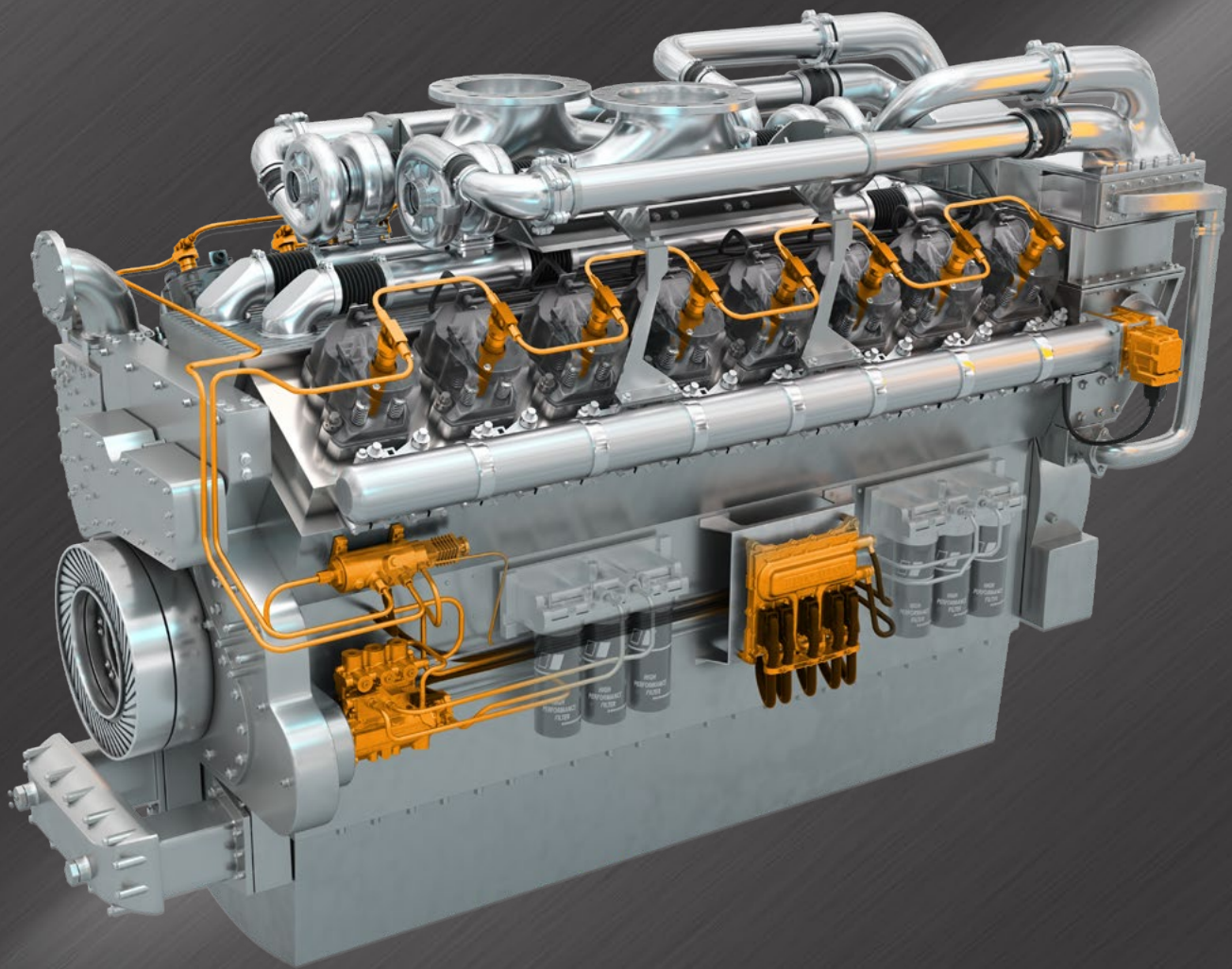
HEINZMANN®
thinking in drive and control

Engine Management

Powerful technology for diesel engines



Engine & Turbine Management

HEINZMANN ENGINE MANAGEMENT

Technologies for a clean future

For more than 125 years, HEINZMANN has been revolutionising the technological developments in diesel engine management. Ever since, our expertise and innovation have served to optimise industrial engine performance and reduce operational costs as well as the impact on the environment.

Well-known manufacturers work together with HEINZMANN to develop sophisticated medium-sized and large diesel engines. Dealing with all engine types and technologies, HEINZMANN are specialists in control technology for both mechanical and electronic injection.

