

# Optimization of the Injection Molding Parameters of Reciprocating Type Oil Seal with Thermoplastic Polyurethane Material

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## ABSTRACT

ABSTRACT The design and application for mold of injection takes shape is more widespread along with the industry progress. There is almost no design at early time in plastic molding forms manufacturing industry, and didn't complete plan and design in raw material for plastics and the mold material to select and the processing method. At present, the oil seal with the TPU material is made by try and error and waste much time. It maybe can confirm to the customer's requirement, but lacks the industry competitive ability. At present, the manufactories don't have time to lost and requested fast, quality and perfect while the progress of processing technology and equipment, the multi-molds hole injection is made for enhances the output. The way to create higher profit is enhance the output and keep quality, the mold flow balance of plastic injection is the key point for quality standard. TPU is an engineering plastic, there are many variables in process of injection, and this could make unusual samples, like the impurity, the fragments, short shoot and the jet. These situations will affect the sealing function of oil seal. In this study, we develop a mold of injection takes shape with four mold holes to prevent the above-mentioned impurity. We use the UNP (ID is 50 mm, OD is 60 mm, height is 10 mm) for example, using the Taguchi Methods to decide the injection condition and design mold, it can help us to understand the reason of impurity occurred, and it also can provide the optimization mold design and injection condition. Finally we can reduce the impurity to least and the time to test mold, and get optimization products.

Keywords : injection takes shape ; mold flow balance of plastic injection ; Taguchi Methods

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