

Glow plug breakthrough

A new pressure sensor glow plug is helping the industry to meet future diesel emissions guidelines thanks to a unique patented sensor technology to improve engine closed loop control

▶ Striving for green mobility while being aware of the demanding limits set by emissions guidelines, Hidria has invested in high-level research in order to develop a new generation of glow plug technology that improves engine combustion control.

The result of this endeavor, which for Hidria has included cooperation with partners on both a domestic and international scale, is a high-tech product that's protected by several patents.

The glow plug, one of Hidria's most successfully marketed and technologically advanced products, was upgraded with complex high-tech mechanical and electronic systems to accurately sense all phases of the combustion process, including such aspects as air intake, compression, combustion of pilot and main injections and the exhaust system.

Increasingly more restrictive emission legislation for diesel engines will require a significant decrease of NOx emissions being emitted from diesel powered vehicles in the future. In Europe, the turbocharged diesel engine has achieved a high market share in the passenger car segment because of its comparably high thermal efficiency and favorable torque characteristics. However, in order to comply with future emissions legislation, a drastic decrease of NOx and PM is necessary for vehicles with diesel engines. In particular, NOx emissions were significantly restricted following the introduction of European and American exhaust legislation – EURO VI and Tier 2 Bin 5.

Hidria's innovative cylinder pressure sensing technology integrated in the glow plug enables

Hidria's high-tech pressure sensor glow plug is available with both a long life metallic tip or a high-temperature (silicon nitride) ceramic heating element

extremely high accuracy levels and real time measurement of pressure during the combustion process. The pressure information, amplified, calibrated and filtered by exclusive integrated ASIC is transmitted to the ECU to enable engine closed loop control, thus bringing improved fuel burn levels and reduced engine out emissions.

Many additional functionalities and benefits are also realized by this technology. For example, cylinder balancing, combustion control, load pressure regulation, improved engine vibration and smooth running, compensation for different fuel qualities, injector drifts

corrections, easier and more robust engine calibration, improvement of cold start and acoustics optimization are just some of the advantages that this technology helps to bring to life.

Other key points include the operating temperature of -40C to 150C; pressure range of 0-220 bar and bandwidth of 0-10kHz.

Hidria's new generation pressure sensor glow plug can be supplied with long life metallic or high-temperature (silicon nitride) ceramic heating element, and both of these high-tech designs are suitable for powertrains featuring stop/start technology.

Based in Slovenia, Hidria has established itself as a leading supplier of advanced solutions for powertrains and steering systems in the global industry. Hidria today co-manages every tenth new car in Europe and ignites every sixth new car in the world that's equipped with a modern diesel engine. ©



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