CONTROL SYSTEMS

- EFI Control
- Digital Control
- Hydraulic Control

FUEL INJECTION

- Common Rail Systems
- E-PPN Systems

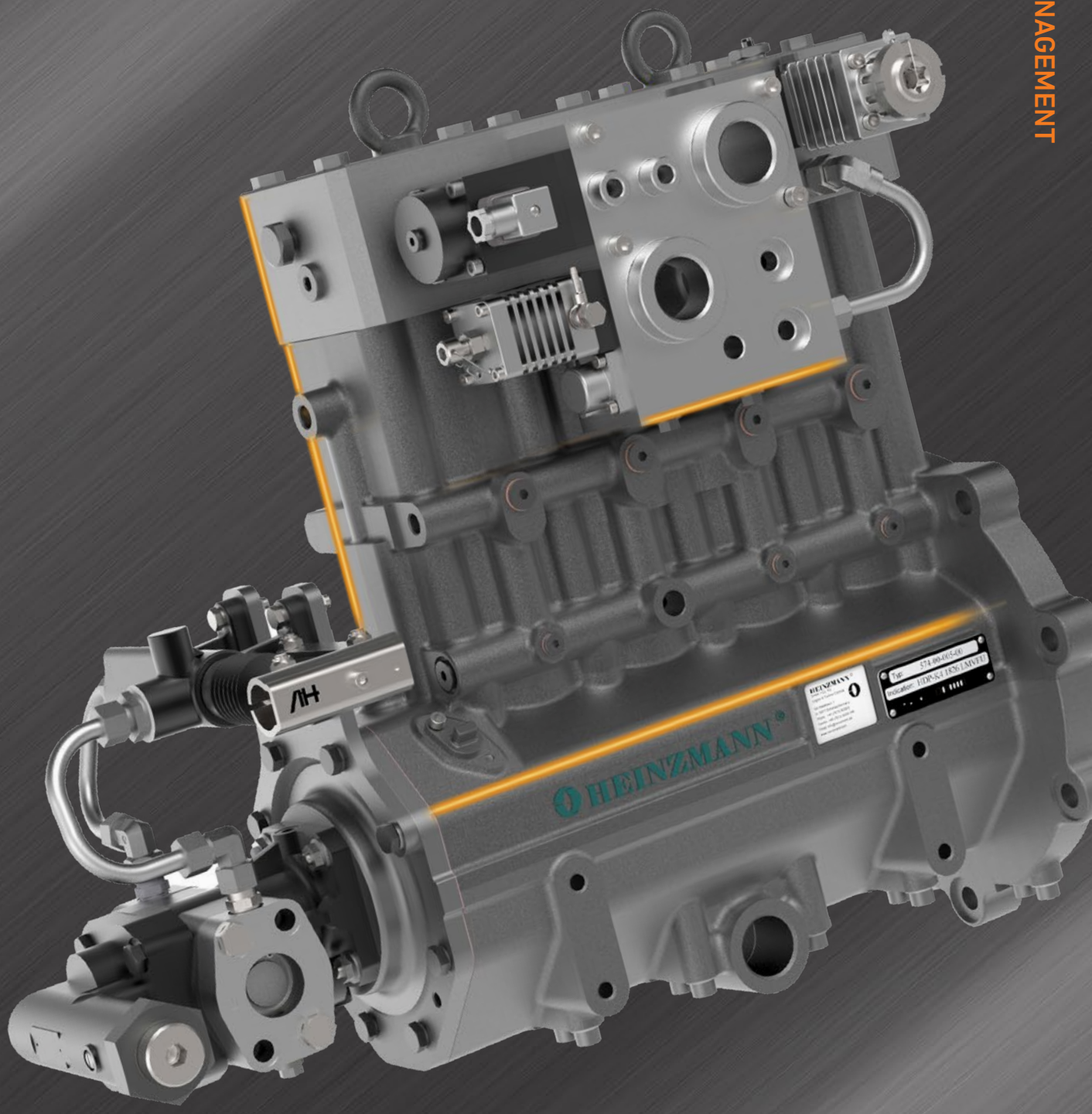
AIR PATH MANAGEMENT

- Actuators
- Positioners
- Wastegate & Bypass Valves

ENGINE MONITORING

- Oil Mist Detection
- Cylinder Pressure Monitoring

RETROFIT SOLUTIONS


HEINZMANN

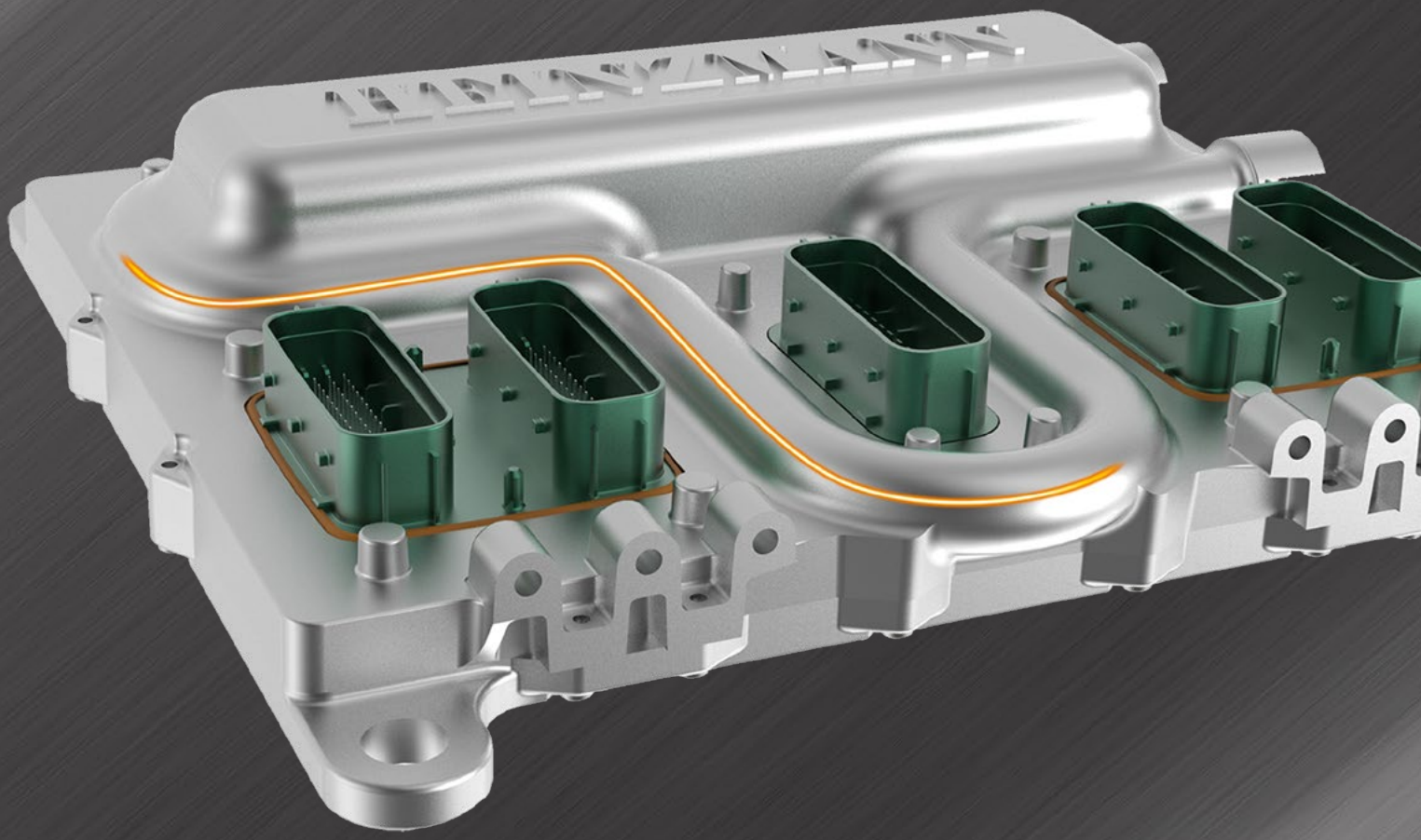
EFI CONTROL

Optimal technology for your diesel engine

HEINZMANN develops and produces all the components required for electronic fuel injection in diesel engines. With HEINZMANN systems you can implement all relevant injection control strategies for your engine.

HEINZMANN has expertise in all electronic injection technologies: complete common rail systems, E-PPN systems, control units and all associated system components, through to engine monitoring systems.

- EFI Control Systems
- Common Rail Systems
- E-PPN Systems

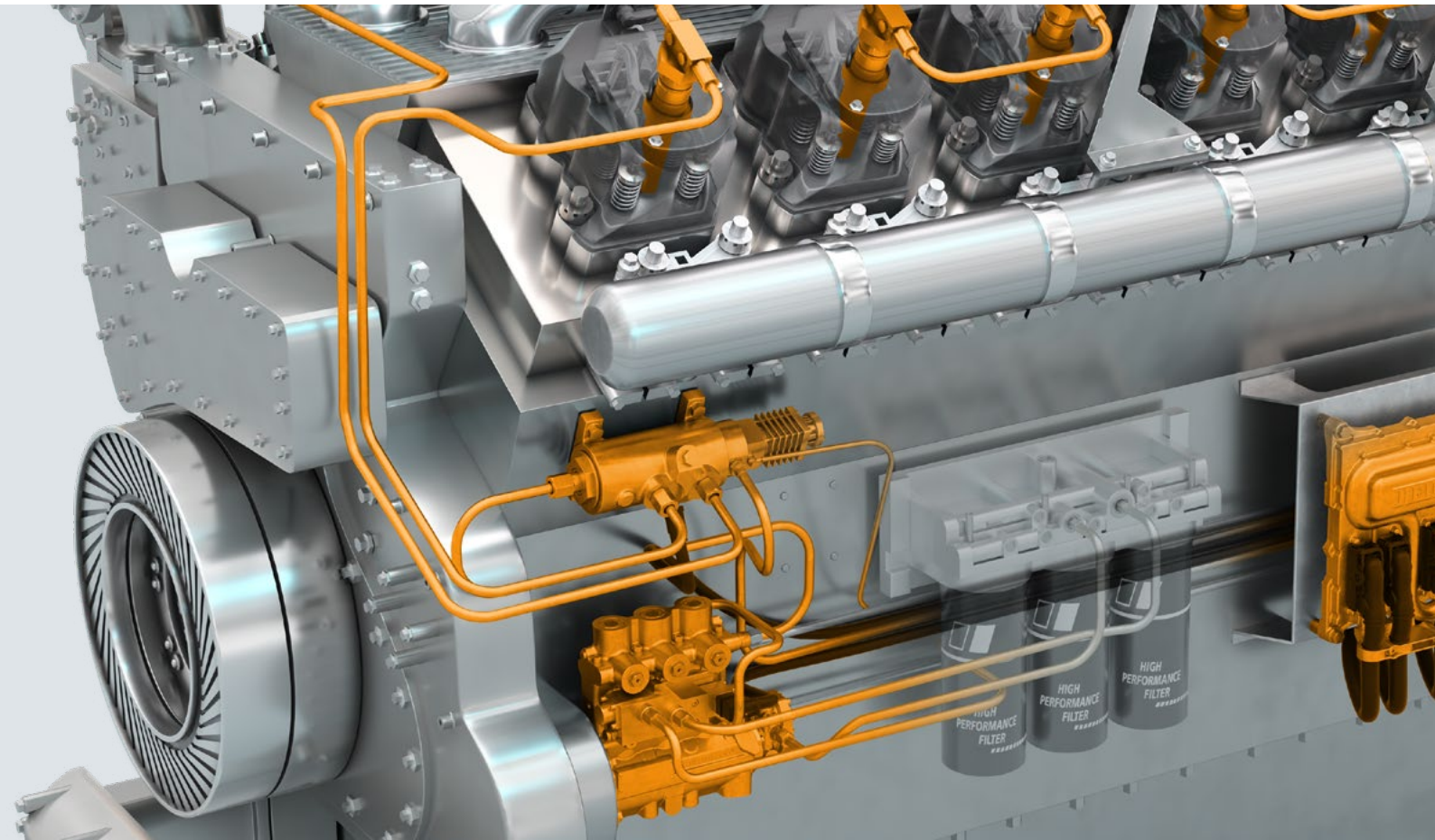


DARDANOS EFI CONTROL SYSTEMS

Precise injection control

DARDANOS Control Systems combine their main function – speed control – with other performance characteristics that benefit the engine and resulting in optimised fuel efficiency, higher engine power and lower pollutant emissions.

