

Bosch engineers turn to water injection for fuel-saving bonus

2 September 2016, by Nancy Owano



Bosch water injection

(Tech Xplore)—A video showing "Bosch water injection" was posted on Wednesday to explain that Bosch has a water injection system featuring something called WaterBoost, for gasoline engines.

The big deal is that it can help support [fuel](#) economy. "WaterBoost uses the cooling effect of water to help gasoline direct injection systems place more and cooler intake air into the combustion chamber." This makes combustion particularly efficient, said the presenter, and "delivers an extra kick when accelerating."

Bosch has introduced its water injection system as a way to cool the engine and generate an additional boost. Especially at high engine speeds, some of the gasoline is used for cooling instead of for propulsion.

Autocar put it this way: "The system works by spraying a fine vapour of distilled water into an engine's intake before fuel combustion, reducing engine temperatures and therefore decreasing knocking, which wastes fuel."

Bosch discussed their principle in more details with a Wednesday announcement:

"The basis of this innovative engine technology is a simple fact: an engine must not be allowed to overheat. To stop this from happening, additional fuel is injected into nearly every gasoline engine on today's roads. This fuel evaporates, cooling critical components like the [engine](#) block and turbo charger. With water injection, Bosch engineers have exploited this physical principle. Before the fuel ignites, a fine mist of water is injected into the intake duct. Water's high heat of vaporization means that it provides effective cooling."

The BMW M4 GTS, said the company, is the first production vehicle "to feature an innovative and groundbreaking water injection system."

Sam Sheehan, *Autocar*, reported that the water injection system from the BMW M4 GTS will feature in more car models from 2019. Bosch's Martin Frohnmair, in *Autocar*, said "We can say that we expect the system to make mass production from 2019."

(Sheehan said that BMW's position as co-developer of the system makes it a likely first candidate to introduce water injection into more of its models.)

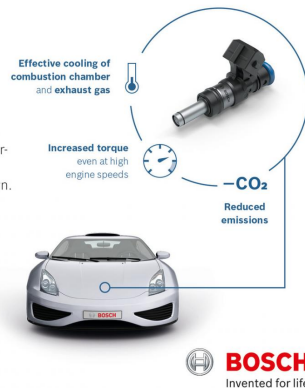
Bosch said the fuel economy offered by this technology comes especially to the fore in three- and four-cylinder downsized engines, the kind of engines found under the hood of any average midsize car.

Water power that leaves turbochargers in its wake

Water, not gasoline – Water injection is based on a simple principle: the engine cannot be allowed to over-heat. So before the fuel is ignited, a fine water mist is injected into the intake manifold to cool things down.

up to
13%

lower fuel consumption
even with rapid acceleration or on long highway journeys



Bosch water injection

Speaking to *Autocar*, Bosch global project manager Fabiana Piazza said they were launching it now "as tighter legislation and new real driving [emissions](#) tests are increasing the importance of this technology in all cars."

Should you ever end up with a car using WaterBoost, Evan Ackerman in *IEEE Spectrum* said, "you'll have to remember to fill up a tank with distilled water. However, this isn't as big of a deal as it probably sounds, because the system uses only a few milliliters per kilometer, meaning that one full tank of [water](#) will last 3,000 km or so. And if you forget to fill the tank up for a while, the worst that can happen is that you lose the benefits that WaterBoost offers until you put some water into it again."

More information:

[www.bosch-presse.de/pressporta ...
3-percent-57792.html](http://www.bosch-presse.de/pressporta...3-percent-57792.html)

[www.bosch-mobility-solutions.c ... ity/water-
injection/](http://www.bosch-mobility-solutions.c...ity/water-injection/)

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