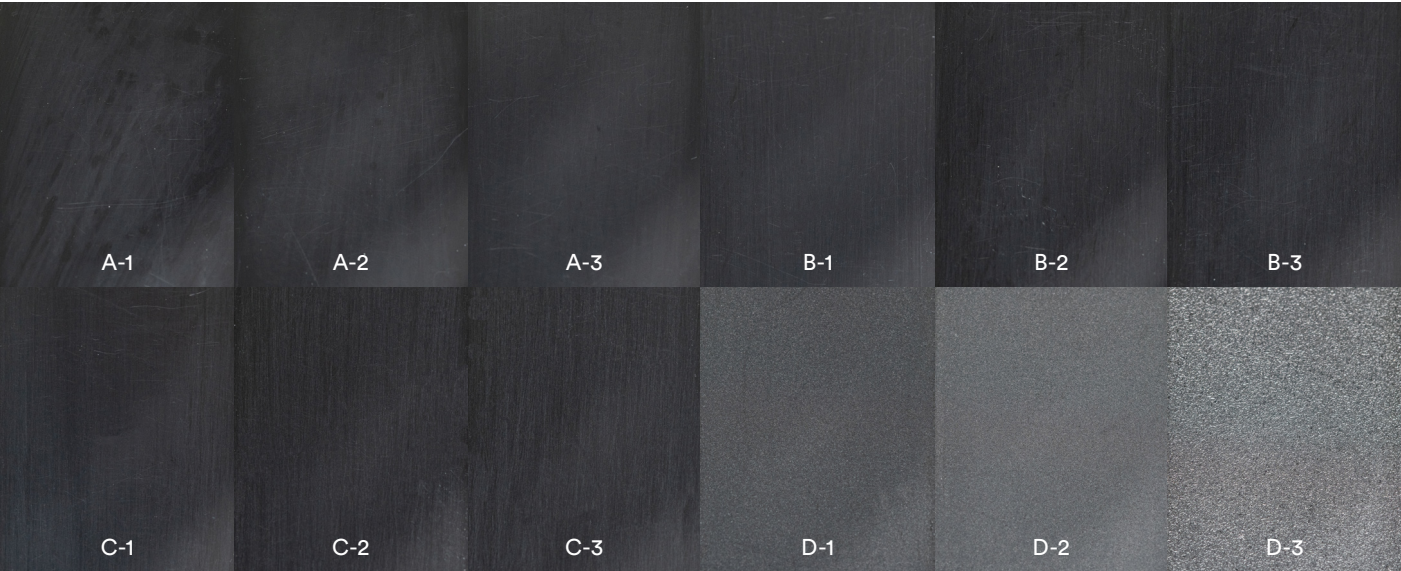


# Surface finishes

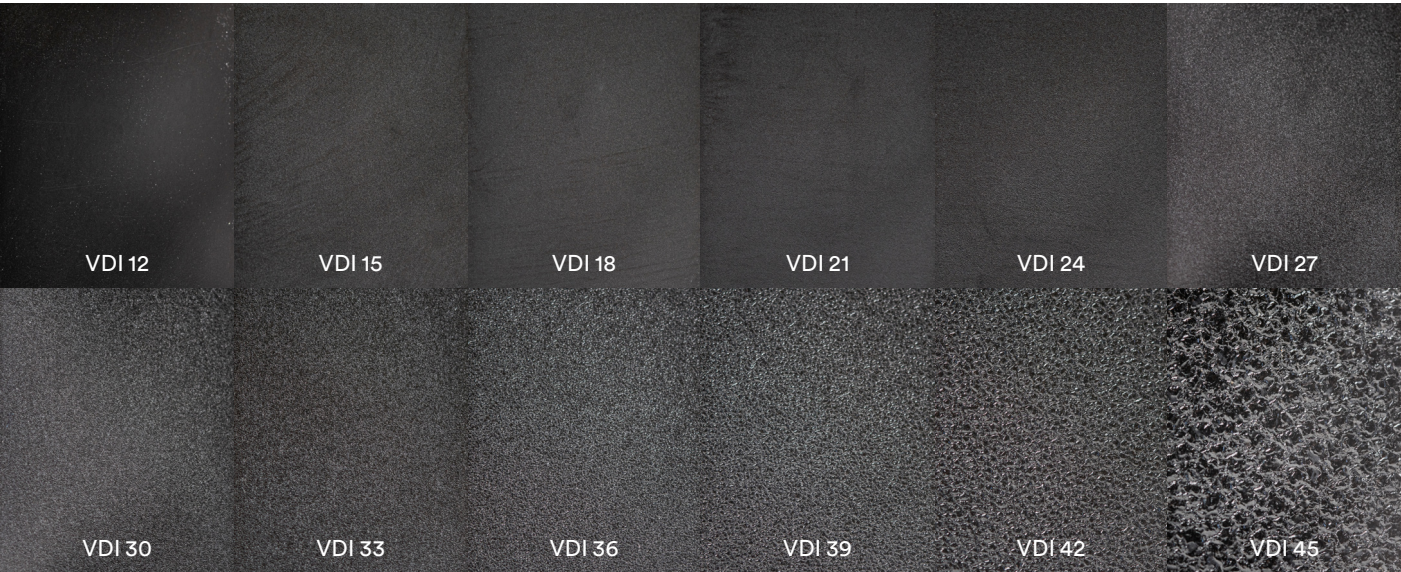
From glossy or matte to heavily textured, we offer a wide variety of post-mold finishes to enhance the functional or cosmetic requirements of your parts. We offer SPI (Plastics Industry Trade Association) and VDI surface finishes (set by the Society of German Engineers). [Find the right finish for your part.](#)

SPI surface finish	A-1, A-2, A-3, B-1, B-2, B-3, C-1, C-2, C-3, D-1, D-2, D-3
VDI surface finish	VDI 12, VDI 15, VDI 18, VDI 21, VDI 24, VDI 27, VDI 30, VDI 33, VDI 36, VDI 39, VDI 42, VDI 45

## SPI surface finishes



## VDI surface finishes





# Materials

Choose from many different thermoplastics, rigid plastics, elastomers and synthetic rubbers. We're happy to advise on the best material for your project to ensure your parts are fit for purpose. We can source thousands of different materials on request.

Impact resistance	ABS, PMMA, PVC, PE, PC
Wear resistance	POM, PEEK, UHMW
Dimensional stability	ABS, PBT, HIPS, PPS
Chemical resistance	PEEK, PP, PBT, PE, LDPE, PA
Rubber-like	TPU, TPE, silicone
Cost efficient	PP, HDPE, LDPE
Cosmetic	ABS, PC, HIPS





