



## Selective Illumination Lightguide Solutions

GLT continually seeks opportunities to innovate technology by utilizing our custom, edge-lit light guides. We have multiple processes by which we can create a customized solution for our customers' selective illumination needs in capacitive touch and overlay illumination. Utilizing these processes, we can control specific areas of illumination within the backlight, reduce light bleed, and improve the user experience. Methods which are implemented at GLT in manufacturing these solutions include:

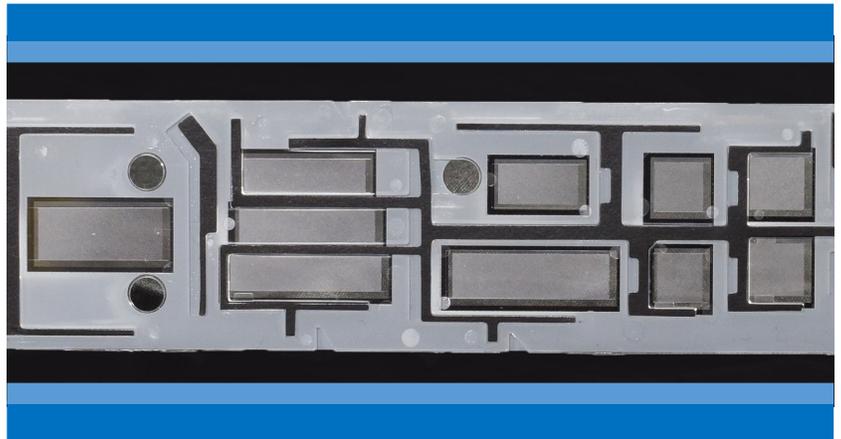
- Molded light guide solution with light blocking material
- Over-molding of light guide with reflective light blocking material
- Double shot molding process.



# Molded Solution

Zones of illumination are created within the light guide based on your custom needs. Through optical analysis and ray tracing software, LEDs are positioned within the assembly to allow for the most efficient illumination while limiting light bleed. Light blocking material is then added where necessary to further prevent light bleed across areas where discrete illumination is required. Finally, reflective and diffuse films can be assembled for a complete solution.

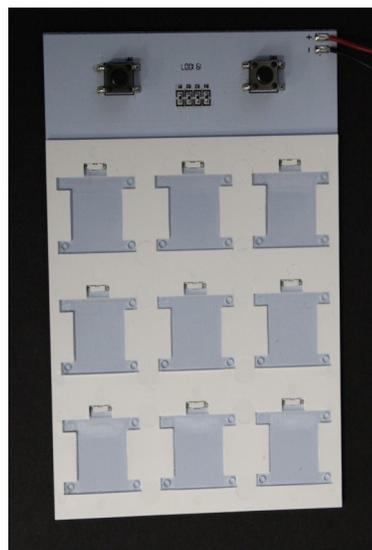
- Mechanical assembly of light blocking material
- Low level light bleed may occur
- Multiple components within final assembly
- Limitations for light blocking material based on die cutting processes
- Lowest tooling cost



# Over-molded Solution

In order to improve light blocking ability and reduce component count, development was completed on an over-molded light guide manufacturing process. The illuminated light guide areas and LED coupling regions are created within a custom injection mold tool. This optical light guide element is then placed within a second mold, allowing for the over-molding of light blocking material.

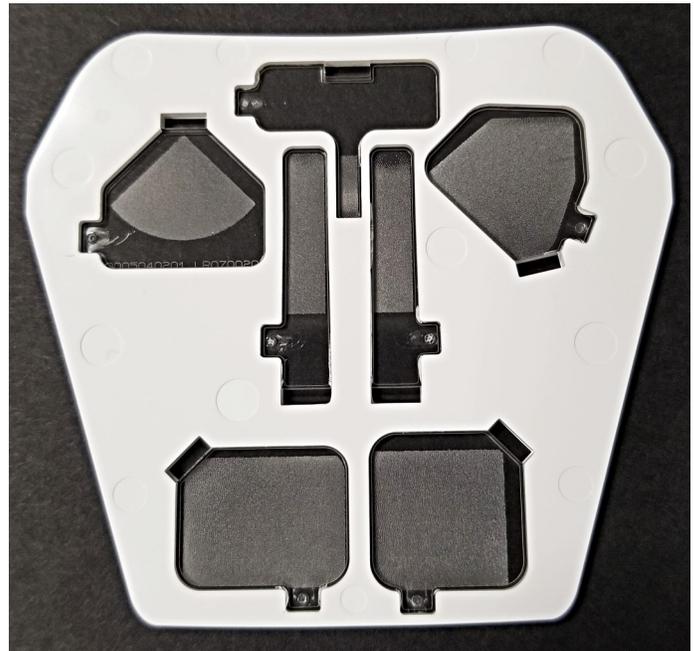
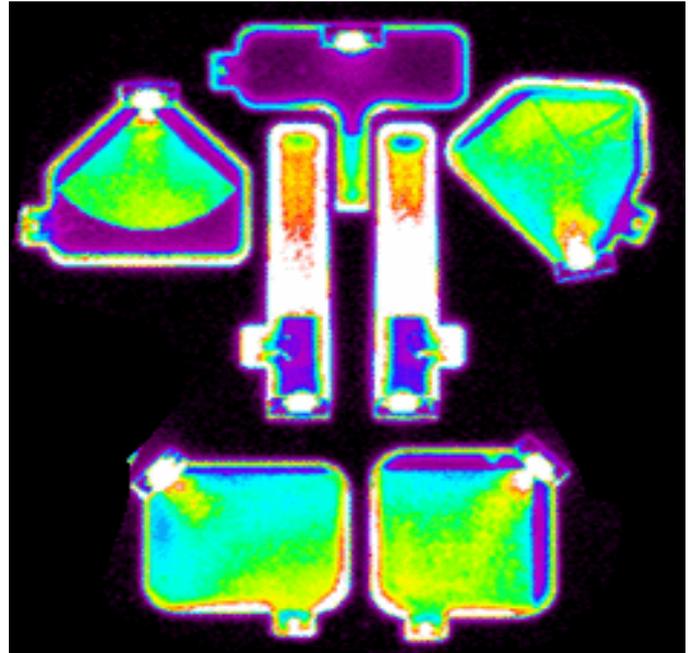
- One piece final product
- Requires multiple injection mold tools
- Maximum light blocking performance



