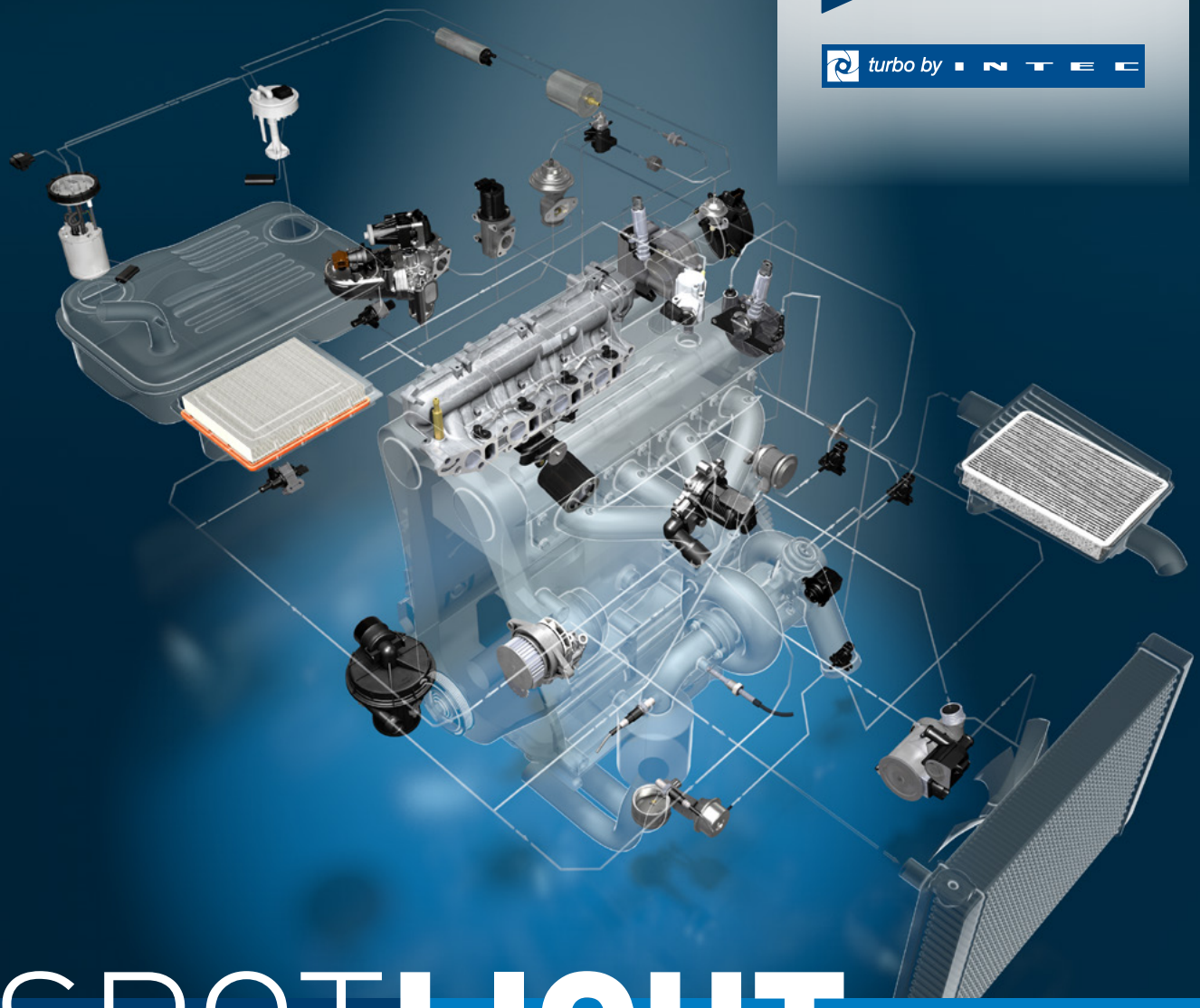
KOLBENSCHMIDT

PIERBURG

turbo by INTEC



SPOTLIGHT

SYSTEM COMPONENTS IN THE SPOTLIGHT

TAKING RESPONSIBILITY IN A CHANGING WORLD

RHEINMETALL


RHEINMETALL

MOTORSERVICE GROUP
QUALITY AND SERVICE FROM A SINGLE SOURCE

The Motorservice Group is the sales organisation for the global aftermarket activities of Rheinmetall. It is a leading supplier of engine components for the independent aftermarket. With the premium brands Kolbenschmidt, Pierburg, TRW Engine Components and the brands BF and turbo by Intec, Motorservice offers its trade and repair shop customers a wide and comprehensive range of top-quality products.

RHEINMETALL
TECHNOLOGY FOR FUTURE MOBILITY

As a global supplier to the automotive industry, Rheinmetall's expertise in air supply systems, emission control and pumps and in the development, manufacture and spare parts supply of pistons, engine blocks and engine bearings puts it right at the top of the markets. Product development is carried out in close cooperation with well-known automotive manufacturers.

