

# How It Works: Thermoplastic Injection Molding

Let's talk about thermoplastic injection molding — not just about the quality, or the cost value or fast turnaround.

We'd like to take a deep dive into the complete plastic injection molding process — from design all the way to packaging and shipping. Utilizing a turnkey solution ensures that the material and mold is the perfect fit for your product.

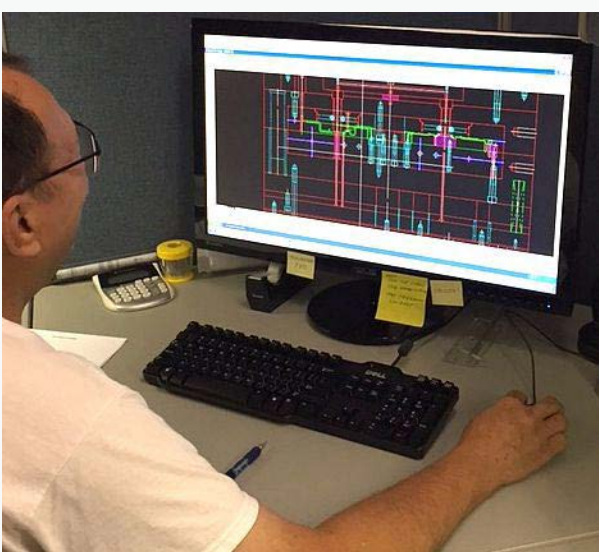
Check out the steps and illustrations below that answer the real question at hand: how does it actually work?

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## Step 1: Mold Design.

The mold design for any tool is essential, and it's part of why injection molding has an up-front tooling cost. Working with designers and engineers, we develop a custom mold for the part being produced.

This, in combination with specialized injection molding processes, allows for a great deal of design freedom — complex shapes and unique features can be accommodated with special cores and molding systems. Overmolding and insert molding can even mold one part directly onto another in a single cycle.



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## Step 2: Select Raw Materials.

We often emphasize the importance of material choice with our customers, as injection molding has a unique advantage in that it works with a wide variety of raw materials. K&B's knowledgeable team can assist in the material selection process so you can be sure the material is the right fit for your application.

Plastic materials begin the process in a raw, solid state, and are then heated to the desired temperature. This process melts the material so that it can be applied to the corresponding mold.



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## Step 3: High-pressure injection.

The now-molten material is placed under high pressure and injected into the cavity of a mold. A rotary screw mechanism dispenses a carefully engineered amount of material to minimize waste while still achieving a uniform part.



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## Step 4: Cooling

After molding, the part must cool and cure. The dimensions of the new part actually become stable within the mold; if released prematurely, it could be exposed to inherent stresses that can cause deformation.



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## Step 5: Release.

Once the molten plastic solidifies, the mold opens to release the product. The mold then closes again, new material is injected, and the cycle begins again.



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## Step 6: Delivery

Full-service companies like K&B can also assist in the final delivery of your parts. K&B offers vendor inventory management as a value-added service as part of its design-to-shipping turnkey solution.

After the design is completed and parts manufactured, customers can send K&B their copies of part orders, and K&B sends the product to distributors country-wide. We then notify customers when their part has shipped, and invoice the distributors for the shipping service.



To learn more about thermoplastic injection molding or our services at K&B Molded Products, check out the K&B Resource Library or contact our team today.

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