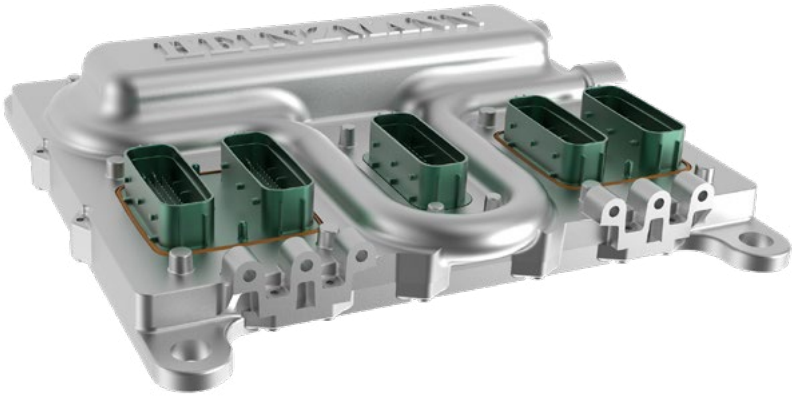
The EFI control units are used as part of common rail or E-PPN injection systems in diesel engines. For gas engines, they are combined with electrically driven gas admission valves or gas injectors. Diesel and gas fuel injection components are perfect building blocks for dual-fuel engine fuel injection systems.



DARDANOS Controls for Electronic Fuel Injection

Precise & configurable

The DARDANOS range includes universal EFI control units for engines with electronically controlled injection systems. These control systems are primarily used to control the speed and power output in various application fields. They can also be used for basic monitoring functions, thereby increasing the operational reliability and availability of engines.



- **Up to maximal 24 cylinders**
- **Up to 7 precise injections per cylinder and stroke**
- **Applicable with any fuel injection system based on solenoid valves**
- **Up to 3 actuators can be actuated directly, for instance to control various functions in air path**

DARDANOS

Perfect for your needs

In addition to speed control and control of the components of injection systems, extensive monitoring functions can be performed.

- Increases operational safety
- Increases the availability of the engine

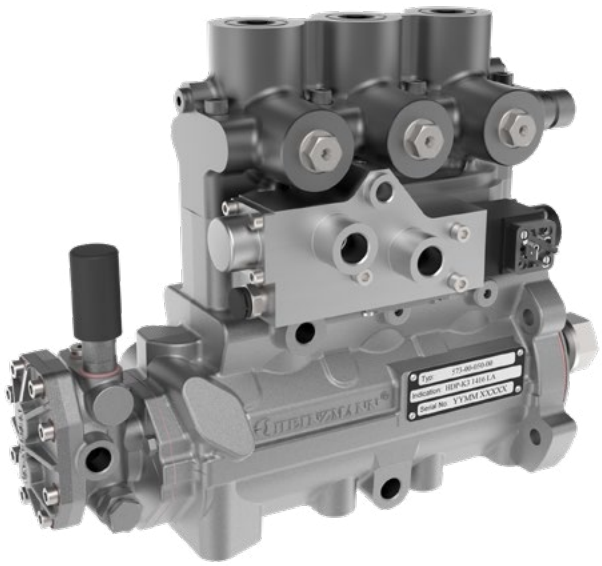
ODYSSEUS COMMON RAIL SYSTEMS
Empowering efficiency

ODYSSEUS Common Rail Systems include all components for pressure generation and fuel injection, thereby guaranteeing optimum connectivity and compatibility.

Together with the DARDANOS control units, the very precise hydro-mechanical components represent a holistic solution for state-of-the-art common rail injection technology. The ODYSSEUS range covers engine ratings from 150 to 10,000 kW and more. The different variants of the system are not only suitable for different engine sizes, but also different applications and fuel grades. In order to be able to guarantee the highest quality standards, all common rail components are developed and manufactured by HEINZMANN inhouse.

ODYSSEUS High-Pressure Pumps

The high-pressure pumps from the HDP-K range feature a unique crankshaft mechanism. They offer the greatest possible efficiency and resilience and are ideally suited to the requirements of harsh industrial applications. The special design aims to minimise the wear on pumps and components. As such, HDP-K high-pressure pumps ensure efficient operation whilst requiring little maintenance.



- System pressures up to 2,400 bar
- Robust design
- Long service life
- With or without pre-feed pump
- Lubrication provided by the engine oil circuit
- Simple to maintain
- Variants for heavy fuel oil operation

ODYSSEUS Injectors

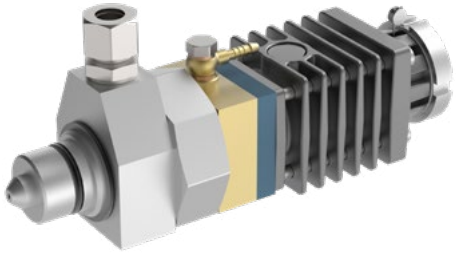
The new generation of ICR-DS injectors has been designed to eliminate static leakage, and reduces the return flow of fuel by 75 % compared to conventional injectors. By integrating the accumulator volume, pressure peaks inside the injector are reduced by 25 %. This produces a uniform, consistent flow of fuel, which is crucial for operation with heavy oil in particular.

- **High performance**
- **Fast response**
- **Compact design**

ODYSSEUS High-Pressure Accumulator

The HEINZMANN high-pressure accumulators can be tailored to the respective engine characteristics.

ODYSSEUS Rail Pressure Limiting Valves



Pressure-limiting valves for protecting common rail systems against excess pressure; with fast-switching action for rapidly reducing the pressure.

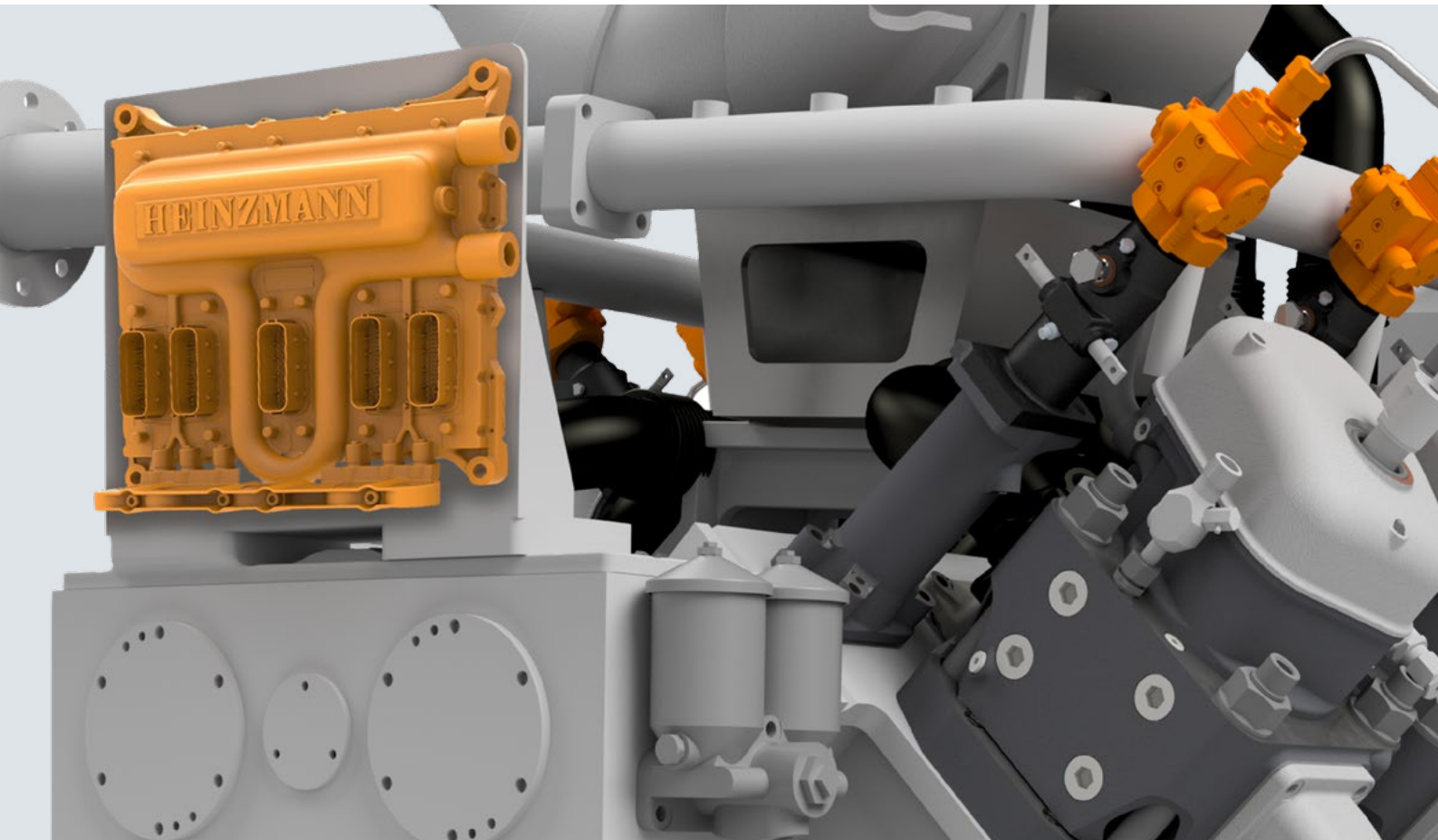
LAVINIA E-PPN SYSTEMS
For retrofits and for new engines

