



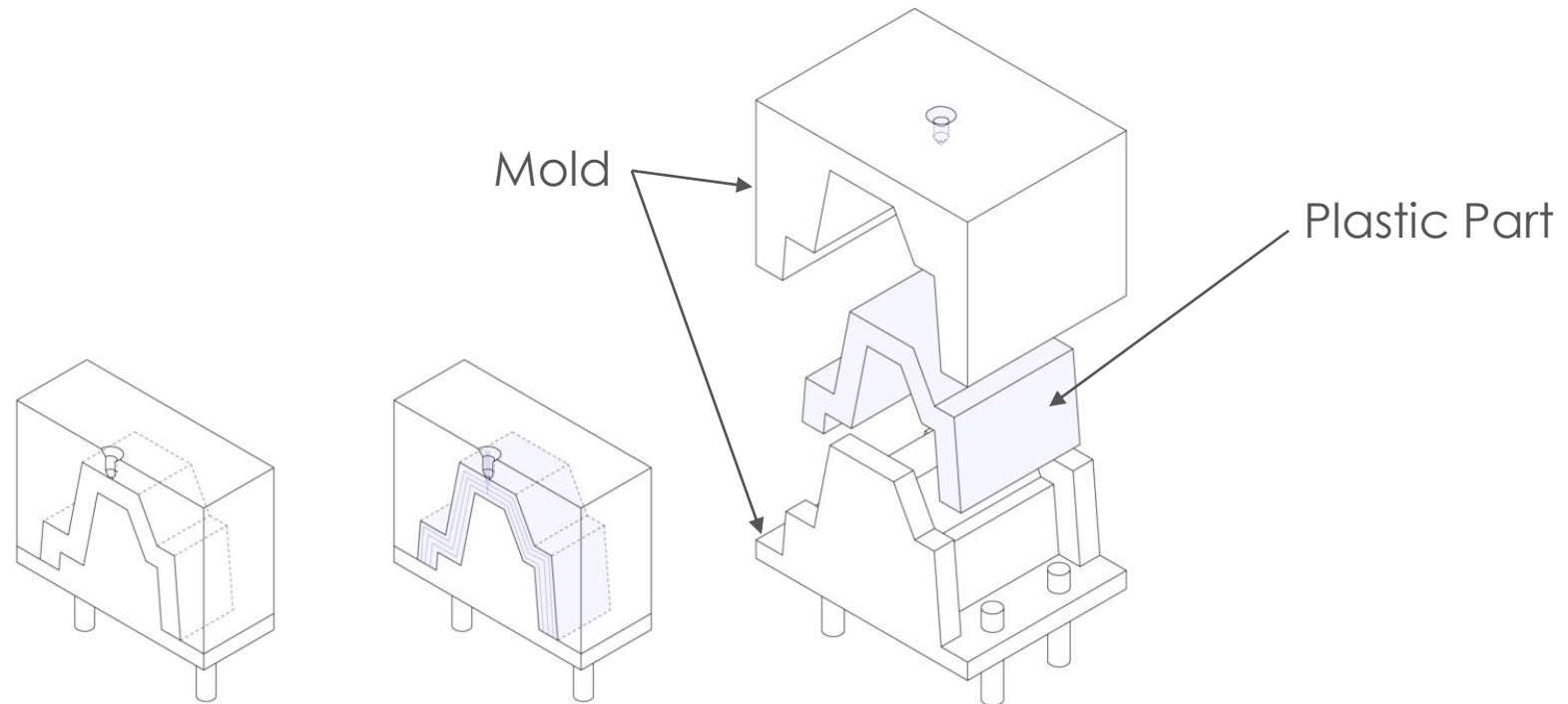
# INJECTION MOLDING FAQ

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# WHAT IS INJECTION MOLDING?

- Injection molding is a manufacturing process used to produce parts by injecting molten material into a mold. It is commonly used for creating plastic products.



# WHAT ARE SOME EXAMPLES OF INJECTION MOLDED PARTS?

- Consumer products: Toys, containers, and household items.
- Automotive parts: Bumpers, dashboards, and other plastic components.
- Medical devices: Syringes, housings, and surgical instruments.



