



PIERBURG



PRODUCT KNOWLEDGE

VACUUM PUMPS

FOR SAFETY, COMFORT AND ENVIRONMENTAL
PROTECTION





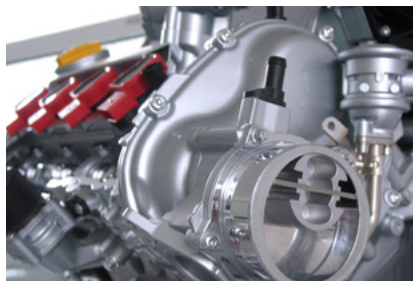
VACUUM PUMPS ARE FOUND IN MANY VEHICLES

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.

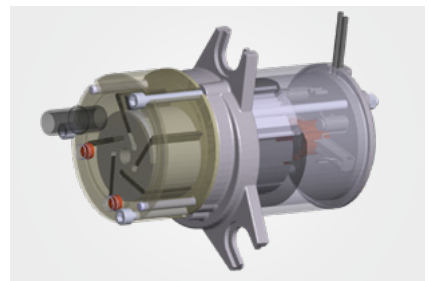
System supplier Pierburg is a leading OE manufacturer of vacuum pumps for the international automotive industry. As an OE manufacturer, Pierburg boasts decades of expertise in development and manufacturing, and its innovative designs have made significant contributions to the state of the art.



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 (01) and for operating pneumatic equipment. Exhaust-gas recirculation valves (03), exhaust gas flaps (04), secondary air valves, intake manifold switches (02), 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 (05, 06). 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.

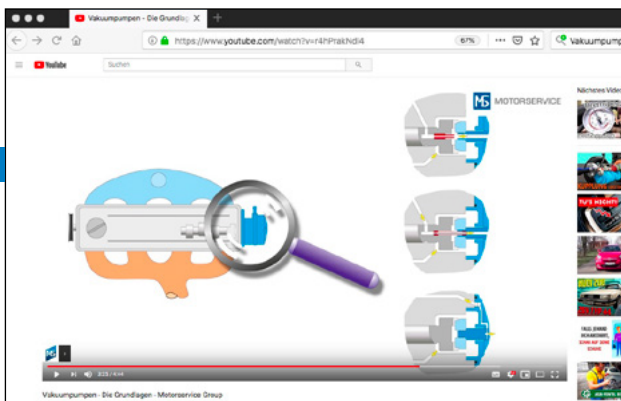


01–04 Various different components require a vacuum



For further information on vacuum pumps – including explanatory videos (07) – please see our website at www.ms-motorservice.com or our YouTube channel “Motorservice Group”.

07



07 “Oil feed variants” from the “Vacuum pumps – Basic information” video

05

05 Tandem pump: combined fuel/vacuum pumps



06

06 Tandem pump: combined oil/vacuum pumps



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