# Secondary operations

We offer several post-injection molding processes such as ultrasonic welding, painting or heat tapping inserts. Specify which secondary operations your parts need after molding and we'll add these to your quote that considers these too. Here are some examples of secondary operations we offer:

Assembly	Pad printing
Painting/coating	Silk screening
Ultrasonic welding	Laser engraving
Heat staking	Hot stamping
Post-mold machining	

# Quality and certifications

Our comprehensive quality processes ensure your parts are always made up to specification. Among the quality documentation we offer, we can supply a First Article Inspection, CMM Inspection Report, Certificate of Conformance, REACH, RoHS Certificate and Material Data Sheet.

If your parts need to be manufactured in a facility that carries a special certification, we can match your project with a manufacturing partner certified with ISO 9001, IATF 16949 or ISO 13485.

  
ISO 9001:2015

  
IATF 16949:2016

  
ISO 13485:2016



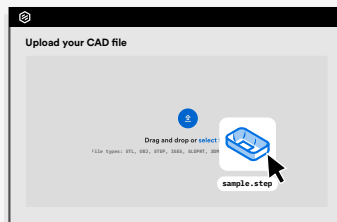
# How we manage your injection molding project

The moment you upload your design, a dedicated account manager is assigned to your project. They will discuss the requirements of your project with you to make sure the final result meets your expectation. An injection molding project manager works alongside you and the account manager to optimize the tool design for your project.

