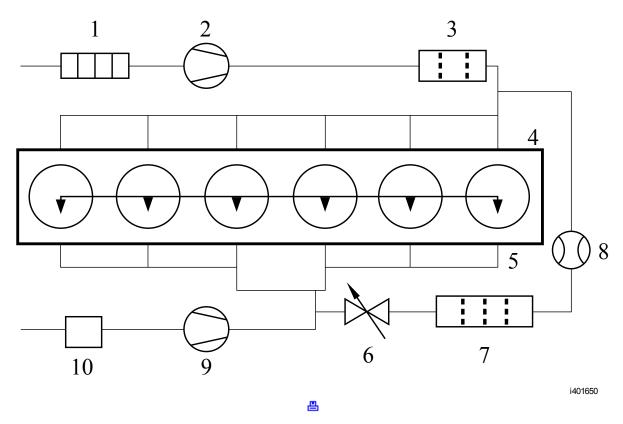
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EGR system description

General operation of the EGR system

The EGR (Exhaust Gas Recirculation) system is used to reduce the NOx emission in the exhaust gas. EGR recirculates a part of the engine's exhaust gas back into the intake manifold. NOx is mainly produced at high combustion temperatures and pressures. The intake air mainly consists of N_2 and O_2 . Under high pressures and high temperatures N₂ is oxidized, forming NOx. By leading less air and more exhaust gas into the combustion chamber, less N₂ is oxidized into NOx.

In addition, this exhaust gas is inert and does not participate in the combustion process. This results in lower combustion temperature, and thus in lower NOx emissions.



- 1 Air filter
- 2 3 Compressor (VTG)
- Intercooler
- 4 Intake manifold
- Exhaust manifold
- 5 EGR valve
- 7 EGR cooler
- 8 Venturi
- 9 Turbine (VTG)
- 10 EAS-3 system

Exhaust gas

The exhaust gas flows out of the engine via the exhaust gas manifold (5). Normally, the EGR valve (6) is closed.

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The exhaust gas flows via the turbine (9) to the EAS-3 (10). When EGR is needed, the EGR valve (6) opens to divide exhaust gas at this point; one part of the exhaust gas flows via the turbine (9) to the EAS-3 (10). The remaining part of the exhaust gas flows via the EGR valve (6) to the EGR cooler (7), where it is cooled. The cooled exhaust gas then flows to the venturi (8) and from the venturi to the intake air manifold (4), where it is mixed with the intake air.

Intake air

The intake air flows through the air filter (1) to the compressor (2). The intake air then flows via the compressor (2) to the intercooler (3), where it is cooled. The cooled intake air is then mixed with the exhaust gas in the intake manifold (4).

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