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Flow Analysis of Car AC Duct to Find Temperature, Velocity and Pressure Difference

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Abstract: *Car AC ducts are consisting of two types of cross sections, rectangular and circular. Their performance also varies with the type of duct used. In most of the cases sharp turnings are avoided so as to avoid direct contact with duct inner surface. At some places the conditioned air flow also regulated with the help of duct wings. These types of conditions affect the performance of the duct. Rectangular AC duct is commonly used and well-known type of ducting system which is implemented for the transport of conditioned air. These are cost effective and sophisticated ducting systems. At many places we find the cross section of duct decreases gradually which may affect the air flow inside the duct. It may be done intentionally to control flow inside the duct. But if it is not, then the study of their effects on the flow must be done.*

Hence it is found that the study of air behavior in AC duct is very important to know the nature of air flow in duct. There are several methods are available to simulate air flow in AC duct. But the CFD analysis method is one of the best and simple method which gives us more approximate results.

In this project CFD analysis of Car AC duct is performed for efficiency test. Pressure, velocity and temperature counters can explain the change in behavior of flow. Also coated duct is analyzed with CFD tool. Further conclusion will be drawn according to results obtained..

Keywords: CFD Tool, AC Duct.

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