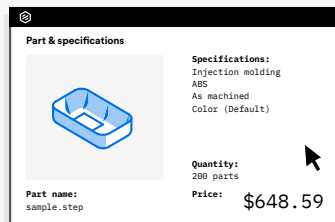
This knowledgeable team will continually keep you up to date on the status of your project and answer any other questions you might have along the way.

After a thorough analysis of your part design and a detailed DFM process, we will start the construction of your tool and send you a golden sample to approve before starting the full production.

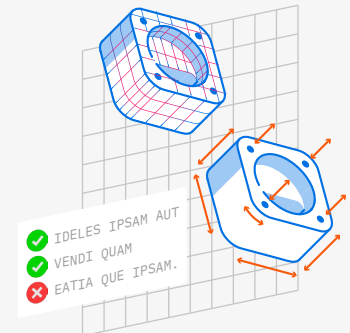
## Quoting & pre-production



**Upload your designs**  
[Upload your parts to our platform](#)  
to have your project reviewed  
by our team

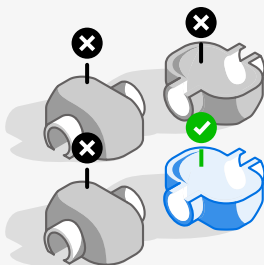


**Receive a quote**  
Your account manager will work  
with our technical team and  
manufacturing partners to send  
you a quote within 48 hours



**DFM & tool approval**  
Receive extensive DFM analysis  
to approve before construction of  
your tool begins

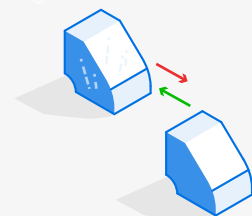
## Quality sample & production



**Receive T1 samples**  
We send you a golden sample for  
approval before starting production



**Production & delivery**  
We produce your parts to match the  
golden sample & deliver them to you



**Reorder as required**  
You can easily reorder parts by  
contacting your account manager



# Quoting & pre-production

Start every project with expert injection molding assistance.

