Insert Molding
Plastic injection insert molding is a plastic injection molding process in which thermoplastic material is molded around an insert piece or pieces placed in the plastic injection molding cavity, resulting in a single, strongly-bonded, integrated assembly, with the insert or inserts encapsulated by the plastic. Inserts can be metal, another plastic, ceramic or just about any substance that can withstand the plastic injection molding process.

Applications
Some of the first insert molding applications were for placing threaded inserts into molded parts, and, encapsulating wire plug connections on electrical cords. Current custom insert molding applications are wide-ranging, with few limitations on material combinations, including:

- Medical devices and instruments, such as needle hubs and tube valves
- Knobs for appliances, controls and assemblies
- Encapsulated electronic devices and electrical components
- Military equipment
- Threaded fasteners
- Encapsulated bushings, tubes, studs and posted

Benefits
Plastic injection insert molding is an effective alternative to assemblies manufactured using soldering, adhesives or fasteners, with benefits including:

- Reduced assembly and labor costs (Molded as one assembly)
- Reduced size and weight (Insert molding allows for reduction of part size and weight because parts are joined with strong, light-weight plastic resin and fasteners or connectors are eliminated)
- Improved component reliability (Insert molding of components ensures proper alignment, prevents loosening and the plastic resin can provide improved resistance to vibration and shock)
- Improved part strength and structure (Insert molding combines the physical strength of the plastic resin and insert to produce one seamless plastic part)
- Enhanced design flexibility (Custom plastic insert molding allows for almost unlimited

configurations and material combinations)
- Consolidation of components (Insert molded components enable part and inventory cost reductions)

Another application of the plastic injection insert molding technology is in-mold decorating (IMD) and in-mold labeling (IML) in which decorated or printed film is inserted into the mold cavity and the plastic resin injected against the film, resulting in a labeled or decorated part that is durable and cost effective. Please remember that proper mold design and construction are critically important in insert molding to maintain part tolerances and tooling reliability.