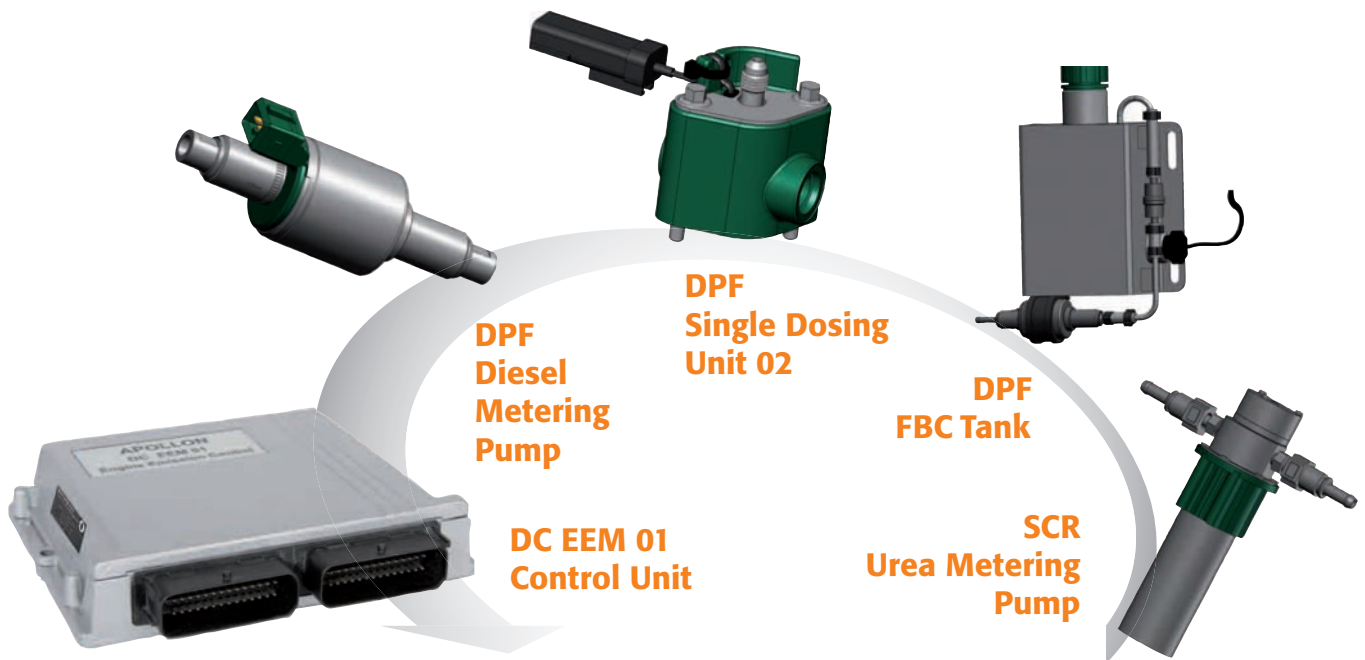


APOLLON PLUS

Engine Emission Management (EEM)

New products for exhaust gas treatment systems of diesel engines



- ✓ Passive diesel particulate filter regeneration (DPF/FBC)
- ✓ Active diesel particulate filter regeneration (DPF/HC Dosing)
- ✓ NO_x reduction by selective catalytic reduction (SCR)

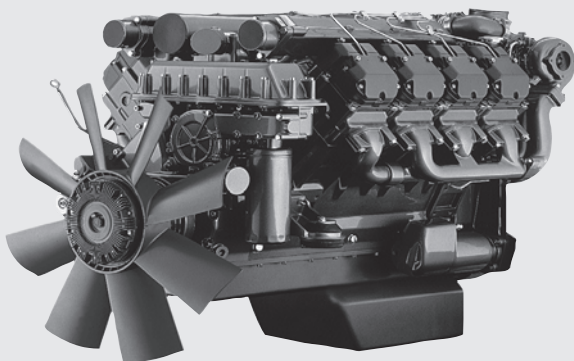


APOLLON ^{PLUS} SYSTEMS

With three new systems for the engine emission management, HEINZMANN completes its established APOLLON product family. The new product group comprises systems for exhaust gas after-treatment of medium duty and heavy duty diesel engines. Depending on the engine application, filtered particulate matter is removed by Fuel Borne Catalyst (FBC) during passive regeneration, or eliminated by injecting diesel fuel into the Diesel Particulate Filter (DPF) system during active regeneration.

