

## Multi-point fuel injection

Multi-point fuel injection is a fuel-injection variant for internal combustion engines.

### Function

Unlike direct fuel injection, the fuel-air mixture in engines with multi-point fuel injection is formed outside the combustion chamber in the intake manifold. The injector injects fuel upstream of the inlet valve. During the suction phase, the mixture flows into the combustion chamber through the opened inlet valve. The right injection valves are selected to ensure that the engine's demand for fuel is covered at all times; in other words, also when under full load and at high rpm rates. However, even when idling, small quantities of fuel can be precisely metered and injected.

The Exception to the rule – multi-point and direct fuel injection

Combined multi-point and direct fuel injection enables the advantages of direct fuel injection to be combined with those of multi-point fuel injection. Multi-point fuel injection boasts the advantage of reduced friction losses in partial-load operation, while direct fuel injection has a higher knocking limit when close to full load. The strengths of each sub-system complement each other perfectly when both are combined into a multi-point and direct fuel injection system. Specifically, this offers benefits in terms of fuel efficiency, both under partial load and full load.

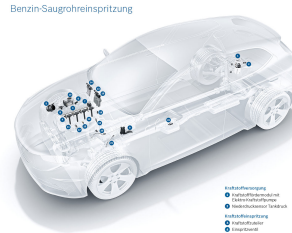
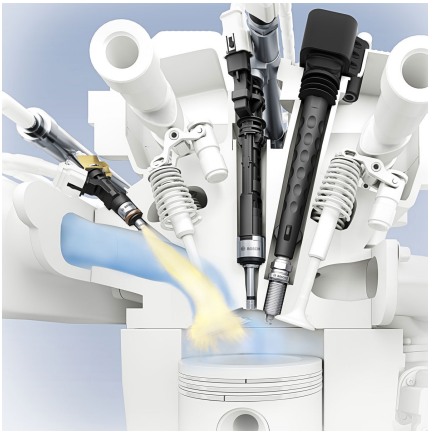
### Protection of the environment

Nowadays, direct fuel injection has become more established than multi-point injection systems. Modern direct fuel injection systems can cut fuel consumption and CO<sub>2</sub> emissions by up to 15 per cent.

### Bilder

Images related to multi-point fuel injection:

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