LAVINIA, the electronically controlled E-PPN (Electronic Pump Pipe Nozzle) System, has been designed as an extension for existing mechanical injection systems. It centres around a magnetically actuated control valve that is integrated inbetween high pressure pump and fuel line.

The LAVINIA E-PPN System expands the existing fuel system and can be used both for new diesel engines and for retrofits. Thanks to the precise actuation by a control unit, the system offers all the advantages of an electronic fuel injection system to ensure optimised combustion and overall engine efficiency under all operating conditions.

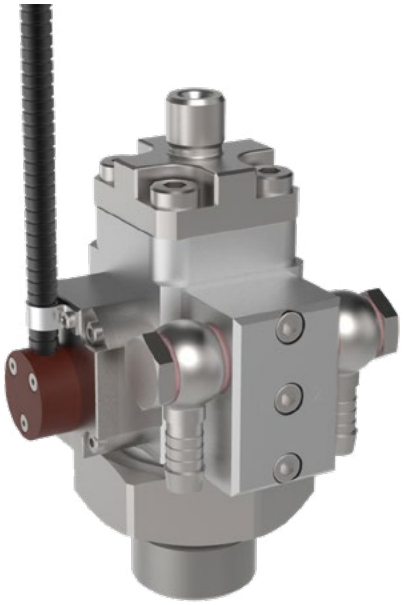
E-PPN Control Unit MVC 01-24

The E-PPN control unit is based on the reliable, tried and tested DARDANOS Control System. The MVC 01-24 is HEINZMANN's most powerful electronic fuel injection control system and can actuate up to 24 cylinders. It features many inputs and outputs, making it easy to use on almost any diesel engine.

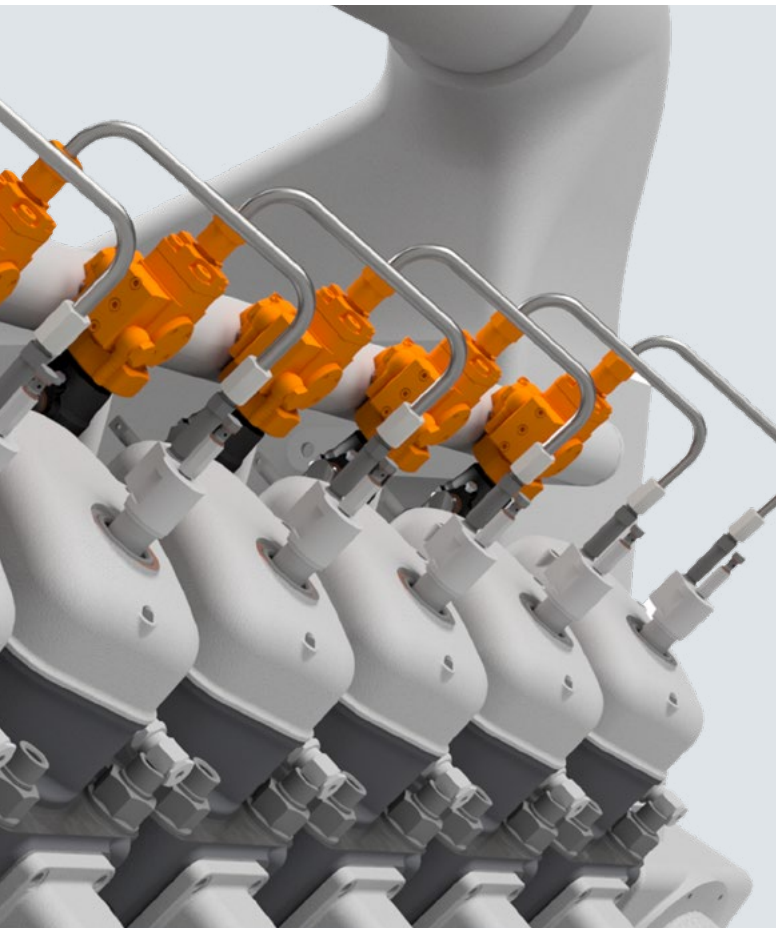


E-PPN Fuel Control Valve

HEINZMANN can provide a universal, electro-magnetically actuated fuel control valve for diesel engines. It is used to precisely determine the fuel injection timing and quantity. As it has been designed as a module, it can be easily combined with existing high-pressure pumps and injectors from a wide range of manufacturers, negating the need for any major changes to the engine. It comprises a complete extension kit for mechanical diesel fuel injection systems with individual plug-in pumps.



- **Injection timing depends on the speed/load**
- **Various cylinder cut-off strategies when idling or operating at low loads**
- **Cylinder balancing**
- **Up to 350 kW per cylinder**
- **Up to 1,600 bar system pressure**



LAVINIA E-PPN System

Universally applicable

Enables the injection quantity and timing to be controlled electronically

- Can be adapted to different fuel pump designs
- Cost-effective solution for retrofit and for new engines