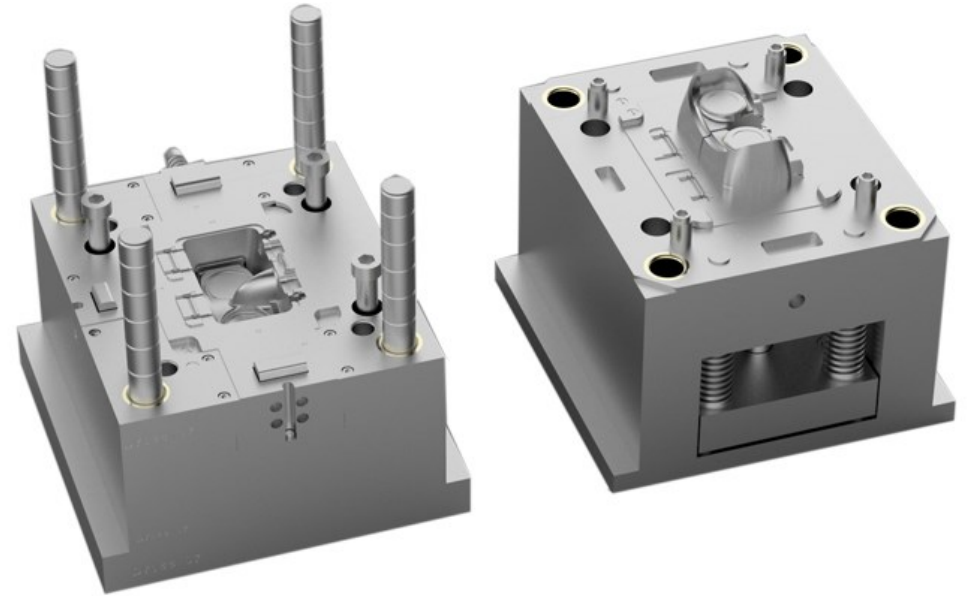
# WHAT ARE SOME ADVANTAGES OF INJECTION MOLDING?

- High efficiency for mass production.
- Ability to produce complex shapes with high precision.
- Consistency and repeatability in producing parts.



# WHAT ARE SOME DISADVANTAGES OF INJECTION MOLDING?

- High initial cost for mold creation.
- Design changes can be expensive once the mold is made.
- Not cost-effective for small production runs.





# WHAT ARE THE COSTS ASSOCIATED WITH INJECTION MOLDING PARTS?

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- Injection molding requires upfront tooling costs.
- Injection molds can cost anywhere from \$3,000 to \$50,000 depending on the size and complexity of the part.
- However, after upfront tooling costs, the cost per part will be substantially less than other manufacturing methods.
- For these reasons, injection molding is the ideal manufacturing method for high volume plastic part production.



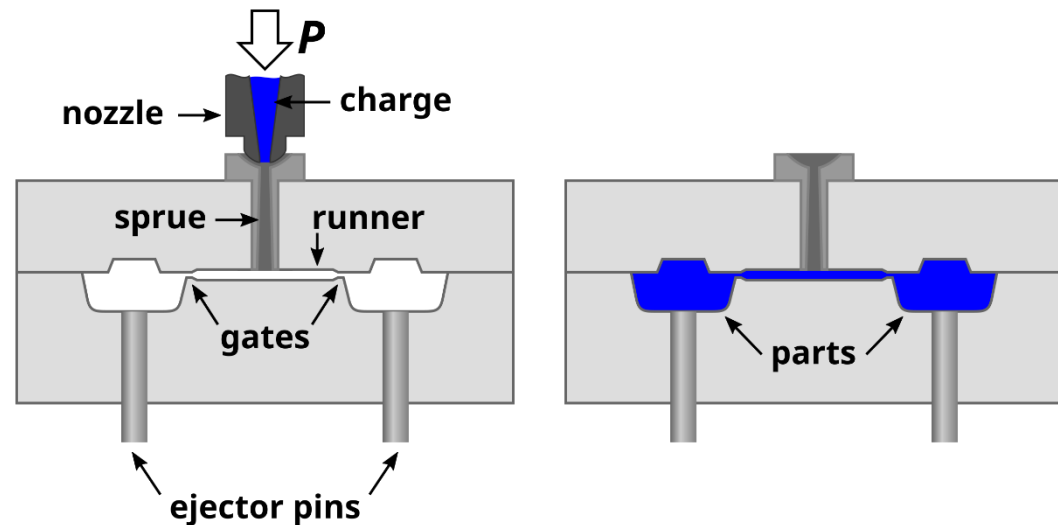
# CAN YOU GIVE ME AN EXAMPLE OF INJECTION MOLDING COST BREAKDOWN?

- Example Cost Breakdown (Small, simple part):
  - Mold Cost: \$10,000
  - Order Qty: 100,000 parts
  - Mold Cost per Part: \$0.10 ( $\$10,000 / 100,000$  parts).
  - Material Cost per Part: \$0.20 (100 grams at \$2/kg).
  - Machine and Labor Costs per Part: \$0.10 (estimated).
  - **Total Per-Part Cost: \$0.40.**

# WHAT FEATURES MIGHT I EXPECT AN INJECTION MOLDED PART TO HAVE?

- Injection-molded parts often have distinct features that indicate the manufacturing process. These marks and characteristics are typically a result of the molding process itself or the design of the mold.
- Here are some common indicators that a part was injection molded:

- Parting Line
- Ejector Pin Marks
- Gate Marks







# WHAT IS A PARTING LINE?

- **Description:** A faint line on the surface of the part where the two halves of the mold meet.
- **Reason:** This occurs because the mold is made in two (or more) pieces that come together during the injection process.
- **Appearance:** It can appear as a thin, raised line or a slight indentation, depending on the mold's precision.