To pass international emission requirements, HEINZMANN's selective catalytic reaction (SCR) solution provides a high efficient possibility to reduce NOx emissions in diesel exhaust gas by urea injection.

With its compact components, its sophisticated software and its high end control unit, the new APOLLON ^{PLUS} systems allow an optimal emission control, separately or even combined as DPF+SCR solution.



APOLLON ^{PLUS} Benefits

- ✓ **Improved regeneration**
- ✓ **Lower backpressure**
- ✓ **High NOx reduction**
- ✓ **Minimum urea/FBC consumption**
- ✓ **Monitoring/Data logging system**
- ✓ **OBD**
- ✓ **Longer maintenance intervals**

APOLLON ^{PLUS} APPLICATIONS

- ✓ **On-road**
 - **Trucks**
 - **Buses**
- ✓ **Off-road**
 - **Construction vehicles**
 - **Agricultural vehicles and machinery**
- ✓ **Marine applications**
- ✓ **Industrial applications**
- ✓ **Stationary engines**
- ✓ **Locomotive engines**
- ✓ **Generator sets**

APOLLON ^{PLUS} COMPONENTS

Passive regeneration – FBC dosing

The HEINZMANN FBC dosing is a cost efficient DPF control system for most engine applications, even working with high sulphur content in diesel fuel. Advanced dosing strategies and precise metering components are leading to lower DPF backpressure, less FBC consumption, longer maintenance intervals and improved regenerations.

Active regeneration – HC dosing

The active DPF regeneration control is designed for engine applications mainly operating at lower engine load. The regeneration is performed by dosing diesel fuel via a vaporiser or a water cooled injector into a catalyst prior to the the DPF. The generated temperature increase leads to soot combustion inside the diesel particulate filter. Due to a sophisticated system of sensors and software structures, parameters like actual soot load and required fuel injection quantity are ascertained permanently to avoid damages and atypical aging of the filter system.

NOx reduction – SCR

The HEINZMANN SCR control is a high flexible solution for OEM and retrofit applications to reduce NOx emissions by selective catalytic reduction. Detecting several engine, system and application conditions, the control unit calculates and monitors the urea injection into the SCR catalyst to ensure the optimal equilibrium between NOx reduction, urea consumption and system performance.

PFR-FBCT

Fuel borne catalyst tank

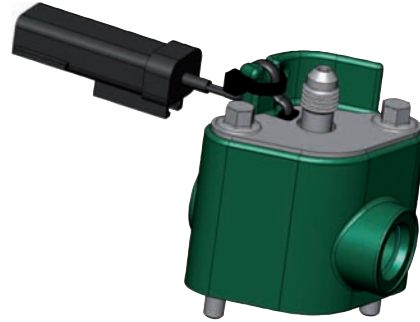
FBC tank with integrated metering pump for passive filter regeneration with FBC.



PFR-SDU 02

HC single dosing unit

Single dosing unit for active DPF regeneration. Fuel dosing for catalytic combustion of soot in filters.



PFR-DVU

Diesel vaporiser unit

Diesel vaporiser for active DPF regeneration, especially for applications with low exhaust gas temperatures.



NOx sensor

The sensor detects the actual NOx values in the exhaust gas to ascertain the exact injection amount of urea into the SCR system.



SCR-UDU

Urea dosing unit

Urea dosing unit for NOx reduction by SCR.



The new APOLLON PLUS systems, namely FBC control, HC dosing control, SCR control and combined DPF+SCR control are designed for on-road, off-road and stationary medium duty and heavy duty diesel engines as an OEM and retrofit solution. Due to various engine sensors, a

high-tech control unit with numerous inputs, a high flexible control software, data logging function and CAN bus connection, HEINZMANN closes the gap in its established APOLLON program and provides an ideal solution for all exhaust gas after-treatment requirements.

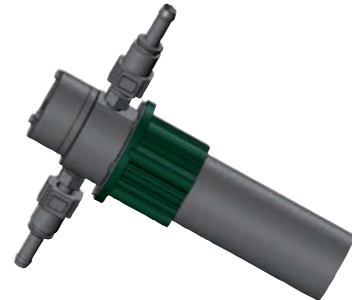
DC EEM 01
Digital control unit for engine emission management

Digital control unit for engine emission management. Control of DPF and SCR systems.

