



In-Mold Decorating Basics (IMD)

For decades Serigraph has been developing and improving the In-Mold Decoration process. We started out with flat components and then began creating 3-dimensional applications for a variety of customers.

How In-Mold Decorating is Used

Serigraph has implemented thousands of successful IMD projects. We have the technical expertise, printing, tooling, molding technology, and quality systems to deliver solutions for a wide range of applications in numerous markets.

These markets include the following:

- **Appliance** – User Interface Panels for Washer & Dryers, Refrigerators/Freezers, Ovens/Ranges, Dishwashers, HVAC, Microwaves, Floor Care, Pool & Spa
- **Automotive** - HVAC Panels, Buttons/Knobs, Instrument Panels, Bezels, Display Panels, Center Consoles
- **Medical** – Glucose Meters, Patient Monitoring Devices, Surgical and Medical Equipment, Diagnostic Machines
- **Consumer Products** – Grooming, Health & Beauty, Cell Phone Cases, and Smart Home Devices

Our decoration technologies are expected to meet standards on combinations of some or all of the following:

- Heat Resistance
- Scratch Resistance
- UV Stability – especially in outdoor applications
- Weather Resistance
- Chemical Resistance
- Temperature Extremes
- Anti-Glare
- Integrated Capacitive Touch



Advantages of In-Mold Decoration

Combining the decoration process with the molding process adds durability to the product. This decorating process can reduce manufacturing costs and create design flexibility. It is a superior process in terms of quality and results achieved compared to

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competitive methods of decoration, such as pad printing and hot stamping, and provides increased opportunities for differentiation.

Key Performance Benefits:

Durability increased as the graphics are permanent and impossible to remove without destroying the plastic part and will also remain vibrant for the life of the part.

Durability is improved, reducing the risk of tampering, as well as resistance to friction, scratches and corrosion.

Brand protection is ensured, as the decoration, logo, branding cannot be altered or tampered with as it is an essential part of the product.

Cost effective for mass production decoration as it eliminates post molding decoration, handling, and storage. The IMD process reduces work in process inventory and the additional time required for post-production decoration, on or off-site. IMD is also a cost-effective alternative to pressure sensitive decals, as it reduces the process of applying the PSA post-molding.

Speed of production is increased as injection molding and decoration occurs simultaneously. There are less stages in production and decoration which shortens production cycles to produce a completed unit.

Automation can be used in the process to increase consistency for high volume applications and reduces cost.

Design flexibility allows a wide range of colors and finishing options, including surface texturing and graphical effects.

Enhanced functionality of products can be achieved, as IMD lends itself readily to smart surfaces, tactile keys, backlighting, water-resistant products, electronic circuits and even optical components that can be integrated in a cost-effective manner.

Flexibility – A single molding tool can produce many different variations of parts, by simply changing the artwork and/or colors on the graphic. is used in short and long production runs and can provide mass customization through assorted images while using a single molding tool. The expanded capabilities of IMD allows cost savings and manufacturing efficiencies.

Quality of the image is more superior as the process offers greater ink opacity and is more economical for greater color options as compared to traditional methods.

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Environmentally friendly - The IMD process has low emissions than alternative processes, such as post-mold paint or lacquer coating. IMD also eliminates the need for costly and environmentally unfriendly solvent-based adhesives to apply the decorative applique to the molded bezel.

Recyclability – the IMD process increases the ability to recycle many components which reduces the possibility of post-consumer waste and stress on landfills as there is less contamination from component bonding adhesives. Many times, the entire IMD product can be recycled.

What Serigraph Can Offer

Decades of in-mold decorating (IMD) experience has taught Serigraph what engineers need to achieve successful decorative product launches.

When an in-mold decorating project comes to Serigraph's door, we start with a request of the customer for three elements:

1. CAD files
2. Specifications regarding chemical, abrasion, stress testing and UV resistance for the product
3. Blueprints that show tolerances for part geometry, special characteristics and graphic appearances

Our internal team determines feasibility of using in-mold decorating technology through a full assessment for the part that's being created. In-mold decorating has many advantages, but it is not always the right answer for every graphic application.

The Serigraph team, consisting of a molding engineer, quality expert, estimator, account manager and a chemist look at all new programs to determine the level of feasibility.

Once the technical teams have met, Serigraph orders prototype tools and then begins the prototype. Any necessary adjustments are made by Serigraph and the customer in collaboration. Once a purchase order is cut, the project moves into production tooling.

Summary

With decades of experience in In-Mold Decorating (IMD) Serigraph has implemented thousands of successful IMD projects. Our expertise and technology have allowed us to deliver solutions for a wide range of applications in numerous markets. At Serigraph, we have the ability to reduce manufacturing costs and create design flexibility while

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combining the decoration process with the molding process to add durability to the product. Partnering with Serigraph gives you a team seasoned with technical expertise and the capabilities needed to complete a project from start to finish.

Partner with Us

By providing innovative, eye-catching technologies and services Serigraph enables customers to differentiate their brands and stand out at the point of decision.

To learn more about what Serigraph can do for you visit us at: www.serigraph.com or email us: info@serigraph.com