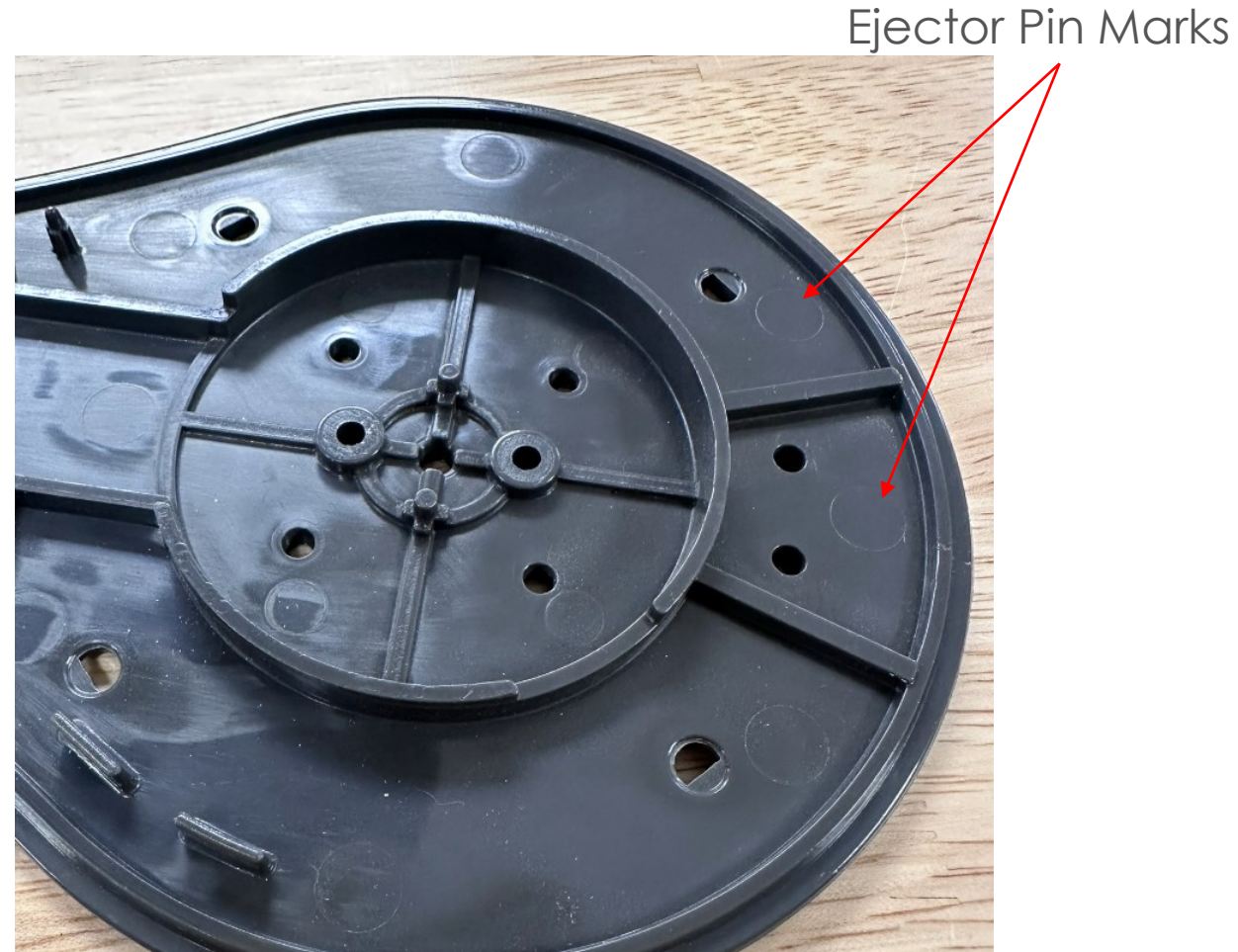
Parting  
Line





# WHAT ARE EJECTOR PIN MARKS?

- **Description:** Small, round or slightly rectangular indentations or raised areas on the surface of the part.
- **Reason:** Ejector pins are used to push the part out of the mold after it cools and solidifies. These pins leave marks where they contact the part.
- **Appearance:** Typically located on the non-cosmetic side of the part, these marks are usually uniform in size and shape.





# WHAT ARE GATE MARKS?

- **Description:** Small, rough spots or bumps on the part where the material was injected into the mold.
- **Reason:** The gate is the point at which the molten material enters the mold cavity. After molding, the gate is trimmed, but it often leaves a small mark.
- **Appearance:** The size and location of gate marks depend on the gate type and location but are often small and circular or rectangular.

Gate Mark

