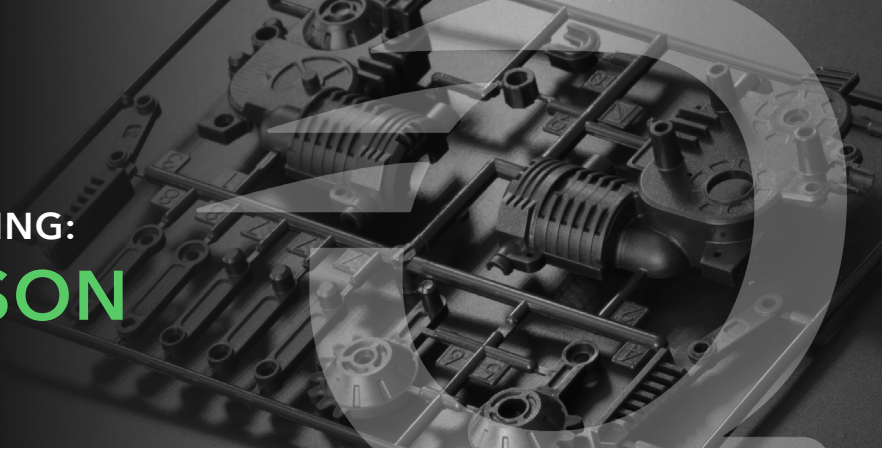


3D PRINTING & INJECTION MOLDING: A COST COMPARISON ANALYSIS



When determining which technique to use at different points in the product development process, a cost comparison analysis can be helpful to provide a sense of when to start thinking about 3D printing or injection molding for your prototypes or production run.

When designing plastic parts, cost can influence nearly all aspects of your project, from material selection and surface finish to the types of features you include.

A cost analysis is a critical exercise when choosing a manufacturing process. For injection molding, most part designs can be categorized as simple or complex. Naturally, the complexity of the design will likely impact the piece price.

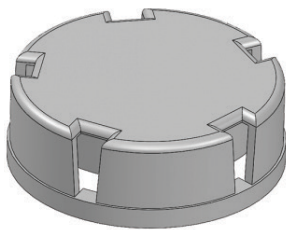
Simple and Complex Parts

A simple part design, for example, is produced using one type of material and requires little to no special considerations during production.

A complex part design, on the other hand, may require overmolding to add a soft grip to your part. Or, it could include undercuts which require special accommodations during production to assist with ejection from the mold.

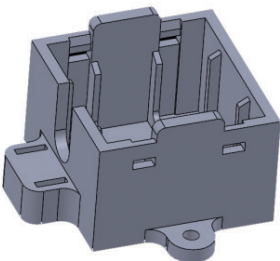
We quoted these two parts, one simple and one complex, through the quoting engines of various rapid manufacturing companies. Then we averaged them out and compared them to our injection molding process. The results show at which volume points a move from 3D printing to injection molding should be considered.

SIMPLE PART



Process	1 Unit		10 Units		25 Units		50 Units	
	Piece	Total	Piece	Total	Piece	Total	Piece	Total
FDM	\$40	\$40	\$40	\$400	\$40	\$1,000	\$40	\$2,000
SLA	\$68	\$68	\$50	\$500	\$49	\$1,225	\$49	\$2,450
SLS	\$15	\$15	\$11	\$110	\$10	\$250	\$10	\$500
IM	n/a	n/a	n/a	n/a	\$56	\$1,400	\$38	\$1,900

COMPLEX PART



Process	1 Unit		25 Units		50 Units		100 Units	
	Piece	Total	Piece	Total	Piece	Total	Piece	Total
FDM	\$89	\$89	\$89	\$2,225	\$89	\$4,450	\$89	\$8,900
SLA	\$96	\$96	\$77	\$1,925	\$77	\$3,850	\$77	\$7,700
SLS	\$34	\$34	\$24	\$600	\$24	\$1,200	\$24	\$2,400
IM	n/a	n/a	\$235	\$5,875	\$129	\$6,450	\$67	\$6,700

* Prices are for comparative purposes only