



## MAN B&W Diesel presents first Gas Engine without Spark Plugs

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On the trade fair "Power-Gen" in Cologne MAN B&W Diesel AG presented a newly developed 32/40 PGI gas engine operating on the Otto principle. The abbreviation PGI stands for Performance Gas Injection and denotes the engine's novel start-up and ignition system, which does not need spark plugs. Thanks to this start-up and ignition system, for the first time the 32/40PGI combines the advantages of a diesel engine such as high power density and high efficiency with the benefits of a gas engine. As a result, the new engine makes possible the highly efficient conversion of the globally available fuel natural gas into thermal and electrical energy with the lowest possible emissions.

In the PGI-ignition process a small quantity of ignition gas is injected into a pre-chamber separate from the main combustion chamber. There, it is ignited on a hot surface and initiates the ignition of a lean air-gas mixture in the combustion chamber. This lean mixture contains a high excess of air so that, in combination with an effective method of ignition, efficiencies are achievable approaching those possible with a state-of-the-art diesel engine. And this at low emissions and without the need for elaborate after-treatment to reduce oxides of nitrogen (NO<sub>x</sub>). With its novel start-up and ignition system, the 32/40PGI is capable of high efficiencies in excess of 46 %, in combination with NO<sub>x</sub> emissions of less than 250 mg/Nm<sup>3</sup> at 5 % O<sub>2</sub>.

Further major technical details of the new gas engine are individual gas supply lines to each cylinder, which together with the "SaCoS PGI" engine management system – likewise an MAN B&W Diesel in-house development – ensures optimum fuelling of each individual cylinder. SaCoS PGI enables trouble-free engine operation in the operating range between the ignition knock and misfire limits. In addition, the special PGI ignition system is characterised by its very long maintenance intervals compared to conventional gas engine ignition systems.

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