DIGITAL CONTROL SYSTEMS

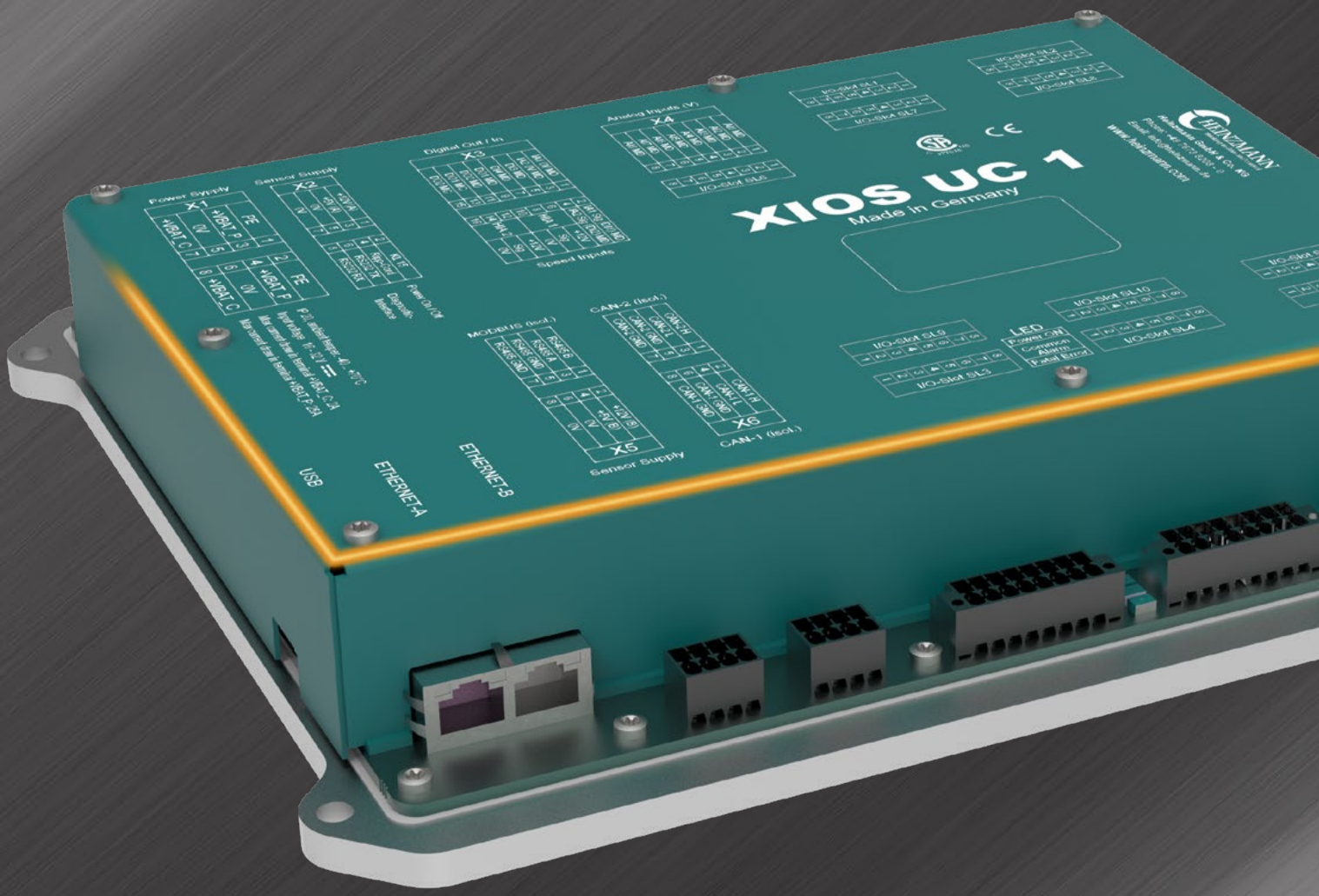
All from one source

HEINZMANN develops, produces and markets all system components for digital engine controller systems such as speed governors, actuators and sensors.

The HEINZMANN DcDesk configuration and visualisation software enables the user to configure all our digital controllers and adapt them to their engine environment.

This ensures optimum adaptation to different application types. Our customers thus benefit from a wide range of complete solutions from a single source.

- Digital Controls
- Integrated Solutions
- Actuators
- Positioners


XIOS UC 1
Made in Germany
Power Supply
Sensor Supply
Digital Out / In
Analog Inputs (V)
Speed Inputs
MODBUS (Incl.)
CAN-2 (Incl.)
CAN-1 (Incl.)
Sensor Supply
LED
I/O-Slot SL3
I/O-Slot SL4
I/O-Slot SL5
I/O-Slot SL6
I/O-Slot SL7
I/O-Slot SL8
I/O-Slot SL9
I/O-Slot SL10
USB
ETHERNET-A
ETHERNET-B

DIGITAL GOVERNORS
Precise, durable & flexible

HEINZMANN offers a wide range of speed governors, which are perfectly configurable in order to meet any application requirements. Combined with the appropriate actuator, HEINZMANN control units make up high-quality governor systems for diesel engines, gas engines, dual-fuel engines and gas, water and steam turbines.

Our governor systems are known for their durability and tried and tested reliability Alongside our standard products, we can also offer bespoke solutions that are tailored to specific applications. HEINZMANN develops, produces and distributes all system components such as controls, actuators, injectors and sensors. With the HEINZMANN DcDesk configuration and visualisation software the user can configure and adjust the entire range of our digital controls. This grants optimal adaption to multiple applications. Thus, our customers benefit from a wide range of complete solutions from one supplier.

Modular ECUs

The modular, universal XIOS control system represents a new generation of ECUs. At its core lies the motherboard with a high-performance CPU and generous DRAM and FLASH memory. Thanks to the FPGA chip, the computing power can primarily be used for the CPU or PLC functions, as well as for control processes requiring a lot of processing power. In addition to the motherboard, several jumperless, configurable I/O modules can also be used. It is also ideal for alarm and monitoring purposes.

- **Multifunctional**
- **Flexible**
- **Cost-efficient**

Digital Governors

HEINZMANN's digital governors are highly valued on account of their flexibility, which means they can meet all customer requirements and prerequisites. They can be used for combustion engines and turbines of any size, type and make. HEINZMANN governors are recognised for their great reliability and durability along with their excellent performance and available in a comprehensive range for use in industry, on ships, locomotives, in generator systems as well as off-road applications. All of HEINZMANN's digital governors offer extensive functions that can be programmed using the DcDesk configuration tool.

- **Tried and tested**
- **Flexible**
- **Precise**
- **High performance**
- **Durable**
- **Adaptable**

Integrated Governors

Integrated speed governors from HEINZMANN combine the capabilities and properties of brushless actuators with the possibilities afforded by a high-quality digital speed governor. They have been designed for applications that require both extensive control functions and outstanding actuation properties. They come with many inputs and outputs, thus offering a wealth of different options and enabling a variety of important signals to be incorporated into the control system.

- **Excellent control performance**
- **Reliability**
- **Endurance**

ACTUATORS
For any type and size of engine

For more than 125 years, HEINZMANN has been developing and producing extremely efficient actuators with different power levels and modes of operation, covering all areas of application.

Our renowned electrical and hydraulic actuators can be easily installed in any type of engine and are suitable for use as original equipment or for retrofits.

Electric Actuators
Rotary actuators with gearing

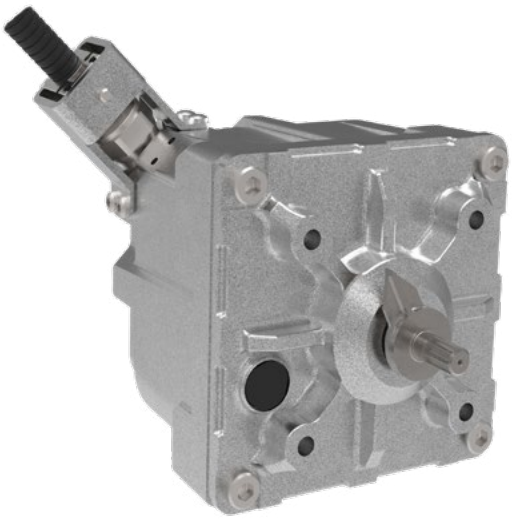
The range of electrically driven actuators with gearing is based on a DC disc motor, which has been combined with a gear mechanism. These actuators provide a nominal torque of 4 to 180 Nm and a control angle of 36° or 42°. They are used in medium-sized and large diesel and gas engines, as well as gas and steam turbines. The actuators can be combined with various analogue or digital HEINZMANN governors and provide contactless position feedback.

- **Tried and tested**
- **Reliable**
- **Long service life**

Electric Actuators

Direct acting rotary actuators

This is a range of direct-acting actuators with a rotating shaft and an all-electric drive concept. The torque varies from 0.55 to 13 Nm at a maximum control angle of 36°, 53°, 68° or 70°. They are primarily used for diesel and gas engines with outputs from 100 to 1,000 kW in vehicles and in industry, and can be combined with various analogue and digital HEINZMANN governors.



- **Compact design**
- **Dynamic power deliver**
- **Contactless position feedback**

Linear Actuators

This range of direct-acting actuators features an all-electric drive concept and has been developed for direct installation in diesel in-line injection pumps. It comes with special contactless position feedback.

- **Suitable for small diesel engines**
- **Robust design**
- **No maintenance required**

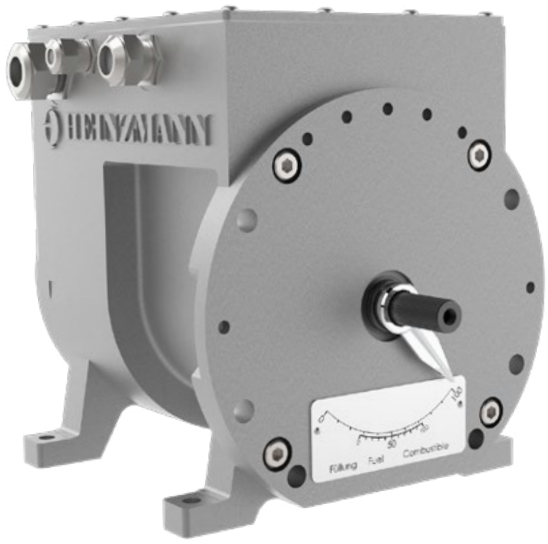
POSITIONERS
Compact & powerful

HEINZMANN offers actuators with integrated positioning electronics as well as positioning modules.

