



MOTORSERVICE
RHEINMETALL AUTOMOTIVE

Vacuum pumps

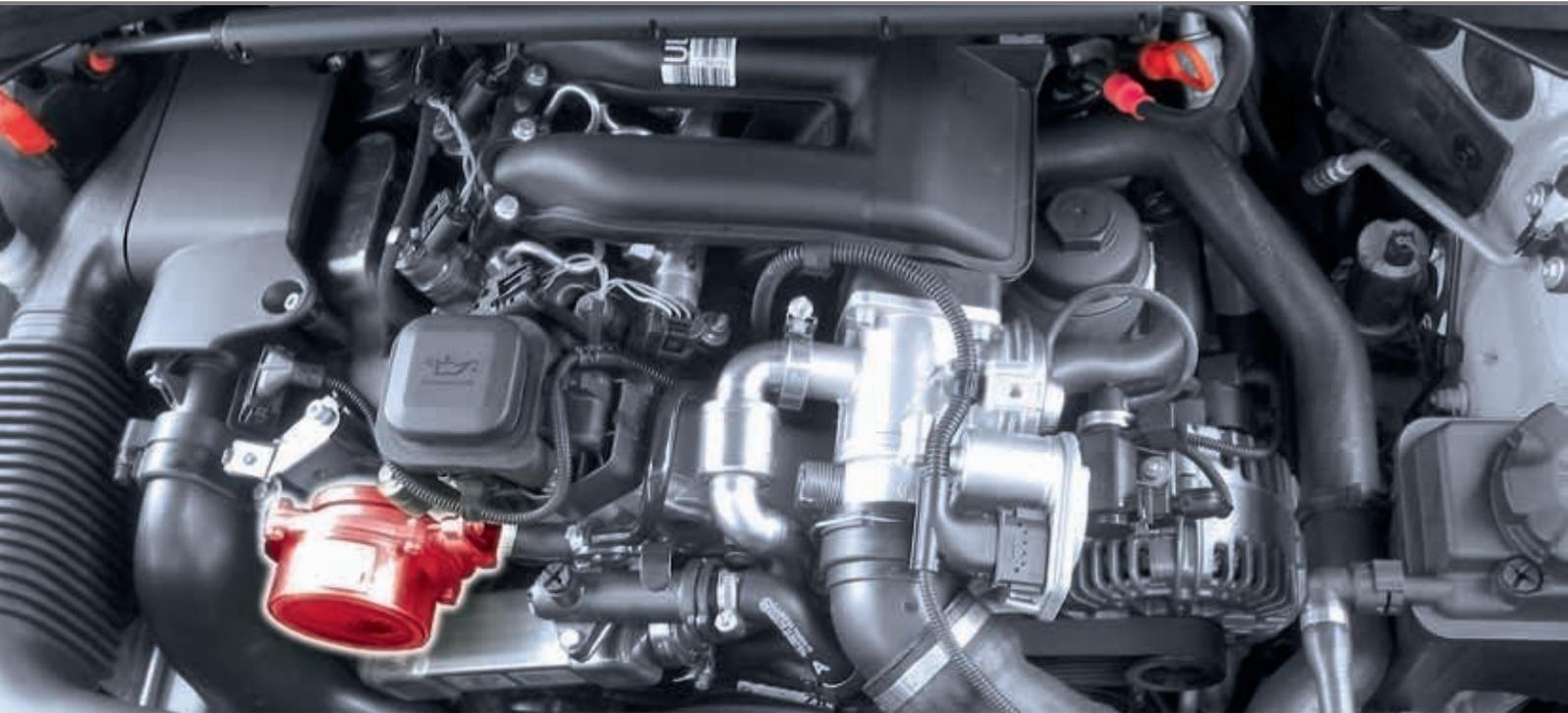
for safety, comfort and environmental protection

PRODUCT
INFORMATION



PIERBURG

Vacuum pumps



Vacuum pumps are found in many vehicles

With the help of a vacuum, high actuating forces can be generated in a small installation space. Vacuum pumps are installed in vehicles that do not have sufficient vacuum. Conventional diesel engines are fitted as standard with a vacuum pump, as they have no throttle valve, and cannot therefore generate any

pressure difference. Vacuum pumps are also increasingly found in modern petrol engines, where there is insufficient vacuum in the intake manifold after the throttle valve. For these reasons, more vacuum pumps are installed today than ever before.

