

乙醇燃料SI-HCCI-SI燃烧模式发动机的工作区域

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摘要

为了研究火花点火和均质压燃两种燃烧方式的转换, 在一台ZS1105柴油发动机的基础上通过改变压缩比、燃料供给方式和进气系统, 采用进气预热成功实现了HCCI和SI两种燃烧方式的转换。试验结果表明: 所开发的双燃烧模式发动机运行可靠, 可方便地实现火花点火和均质压燃两种燃烧方式的转换, 可作为研究这两种燃烧方式转换的平台。确定了乙醇燃料HCCI工作区域的上、下边界判断方法, 得到了乙醇燃料SI-HCCI-SI燃烧的工作区域。

关键词 [动力机械工程](#) [发动机](#) [乙醇](#) [双燃烧模式](#) [工作区域](#)

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Operation region of ethanol SI-HCCI-SI combustion mode engine

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Abstract In order to investigate the engine combustion mode switchover between the spark ignition(SI) combustion and the homogeneous charge compression ignition(HCCI) combustion, a test engine was developed from refitting the ZS1105 series production diesel engine by modification of the compression ratio, the fuel supply system, and the intake system. By means of the adjustment of the intake charge preheating, the dual combustion mode switchover was realized smoothly on the test engine, which can be used as a platform for investigation of such combustion mode switchover. The criteria to distinguish the upper and lower boundaries of HCCI combustion were defined and the operation regions of the ethanol SI-HCCI-SI combustion modes were obtained.

Key words [power machinery and engineering](#) [engine](#) [ethanol](#) [dual combustion mode](#) [operation region](#)

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