## How we quote

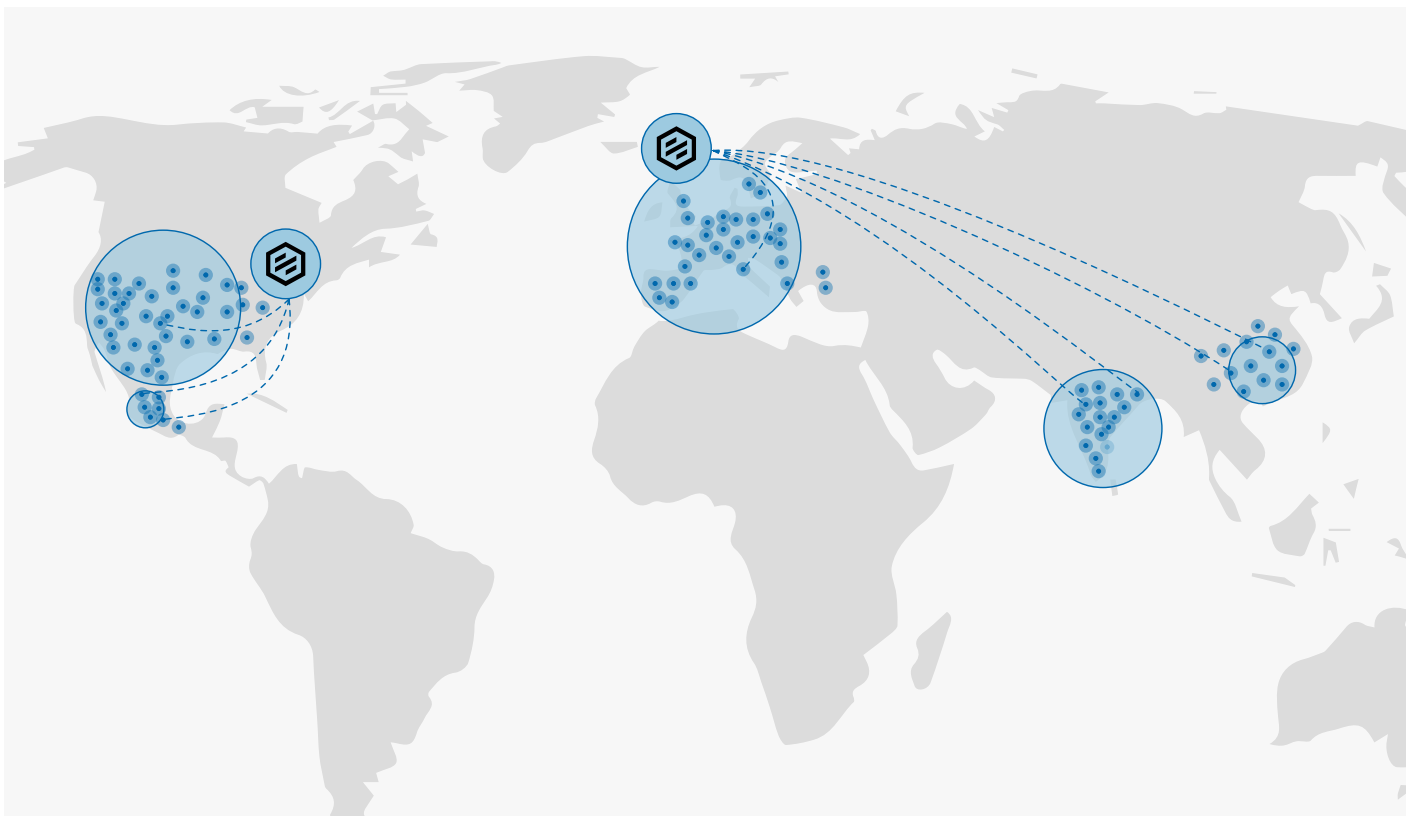
Once you've uploaded a part, we'll get back to you with a price for tool construction and the molded parts, with shipping costs included, within 48 hours. If you need any additional quality documentation, you can specify these when you upload your parts.

Your account manager will discuss ways to optimize your project with you, and help to combine the best materials and tool layout to meet your project's requirements. The team will also advise you on how to implement a range of technical solutions, such as multi-cavity, family tooling, or any other alternative that could benefit your project.

Additional project management tools, such as [a Gantt chart](#), are also available on request for a visual reference of your project's timeline.

## DFM & tool approval

Before any construction begins, your dedicated injection molding project manager will thoroughly analyze your designs with our manufacturing partner. You'll receive a design for manufacturability (DFM) document per part and/or tool to ensure they meet your requirements. This includes features such as the injection point location, ejector pins, draft angles needed, possible welding lines, achievable tolerances and wall thickness adjustments. We use industry-standard computer-aided engineering (CAE) software to accurately predict how parts will perform, eliminating potential production issues before they arise.



# Quality, samples & production

We go above and beyond to ensure the quality of your parts.

## Quality control for samples

When the tool is completed, we produce samples and perform extensive quality assessments on them, including visual inspections and dimensional checks using gauges and CMM machines. We'll also perform additional checks upon request. We send you these samples for your approval before we proceed to production of the first batch.

## Quality control for production

We use the golden sample for additional quality control during production, and inspect parts according to ISO 2859 General Sampling Level II. [Download our full quality report](#) for a detailed explanation of our quality control and assurance processes.