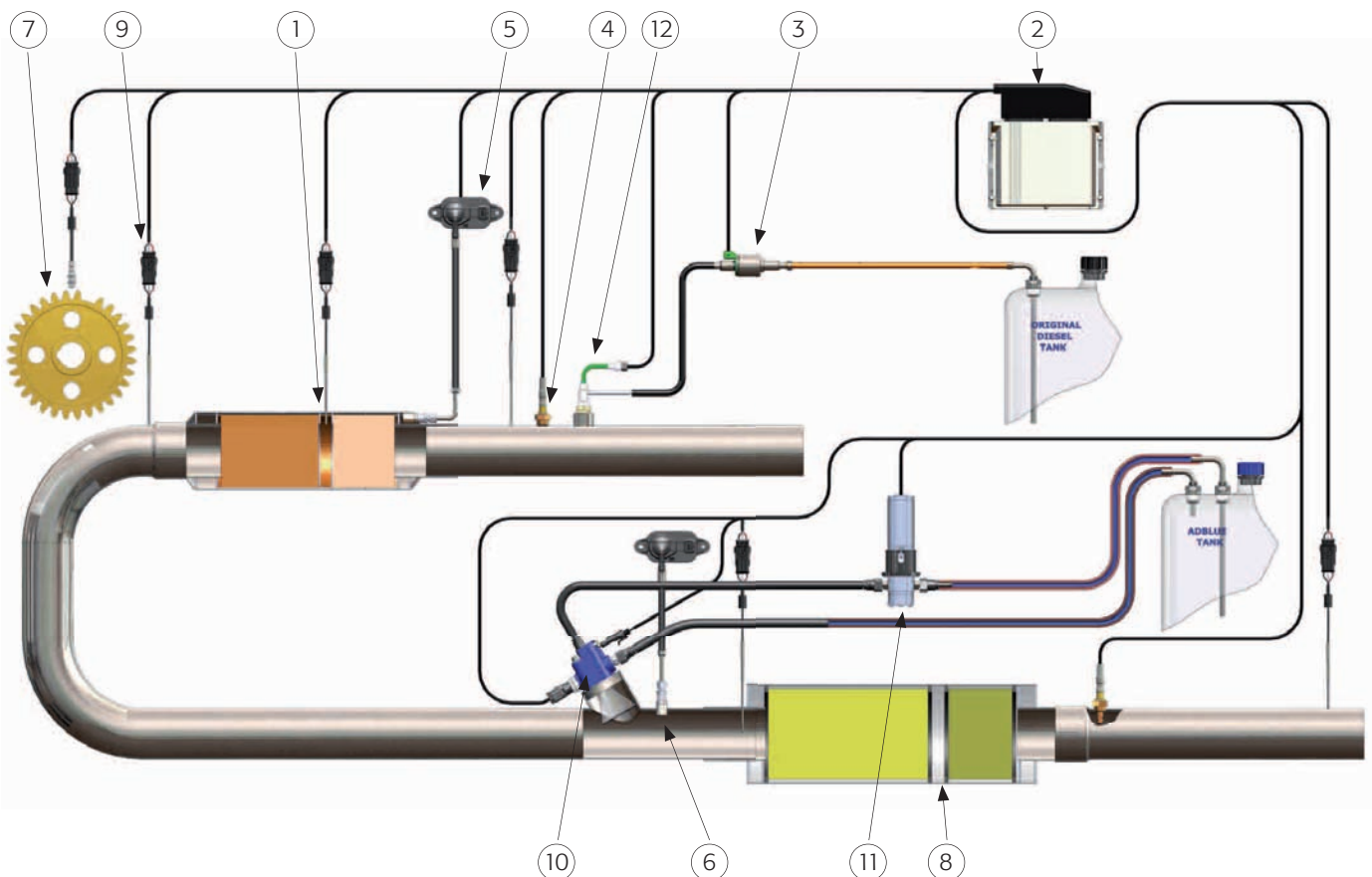


SCR-UMP
Urea metering pump

Urea metering pump for NOx reduction by selective catalytic reduction.