# Double Injection Solution

The latest development in selective illumination light guide technology utilizes a double injection molding process. Our engineers design the product to allow for the injection molding of the optical lightguide material within the illumination areas during initial molding, while a second material is then injected within the same mold to block light bleed between optical areas. This creates an injection molded product that meets the optical demands of the selective illumination market, while decreasing the number of components, reducing assembly time, and improving overall durability.

- One piece final product
- Complex injection mold tool
- Specialized injection press
- Maximum light blocking performance





Ohio USA



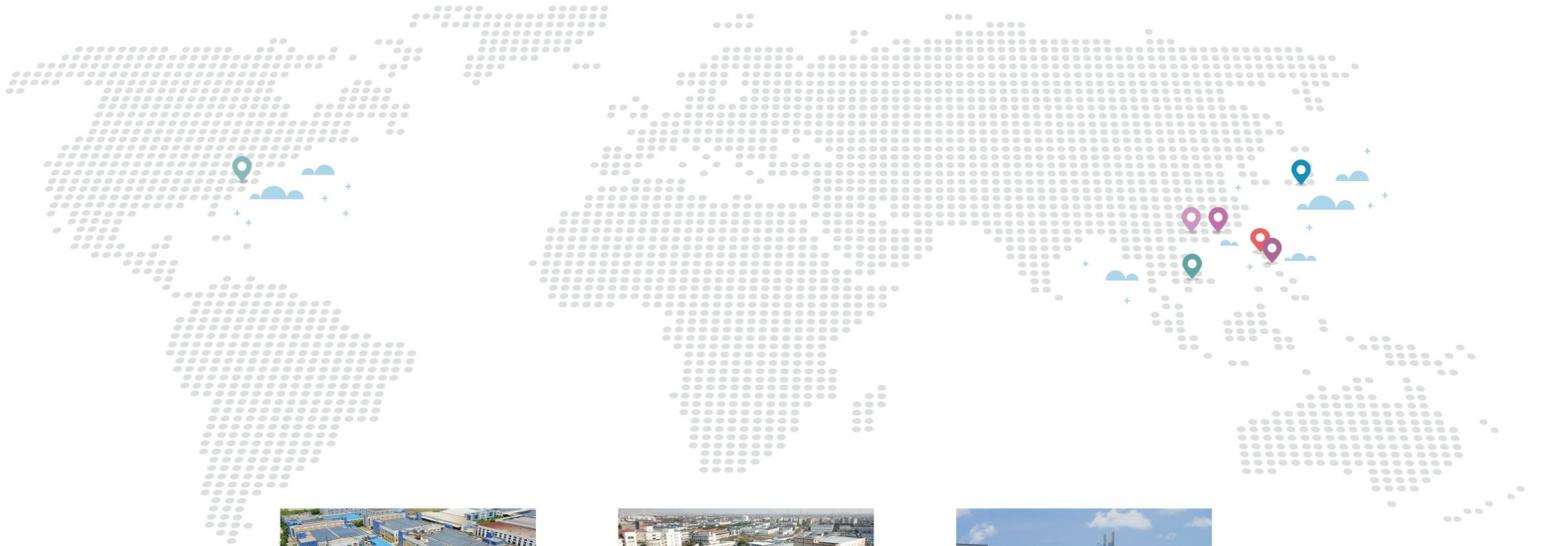
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