

## عنوان مقاله:

Effect of GDI Injector direction and location on tumble flow and piston wall film

## محل انتشار:

دوازدهمین همایش بین المللی موتورهای درونسوز و نفت (سال: 1401)

تعداد صفحات اصل مقاله: 10

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## خلاصه مقاله:

In the current study, a 3D-CFD model was developed with the aim of revealing the spray evolution in the EFV engine when a direct injector is numerically implemented in the combustion chamber. The initial conditions, boundary conditions, and the spray shape were validated at the Iran Khodro Power Train Company (IPCO). The engine was operated at the condition of wide-open throttle and 6000 rpm. The data was employed as the inputs of the current CFD model to predict the spray evolution within the cylinder during the injection to the ignition timing. The results revealed that the spray injection had much wall-wetting effect on the piston surface rather than the liner. Thus, optimizing the piston surface is essential if the engine uses a side-direct gasoline injector in the cylinder. The CFD results specified the Crank Angle Degrees (CADs) with high levels of tumble number, showing the appropriate injection timings for the GDI sequential injections. Furthermore, the injector direction and location effects were studied on the tumble number, Turbulent Kinetic Energy (TKE), and spray wall-wetting. The base injector direction and location showed promising results than other scenarios, meaning that the initial injector location was appropriately chosen.

## کلمات کلیدی:

GDI, Injector, mixture preparation, CFD, spray modeling

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1464939>