APOLLON PLUS SYSTEM OVERVIEW



HEINZMANN combined DPF and SCR system with HC vaporiser

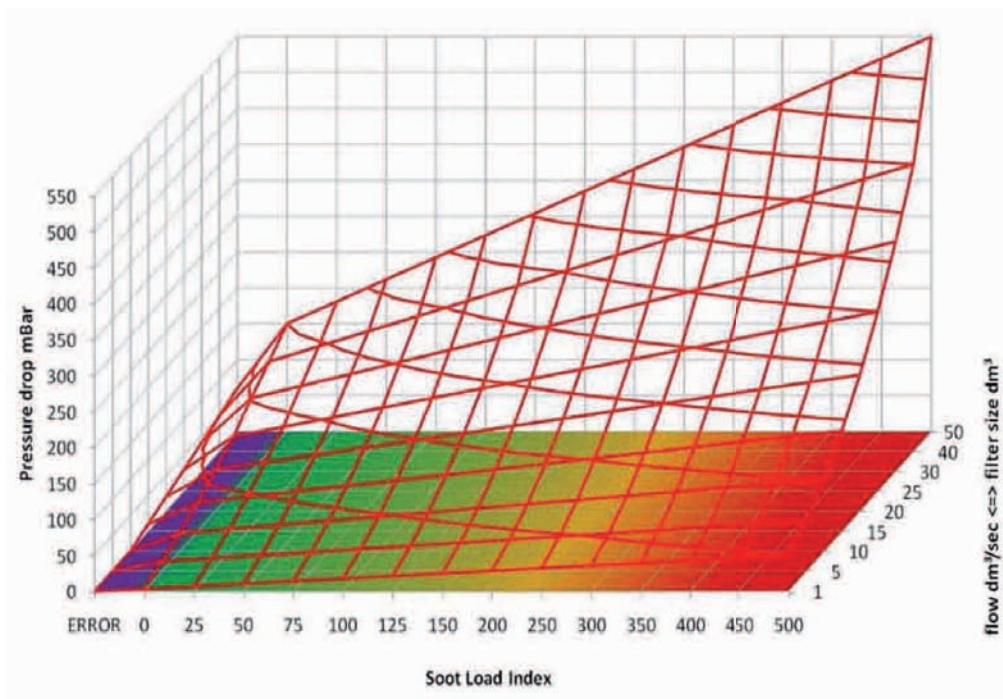
ITEM	DESCRIPTION	ITEM	DESCRIPTION
1	DOC+DPF	7	SPEED PICK UP
2	CONTROL UNIT	8	SCR MODULE + CLEAN UP
3	METERING PUMP	9	TEMPERATURE SENSOR
4	NOx SENSOR	10	UREA INJECTOR
5	PRESSURE SENSOR 1	11	UREA PUMP
6	PRESSURE SENSOR 2	12	HC Vaporiser

DPF SYSTEM MONITORING

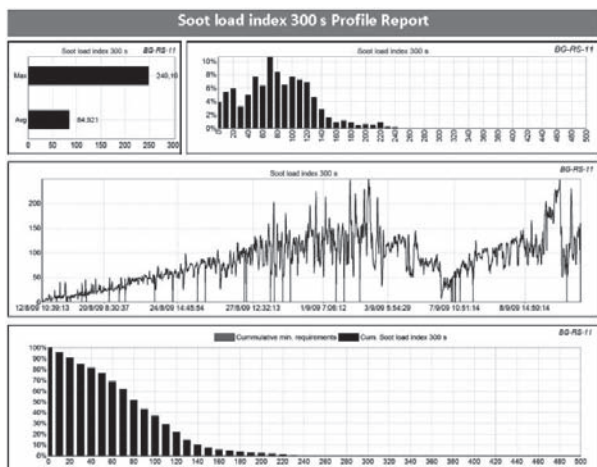
To avoid high exhaust gas backpressures and undesired exothermal reactions (due to high soot load inside the DPF), the monitoring system compares exhaust gas backpressure and exhaust gas mass flow with a user defined soot load look-up table. The determined soot load can be monitored for the operator and, when needed, the filter will be regenerated fully automatically by HC dosing. All measured parameters are recorded and can be displayed and analysed in a user-optimised software layout.

