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Innovative Methods of Injection Molding for Automotive Components

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Injection molding is a highly automated and proven process. To overcome the limits of standard injection molding and to produce moldings with a higher integration of functions as well as with a specific design, innovative processes have been developed. The main innovative processes are:

Fluid- assisted injection molding covers gas- assisted injection molding and also the recently developed water - assisted injection molding process. Both processes allow the production of moldings with hollow sections. The field of applications is very wide from thin wall moldings to thick wall media ducts.

Back molding techniques allow the production of moldings having a finished surface. In mould decoration, back molding of films and back molding of fabric and films offer new design possibilities and eliminate the need for post molding operations.

Multi - component injection is one of the fastest growing injection molding technologies.

- Two shot molding
- Co-injection

Even two - shot molding is not just one single process. Depending on the product the specific machine and mould technology is selected. Products consisting of 2 and more polymers can be produced. Soft rigid combination is also very interesting.

Co injection allows the production of moldings with a three- layer- structure. The core material is fully encapsulated by the skin material. Skin and core can be injected compact or foamed.

Processing of liquid silicone rubber is made on modified injection molding machines. Short curing times and the highly automated injection molding process favor this technology for moldings with rubber properties.

Powder injection molding is used for processing powders such as i.e. ceramic or metal by means of injection molding. After molding the products are sintered to get the good properties of metal or ceramic parts.

Depending on the properties of the products, a combination of different processes offers new advantages and possibilities to the molder. The combination can also offer new design possibilities for the products.