

## **Design of Micro Turbocharger Runners for Automotive Application (Book Chapter)**

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### **Abstract:**

The turbocharged system is one of the essential components that works in the engine system. It uses exhaust gas to control a turbine. This spins an air compressor that pushes in the cylinders with extra air (and oxygen), allowing them to burn more fuel every second. The intake air system for a motorcycle turbocharger must be correctly configured to minimize the output losses caused by the runner manifold with the regulated air exhaust turbine rule regulation. The paper presents the analysis of the runner manifold configuration parameter design against the engine output and then enhances the traditional runner manifold performance. This research begins with the development of the runner manifold design and modelling, and the runner manifold will use air flow simulation software to be used for simulation purposes. The parametric analysis was carried out to study the effect of the runner manifold parameter design on the engine output after designing the reference engine model. The optimization process was then carried out to achieve the goal of progress that had already been set before the optimization was carried out. The findings show an improvement in speed and pressure of up to 65.20 and 88.09% at the optimal operating range of engine speed.

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