A Study of Combustion Thermal Efficiency of SI Engine

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ABSTRACT

In an engine cycle, combustion thermal efficiency is the most important factor to affect engine performance. How to convert the heat released from combustion into engine brake work efficiently is the main concern of an engine designer. This research looks into the conversion efficiency of an engine deeply by zero-dimensional model together with heat release analysis method. By changing the relevant parameters of engine combustion, such as efficiency parameter a, form factor m, crank angle of start of combustion, combustion duration angle and speed of engine, ratio of compression, air-fuel ratio etc, we can get the niche to increase the thermal efficiency of an engine. We can also understand the influence of each design parameter on engine performance.

Keywords : thermal efficiency ; engine-simulation ; heat release ; wiebe function

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