SCR SYSTEM MONITORING

To meet international emission requirements, the control unit monitors the NO_x emissions via an application-specific look-up table or via a NO_x sensor. Combined with further measurement data, the SCR monitoring system calculates the desired urea injection amount for the current engine load level. To obtain a quick SCR start up and a high efficient NO_x conversion rate at low exhaust gas temperatures, optionally an exhaust gas temperature management system is available.



Soot load look-up table



Analysis of soot load

**HEINZMANN –
clean engine technology**



Head Office:

Heinzmann GmbH & Co. KG

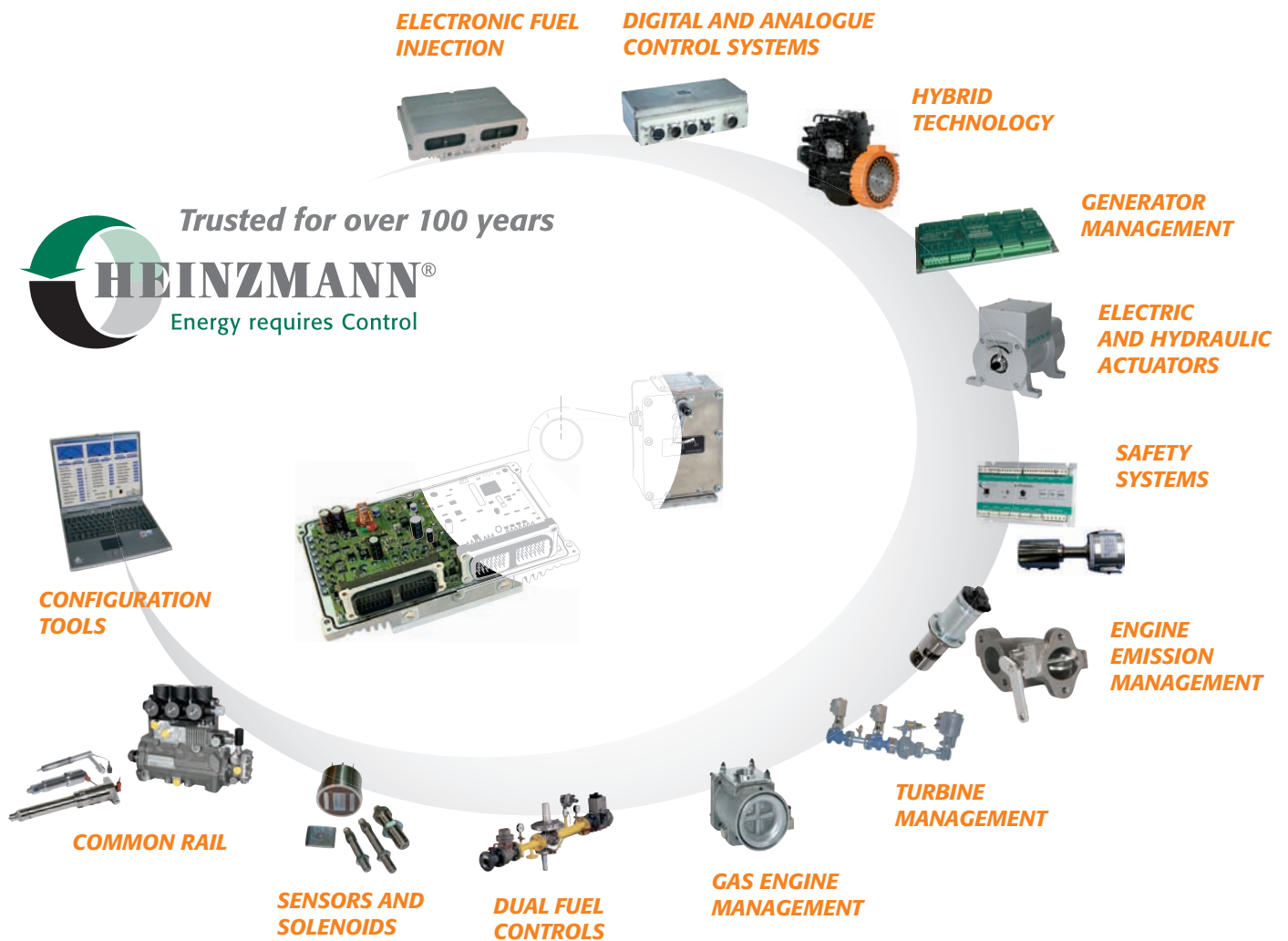
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