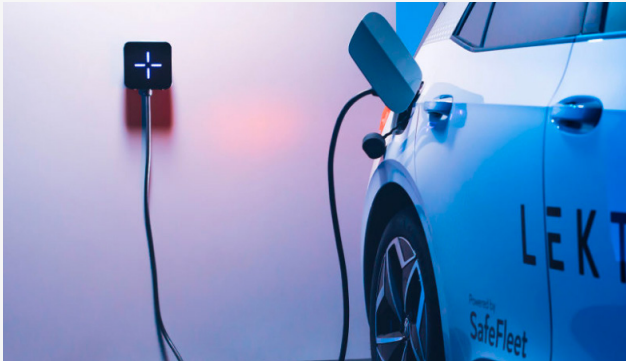
## Re-orders & batch manufacturing

The option to reorder is always available. We can arrange production in batches throughout the year, or as one-off reorders whenever you require more parts.





# Case studies



## Lektri.co

“They helped us make the right changes to avoid potential problems and defects during the manufacturing process. Having someone who can be in touch with the manufacturers was essential for us.”

Oliver Albu  
Product owner

<b>Customer</b>	Lektri.co
<b>Project</b>	Destination charger for electric vehicles (5" x 3")
<b>Technology</b>	Injection molding & overmolding
<b>Material</b>	PC/ABS and PC
<b>Tooling lifetime</b>	30,000 shots
<b>Tooling lead time</b>	25 business days
<b>1st production quantity</b>	500 units
<b>1st production lead time</b>	20 business days

For more example, please reach out to [networksales@protolabs.com](mailto:networksales@protolabs.com)



## Otect

“Working with specialists to get the design correct the first time was really helpful, especially as all the changes were quite cost-effective. We could test out new ideas, get a price for them and ultimately go into production.”

Michael Jones  
Founder

<b>Customer</b>	Otect (Engineering Lab)
<b>Project</b>	Specialty lens caps for Leica cameras
<b>Technology</b>	Injection molding
<b>Material</b>	6082 Aluminum, Polypropylene
<b>Tooling lifetime</b>	20,000 shots
<b>Tooling lead time</b>	23 business days
<b>1st production quantity</b>	1000 units
<b>1st production lead time</b>	13 business days

For more example, please reach out to [networksales@protolabs.com](mailto:networksales@protolabs.com)

# Meet the team

The people at Protolabs Network are helping shape the future of manufacturing. Experts in all facets of injection molding applications, our team ensures your project runs smoothly and on time, every time.

## Amsterdam



**Shak Akhrarov**  
Lead Project Engineer  
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**Nirva Portugal**  
Injection Molding Project Engineer  
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**Philippe Tarjan**  
Regional Sales Lead  
philippe.tarjan@protolabs.com

## Chicago



**Karlo Stetic**  
Senior Injection Molding Project Engineer  
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**Andrew Lee**  
Injection Molding Project Manager  
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**Jackson Zartman**  
Account Manager Team Lead  
jackson.zartman@protolabs.com

# Additional services

Our global network of specialized manufacturers gives you access to a wide breadth of production capabilities and limitless capacity.

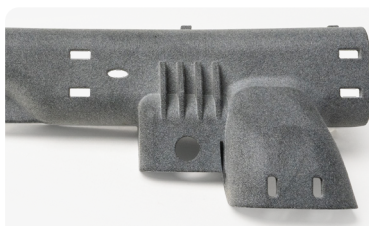


## CNC machining

Milling, turning and post-processing

- Tolerances down to  $\pm 0.0008$  in (0.020 mm)
- Lead times from 5 business days

[See our CNC machining services](#)



## 3D printing

FDM, SLA, SLS, MJF

- $\pm 0.5\%$  dimensional accuracy with a lower limit down to  $\pm 0.0059$  in (0.15 mm)
- Lead times from 1 business day

[See our 3D printing services](#)



## Sheet metal fabrication

Laser cutting, bending, post-processing

- Tolerances down to  $\pm 0.004$  in (0.010 mm)
- Lead times from 5 business days

[See our sheet metal fabrication services](#)





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