

METHANOL INJECTOR

Low pressure Port Fuel Injection (PFI) solution

Driven by the importance of sustainable replacement of fossil fuels, internal combustion engines need reliable, cost-efficient and high-performance fuel injection technologies.

The HEINZMANN Methanol Port Fuel Injector platform is a cutting-edge solution designed for a wide range of engine applications. By offering various combinations of nozzle diameters and deflector geometries, this injector can accommodate an extensive power spectrum, covering 100 kW/cyl up to 500 kW/cyl, operating within a pressure range of 5 to 20 bar. This high degree of flexibility allows customers to develop tailored solutions for optimal combustion efficiency, lower emissions, and reliable performance across different engine configurations.



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FEATURES

- ▶ **Optimised spray pattern for high efficiency combustion and low emissions**
- ▶ **Modular design with customisable flange, nozzle, and deflector for diverse customer requirements**
- ▶ **Double wall configuration available**

RANGE OF APPLICATIONS

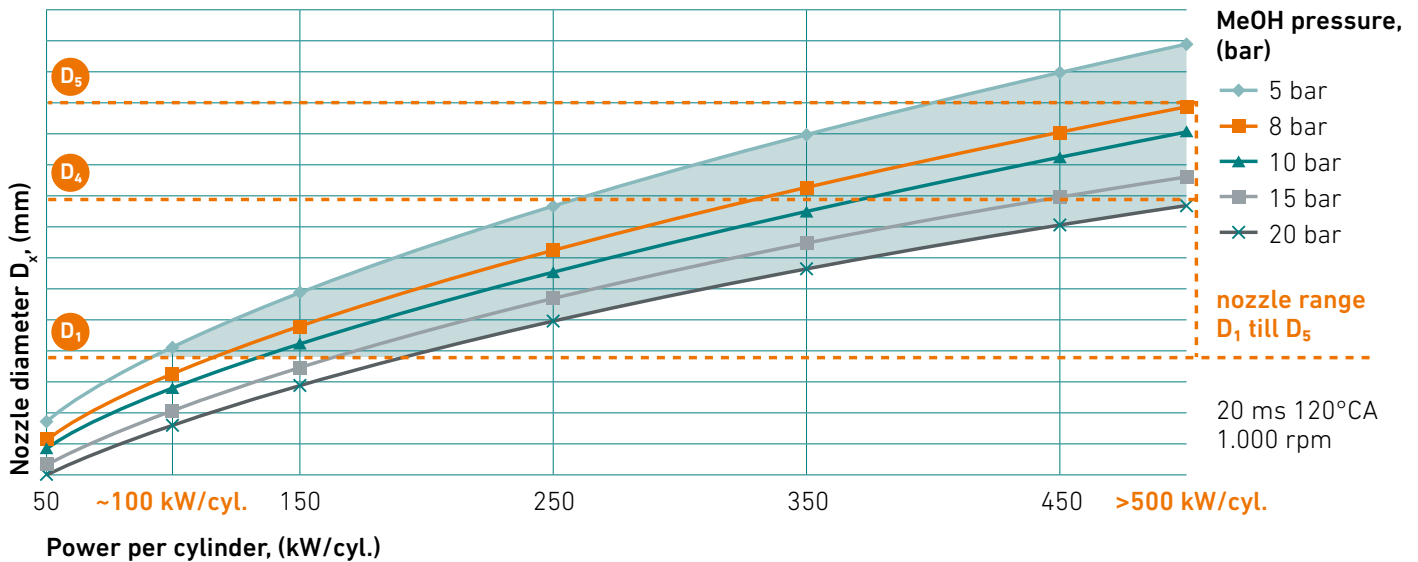
- ▶ **Marine Engines**
Enabling the transition to sustainable maritime propulsion
- ▶ **Power Generation**
Efficient and clean methanol injection for next-gen energy solutions



FLEXIBLE PFI-INJECTOR PLATFORM

The highly modular design of HEINZMANN's PFI injector platform allows seamless adaptation to specific customer design requirements. With multiple prevalidated combinations of deflector geometries and nozzle diameters, the system offers proven and harmonized solutions across a broad power spectrum – from 100 to 500 kW per cylinder. This modularity not only reduces engineering effort but also enables efficient scaling across different engine series.

Validated capability over a wide power range



The graph highlights the injector's capability to support a wide range of cylinder power outputs, depending on the selected nozzle diameter (D1 to D5, with D1 being the smallest) and methanol supply pressure. Each curve represents a specific pressure level, illustrating how the injector can be precisely tailored to different performance requirements. The shaded area indicates the recommended operating range, where the system delivers consistent and reliable performance. Curve segments outside this area represent theoretical boundaries and are not intended for practical use. This visualisation underscores the platform's flexibility and scalability across various engine series and power classes.

FLOW LIMITER

Precision fuel control for safety & performance

In methanol injection systems, precise and stable fuel control is critical for both performance and safety. To prevent excessive fuel delivery – which can lead to inefficient combustion or, in the worst case, engine damage – HEINZMANN has developed an integrated flow limiter as part of its injector platform.

- ▶ Seamless Integration – Engineered to work flawlessly with the HEINZMANN Methanol Injector
- ▶ Enhanced Safety – Reliably limits maximum fuel flow, preventing over-injection and mechanical stress
- ▶ Optimised Performance – Offers exceptionally low pressure drop combined with outstanding dynamic response

This innovative safety feature ensures reliable fuel limitation under all operating conditions – without compromising injector performance.