Based on the proven HEINZMANN actuators HEINZMANN produces positioners with very high performance in combination with fast response, independent of the direction of rotation or shaft position.

Positioners
With brushless actuators

These positioners stand out by offering high performance and a fast response. The disc-type motor generates a high level of torque, which is multiplied by a planetary gear. Should the power supply fail, an independent locking mechanism prevents any adverse reactions by the linkage. What's more, the IP66 degree of protection ensures the model provides optimum resistance in harsh environments.



- **Powerful**
- **Robust**
- **Fast response**

Positioners

With rotary actuators

This HEINZMANN range is based on the standard versions of our actuators and is equipped with integrated positioning electronics. The nominal torque range is 4 to 44 Nm at a rotary angle of 68° or 90°. These models are mainly used in medium and large gas engines and in dual-fuel engines. These devices can be actuated by any electronic speed governor that supplies a position setpoint signal.

- **All in one**
- **Robust**
- **Tried and tested**

Positioning Modules

Digital positioning modules for controlling HEINZMANN actuators together with external governors.

- **Universally applicable**
- **Flexible**

WASTEGATE / BYPASS
Better engine performance

To ensure excellent combustion engine performance, turbocharging is absolutely essential for achieving the targeted power output and the engine's efficiency.

For this reason, sophisticated control elements are required on the side of the hot engine exhaust gases in particular, in order to precisely and reliably control the boost pressure. HEINZMANN can provide this equipment, which includes all components required to control the wastegate.

Wastegate Valves

The wastegate throttle valves are used to control turbocharged engines. The throttle valve determines the amount of exhaust gas driving the turbocharger's turbine. When closed, the throttle valve stops ensure a better seal and minimal leaks. This arrangement means that the blocking cannot occur in the closed position.

- **Resistant to high temperatures and corrosion**
- **Optimal sliding properties over a wide temperature range**
- **Connection to the actuator can be established using a linkage or a shaft with a high-temperature coupling**

Turbocharger Bypass

Turbocharger bypass throttle valves have been specifically optimised for turbocharging. They have been specially designed to withstand the higher differential pressures that occur in this application.

- Fast response
- No maintenance required

COMMUNICATION SOFTWARE
For all HEINZMANN governors

HEINZMANN configuration and visualisation tools are used to control and display operating parameters for all digital HEINZMANN systems.

These include speed governors, EFI control systems, positioners, generator control systems and ignition systems. They offer the full spectrum of benefits when it comes to configuration, testing, commissioning and maintenance.

DcDesk Software

The DcDesk software is a configuration and visualisation tool.

- For all digital HEINZMANN systems
- Includes all functions for commissioning, monitoring and maintenance/diagnosis

HYDRAULIC CONTROL

In operation on all the world's oceans

With nearly seventy years of experience, REGULATEURS EUROPA is a renowned specialist in the field of hydraulic control. The company delivers a wide range of hydraulic governors & actuators.

Customers from the industrial, shipping and rail vehicle sectors value the controllers for their absolute reliability and durability, combined with outstanding operating properties.

As single components or as part of an engine management system - REGULATEURS EUROPA supplies the optimally configured controllers for application-specific requirements.

- Electro-hydraulic Governors
- Hydraulic Governors
- Hydraulic Actuators


REGULATEURS EUROPA
Type No.
Serial No.
Cust. No.
Act. Mode
Compressed spring underneath cover
DRAIN

HYDRAULIC CONTROL
Proven technology

With nearly seventy years of experience, REGULATEURS EUROPA is a renowned specialist in the field of hydraulic control and has a high reputation in the market.

Governors and actuators from REGULATEURS EUROPA are used both for new engines and as replacement products. The wide range makes them universally applicable, even for applications that require high standards, such as the marine sector.

Electro-Hydraulic Governors

REGULATEURS EUROPA is continuously extending their hydraulic governor range. Latest developments are microprocessor controlled hydraulic governors, which combine the well proven REGULATEURS EUROPA hydraulic governors with the widely recognised HEINZMANN digital controls.

- New product generation
- State-of-the-art control technology
- Marine certified

Hydraulic Governors

Engine builder around the world trust in REGULATEURS EUROPA hydraulic governors whenever a high reliable, stable and optimal solution is needed for specific applications like marine propulsion gensets and turbines in diesel, gas or dual-fuel mode.

- **Excellent control performance**
- **Reliability**
- **Endurance**

Hydraulic Actuators

The broad range of hydraulic actuators offered by REGULATEURS EUROPA in the HEINZMANN portfolio is acknowledged for high reliability and durability along with excellent performance by customers in the industrial, marine and rail traction sector. These hydraulic actuators are designed to be controlled by digital governors from HEINZMANN and REGULATEURS EUROPA or by external controls.

- **Excellent control performance**
- **Endurance**
- **Reliability**
- **Wide range of actuators**

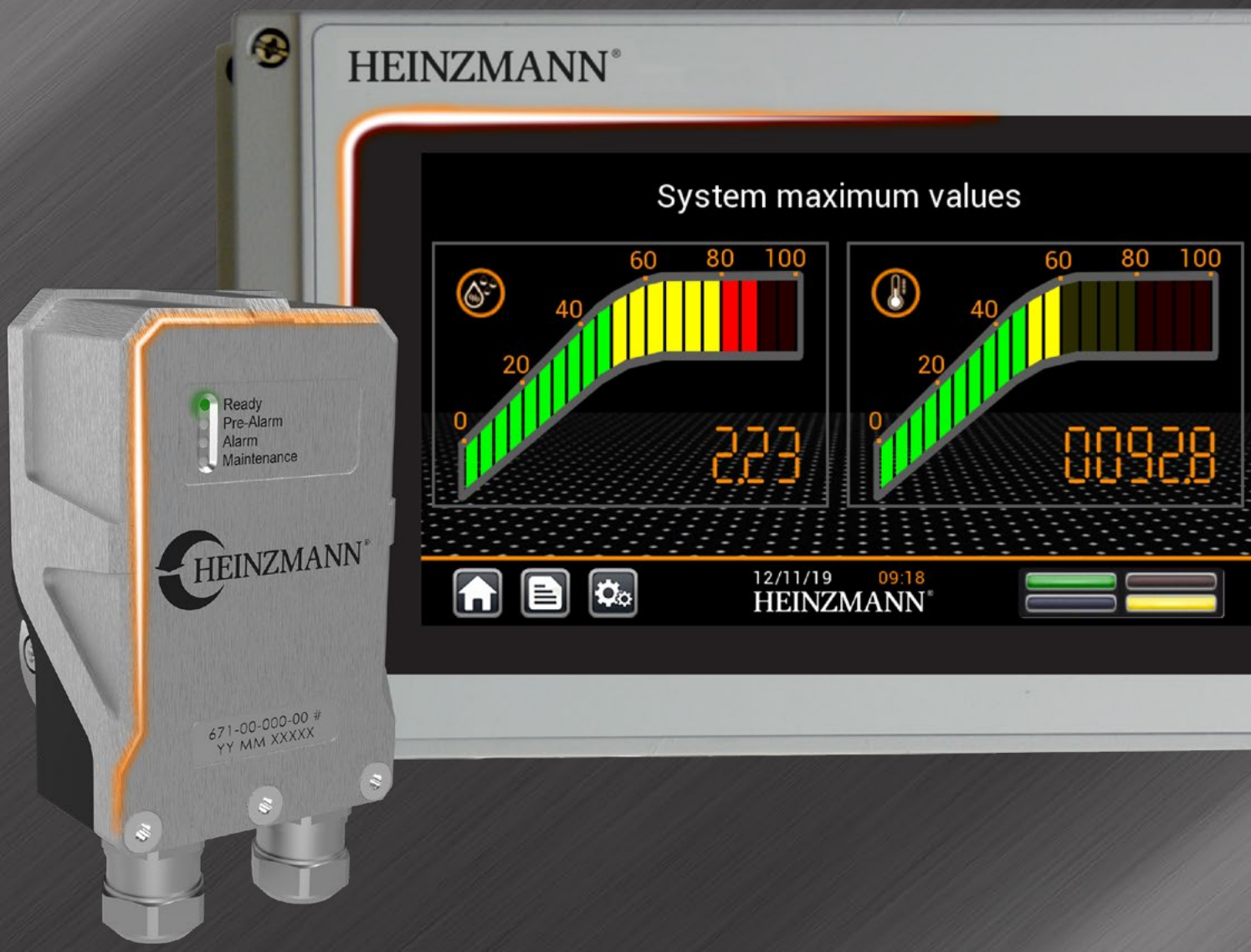
ENGINE MONITORING

For the protection of man and machine

Continuous monitoring of the various engine characteristics is one of the most important prerequisites for early detection of engine component wear and consequently for increasing asset availability and cost saving through optimised maintenance planning. Even more important is the prevention of dangerous conditions for people and serious damage to machinery in the event of fast occurring or hidden malfunctions.

