


PI 2086

For technical personnel only!
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PRODUCT INFORMATION

ELECTRIC ACTIVATED CARBON FILTER PUMP (EVAP)

FOR EVEN LOWER POLLUTANT EMISSIONS

The limit values laid down in the legal regulations apply not only to exhaust gases but also to unburned hydrocarbons. This is why fuel vapours are collected in the activated carbon filter (ACF).

In 2018, Pierburg was the first manufacturer in the world to launch an electric ACF pump that feeds the fuel vapours from the activated carbon filter back into the combustion process without the need for a vacuum from the intake manifold.

Motorservice provides this ACF pump in the aftermarket.

HIGHLIGHTS

- Sole supplier in the aftermarket
- Suitable for a wide range of applications with major American and Japanese car manufacturers
- Increasingly used in series production for new models, i.e. also great potential in the aftermarket in the future
- Developed in Germany
- Active cooling of the built-in electronic components minimises the influence of temperature on the pump performance
- High-torque single-phase electric motor
- Variable pump speed for optimum emission control



ACF pump 7.11390.00.0

TECHNICAL DATA

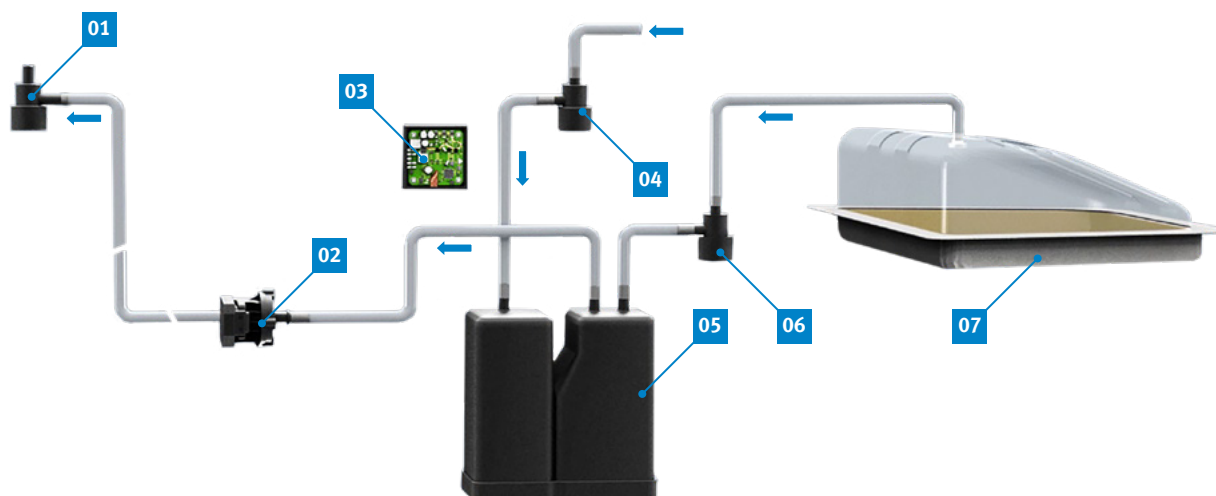
Flow rate:	up to 50 l / min.
Pressure:	up to 0.1 bar
Ambient temperature:	-10°C to +105°C
Control type:	LIN bus
Durability:	over 5,000 hrs



NOTE

Other names are:

purge air pump, gas pump, (electric) vapour pump, EVAP



BACKGROUND INFORMATION

Harmful gases comprising volatile hydrocarbons form in the fuel tank (07). To prevent these from being released into the environment, the fuel vapours are trapped in an activated carbon filter (05) by the fuel tank ventilation system. The fuel tank ventilation system also ventilates the fuel tank so that no vacuum or excess pressure is created in the fuel tank as a result of the fuel removed, during refuelling, or due to changes in the outside temperature.

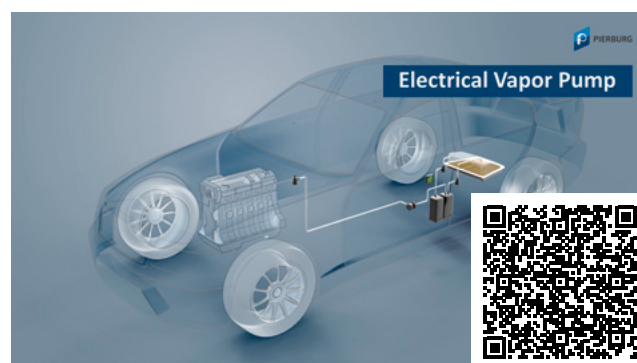
Since the storage capacity of the activated carbon filter is limited, it must be “regenerated” regularly to avoid saturation. In operating states where the engine and the combustion process can tolerate the additional amount of fuel, the fuel vapours from the ACF are mixed back into the intake air. For this purpose, the fuel vapours are drawn out of the ACF by means of the ACF pump (02) and fed to the combustion process in a controlled manner via the purge valve (01).

To prevent a vacuum from forming in the ACF during regeneration, it is ventilated via the venting valve (04) which is then open. The ACF is purged with the fresh air supplied via the venting valve.

In the past, the vacuum in the intake manifold was sufficient to draw the fuel vapours into the engine and fresh air into the ACF at the same time.

Fuel tank ventilation system with ACF pump

- | | |
|------------------------|----------------------------------|
| 01 Purge valve | 05 Activated carbon filter (ACF) |
| 02 ACF pump | 06 Tank control valve |
| 03 Engine control unit | 07 Fuel tank |
| 04 Venting valve | |



Scan the QR code to see an animation of the ACF pump.

In modern engines, however, there is hardly any vacuum in the intake manifold. Environmental regulations also limit the time window during which the filter can be regenerated. Therefore, in this case the ACF pump is used for active regeneration of the activated carbon filter. In the variant with integrated pressure sensor (depending on the vehicle manufacturer), more complex leak tests can also be carried out on the system.