System supplier Pierburg is a leading OE manufacturer of vacuum pumps for the international automotive industry. As an OE manufacturer, Pierburg boasts decades of expertise in development and manufacturing, and its innovative designs have made significant contributions to the state of the art.



The state of the art is represented by single-vane vacuum pumps which are driven by the camshaft.



The latest generation of high-performance vacuum pumps



Future alternatives: electric vacuum pumps

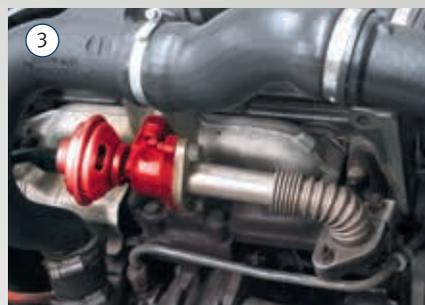
In many vehicles, vacuum is used for brake boosters (1) and for operating pneumatic equipment. Exhaust-gas recirculation valves (3), exhaust gas flaps (4), secondary air valves, intake manifold switches (2), turbocharger control and comfort devices are only some examples.

With pneumatic devices, high actuating forces can be achieved in a small installation space and at the same time the load on the vehicle's electrical system is reduced. Vacuum pumps, as used in motor vehicles, produce a vacuum of approx. 0.7 to 0.9 bar.

They must be designed to ensure that sufficient vacuum is available for the brake booster even with frequent braking manoeuvres.

In so-called "tandem pumps", vacuum pumps are combined with other supply pumps on a common axle (5, 6).

Future developments, especially where alternative drive systems are concerned, are increasingly in favour of electric vacuum pumps. They can be switched on independently of the vehicle engine, and on demand. In hybrid vehicles, electric vacuum pumps maintain brake boosters when the combustion engine is off.

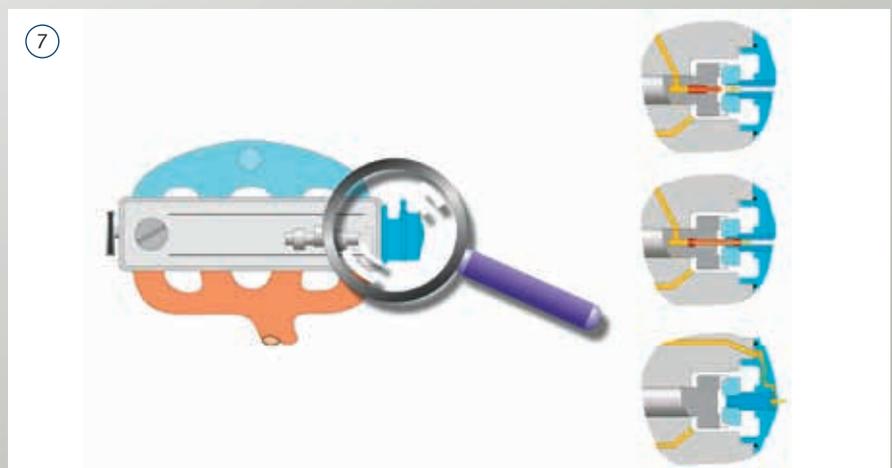


Various different components require a vacuum



*Tandem pump:
combined fuel/vacuum pumps*

*Tandem pump:
combined oil/vacuum pumps*



"Oil feed variants" from the "Vacuum pumps – Basic information" video

For further information on vacuum pumps – including explanatory videos (7) – please see our website at www.ms-motorservice.com or our YouTube channel "Motorservice Group".



Motorservice Group

Quality and service from a single source

The Motorservice Group is the sales organisation for the worldwide aftermarket activities of Rheinmetall Automotive. It is a leading supplier of engine components for the independent aftermarket. With the premium brands Kolbenschmidt, Pierburg, TRW Engine Components and the BF brand, Motorservice offers its customers a wide and comprehensive range of top quality products from a single source. As a problem solver for trade and repair shops, the corporation also offers an extensive service package. Motorservice customers benefit from the combined technical know-how of a large international automotive supplier.

Rheinmetall Automotive

Renowned supplier to the international automotive industry

Rheinmetall Automotive is the mobility division of the technology corporation Rheinmetall Group. With its premium brands Kolbenschmidt, Pierburg and Motorservice, Rheinmetall Automotive is a global leader in the relevant markets for air supply systems, emission control and pumps and in the development, manufacture and spare-parts supply of pistons, engine blocks and plain bearings. Low pollutant emissions, good fuel economy, reliability, quality and safety are the main driving forces behind the innovations of Rheinmetall Automotive.

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