HEINZMANN has developed dedicated systems for condition monitoring, performance supervision and reliable protection.

- Oil Mist Detection
- Cylinder Pressure Monitoring


HEINZMANN
System maximum values
0
20
40
60
80
100
223
00928
12/11/19
09:18
HEINZMANN
Ready
Pre-Alarm
Alarm
Maintenance
HEINZMANN
671-00-000-00 #
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TRITON OMD II

The new generation of oil mist detection

TRITON OMD II has been specially designed to set a new industry benchmark, in terms of operational performance and reliability.

TRITON OMD II can be seamlessly integrated into the engine automation and safety systems. HEINZMANN offers a OEM solution without central unit and a all-purpose solution with central unit.

TRITON OMD Central Unit

The central unit covers all tasks with regards to enhanced visualisation of TRITON OMD sensor values, system configuration and interfacing to subordinated systems for alarm and data processing.

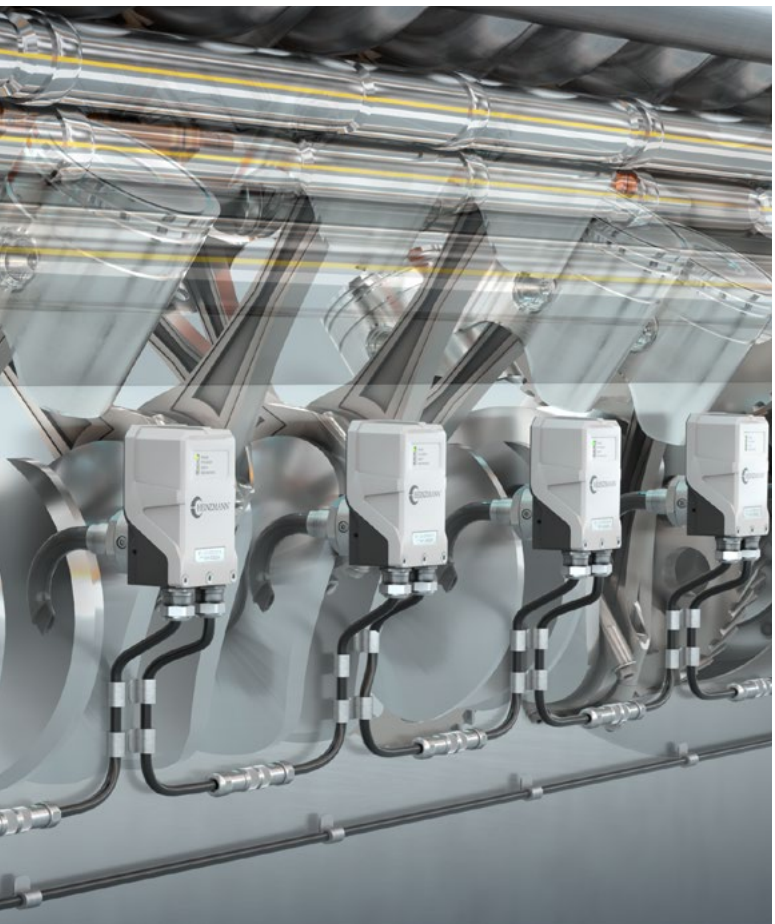
- **Designed to withstand harsh environmental conditions occurring in the application area**
- **Best suited for direct installation on the engine or alternatively in the engine room**
- **The central unit can serve up to 16 sensors**

TRITON OMD Sensor

The core element of the system

Sensors may be used either in combination with the central unit from HEINZMANN or alternatively as an integral part of a customer proprietary superordinate engine safety system. The sensor represents the core element of the TRITON Oil Mist Detection System.

- **Excellent system responsiveness by active sampling and optimised internal structures**
- **Enhanced reliability of the measurements due to the multi-channel structure in combination with sophisticated algorithms for plausibility evaluation**
- **Easy installation and exchange thanks to flexible sampling feed and quick-fix connections**
- **Cost savings through integration into the customer's safety system with no need for a central unit**



TRITON OMD II

Multiprotection at its best

HEINZMANN Oil Mist Detection Systems can be applied to all types of combustion engines for both stationary and mobile applications:

- Diesel engines
- Gas engines
- Dual-fuel engines
- Alternative-fuel engines

TRITON CPM
Cylinder pressure monitoring systems

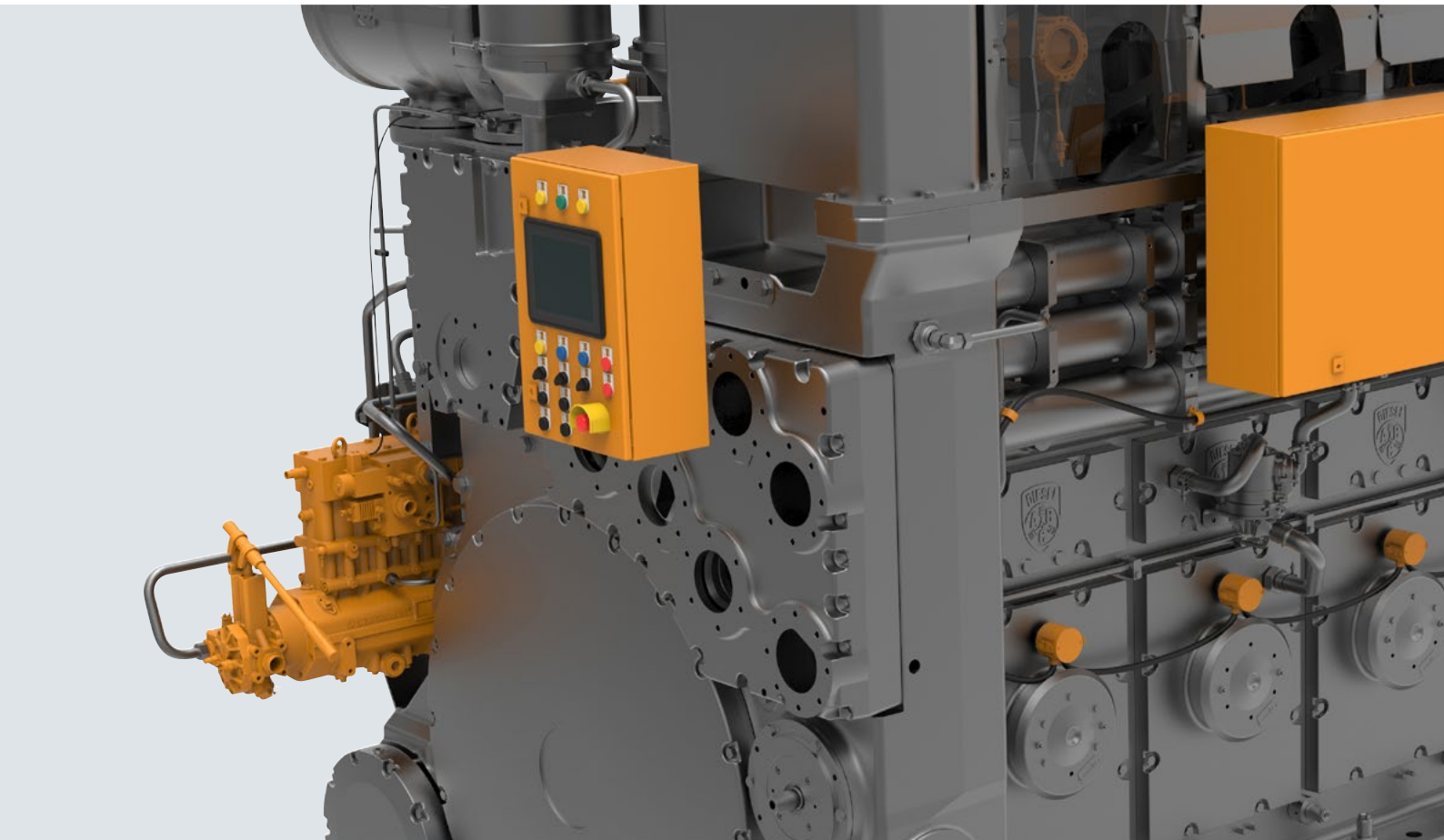
As an electronic measuring system, TRITON CPM offers key advantages over mechanical measuring sensors on diesel engines: it is much easier to operate and also provides much more precise measurement results.

Once the data has been recorded, it can be downloaded directly to a PC or notebook via USB and edited using HEINZMANN software. The data can be transmitted by telephone or via the Internet. This enables the results to be analysed locally by a specialist and provides information about the condition of the engine.

TRITON CPM High-Temperature Sensor

The TRITON CPM System for measuring the cylinder pressure includes a control unit and an appropriate cylinder pressure sensor plus a visualisation software.

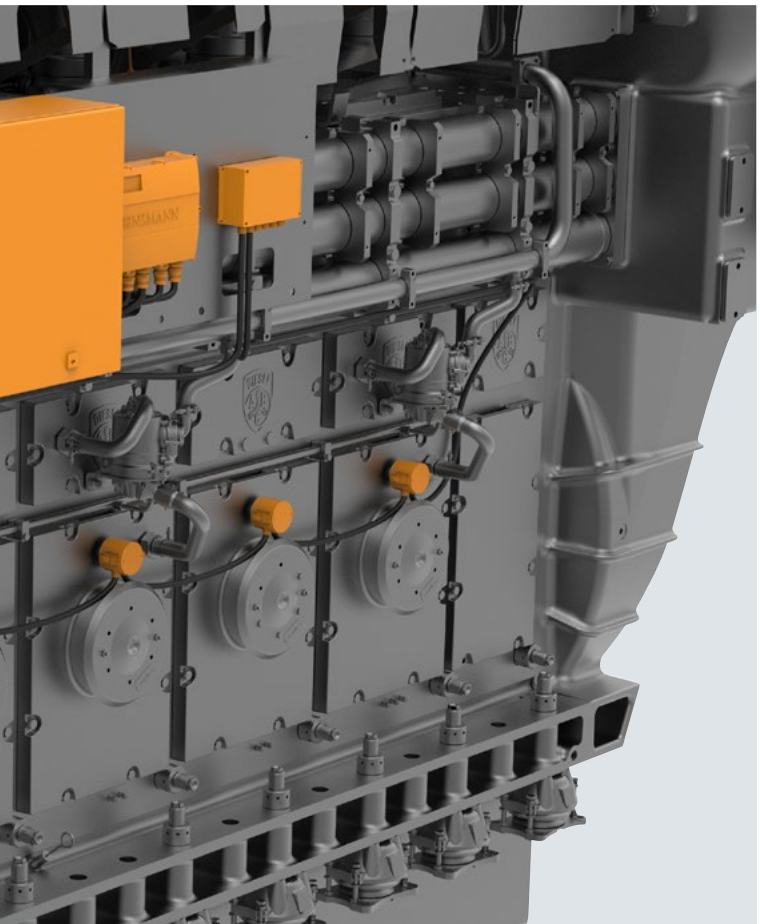
- **Precise, reliable, sturdy and affordable pressure sensor**
- **Suitable for high and medium temperatures**



TRITON CPM Cylinder Pressure Control Unit

The TRITON CPM System for cylinder pressure monitoring is a user-friendly, electronic measuring and recording device that enables regular and accurate monitoring of cylinder pressure.

- **Provides information on possible improvements in engine configuration**
- **Helps to improve combustion**
- **Supports to reduce fuel consumption and emissions**



TRITON CPM
Easier engine operation

The TRITON CPM System enables regular and precise monitoring of the cylinder pressure

- Replaces mechanical indicators on diesel engines
- Designed for robustness, precision and long life

RETROFIT SOLUTIONS

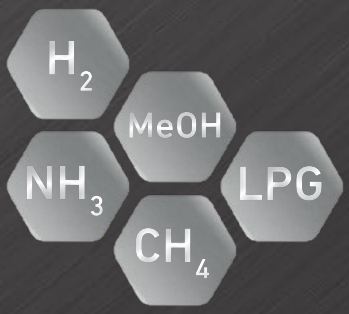
Ready for green future

HEINZMANN supplies a wide range of turnkey retrofit solutions for engines that are already in use in the field. Conversions enable them to benefit from the use of the latest technological developments. Modernisation of existing engines focuses on improving their performance, cutting emissions and operating costs and extending the service life. Because we are committed to being a single source supplier in the interests of our customers, we offer all associated components and services.

Furthermore HEINZMANN wants to contribute to a greener future with technologies for alternative fuels. Our customers can make their alternative fuel choice and HEINZMANN will provide them with the best suitable fuel injection and control systems.

- Conversion to Alternative Fuels
- Conversion to Dual-Fuel Operation
- Exhaust Aftertreatment
- Common Rail Retrofit
- Conversion to E-PPN

Alternative fuel components



Low-pressure gaseous fuels

Low-pressure liquid fuels

High-pressure liquid fuels

APPLICATIONS

Solutions for key industries

Decades of experience, a commitment to innovation and an excellent price/performance ratio make the HEINZMANN Group a universally valued and reliable partner.

Our system solutions are used in new engines and in retrofit systems in a wide range of applications, where they have proven themselves outstandingly.

Ships

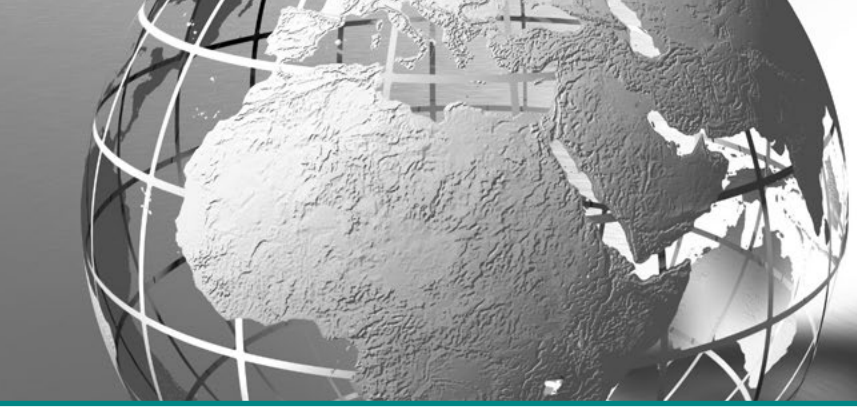
Together the member companies of the HEINZMANN Group offer a comprehensive range of propulsion control, engine control and automation systems for ships. For decades they have supplied the civilian and military shipping industry. They offer standard solutions as well as customer-specific development projects. The quality and reliability of HEINZMANN systems is valued by customers, and their suitability for use in ships is certified as a matter of course by well-respected classification societies.

Rail Traction

With HEINZMANN and REGULATEURS EUROPA, the corporate group includes two long-standing specialists for control of combustion engines in rail traction applications. Available for either mechanical or electronic fuel injection, these traction control systems operate in diesel-electric and diesel-hydraulic locomotives worldwide. The flexible configuration and high governing quality make HEINZMANN systems a sought-after retrofit solution.

Industrial Vehicles

Thanks to their extraordinary performance, reliability and long service life, HEINZMANN systems meet the challenges set by the demanding operating conditions of agricultural and construction vehicles. The company's success and reputation in the market is based, in particular, on special developments and large series production for prestigious customers such as Deutz, Liebherr and Daimler.



HEINZMANN®
thinking in drive and control

HEINZMANN GROUP - THINKING IN DRIVE AND CONROL

HEINZMANN is a globally active family business founded in 1897 with its headquarters in Schönau (Germany), in the Black Forest.

Today, in the field of engine management HEINZMANN is one of the leading suppliers of components and systems for industrial combustion engines, generators and turbines. As a specialist and development partner, HEINZMANN is committed to developing exactly the right solution for increasing efficiency and reducing emissions.

In the Electric Drives division, HEINZMANN also demonstrates innovative strength and development expertise in engine technologies of the future. The company has established itself as a reliable partner and system provider for electric drive systems.

Our collaborative interaction with more than 40 globally active subsidiaries and sales companies characterises the spirit within the HEINZMANN group of companies and makes us a reliable partner.

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