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Motorservice, Technical Market Support

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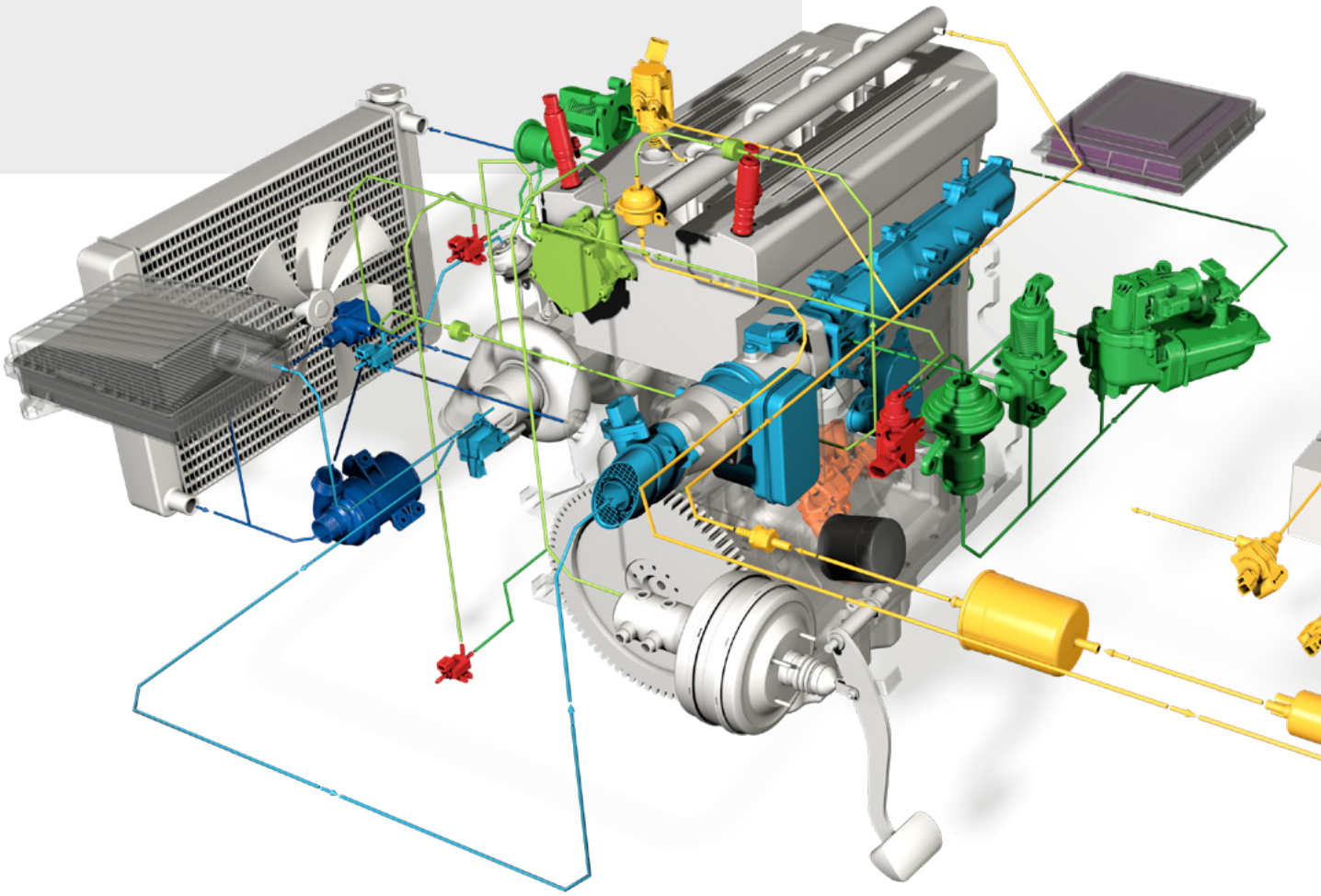
SPOTLIGHT
OUR PRODUCTS FOR ALL ASPECTS RELATED TO THE ENGINE

Our products stand for low pollutant emission, economical fuel consumption, reliability, quality and safety. They are used in a diverse range of systems for all aspects related to the engine.



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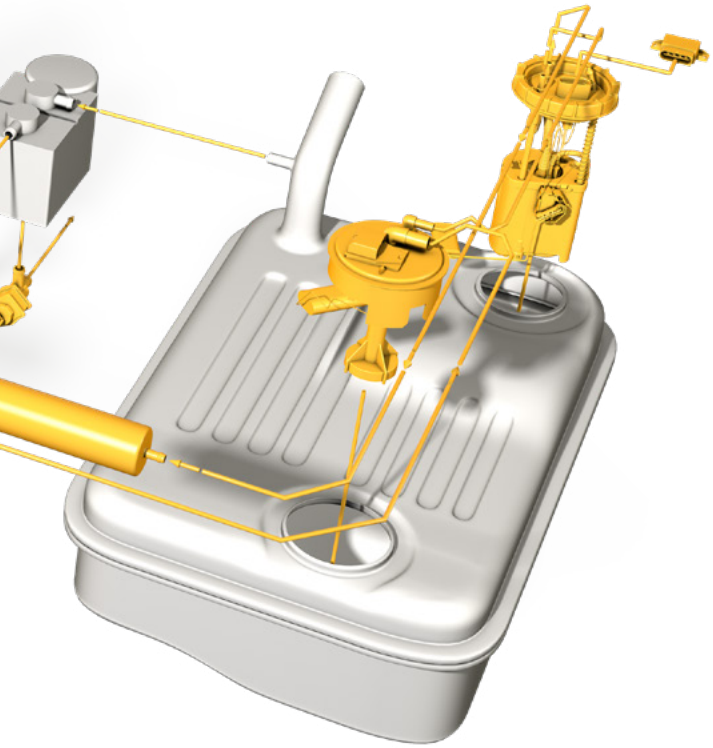
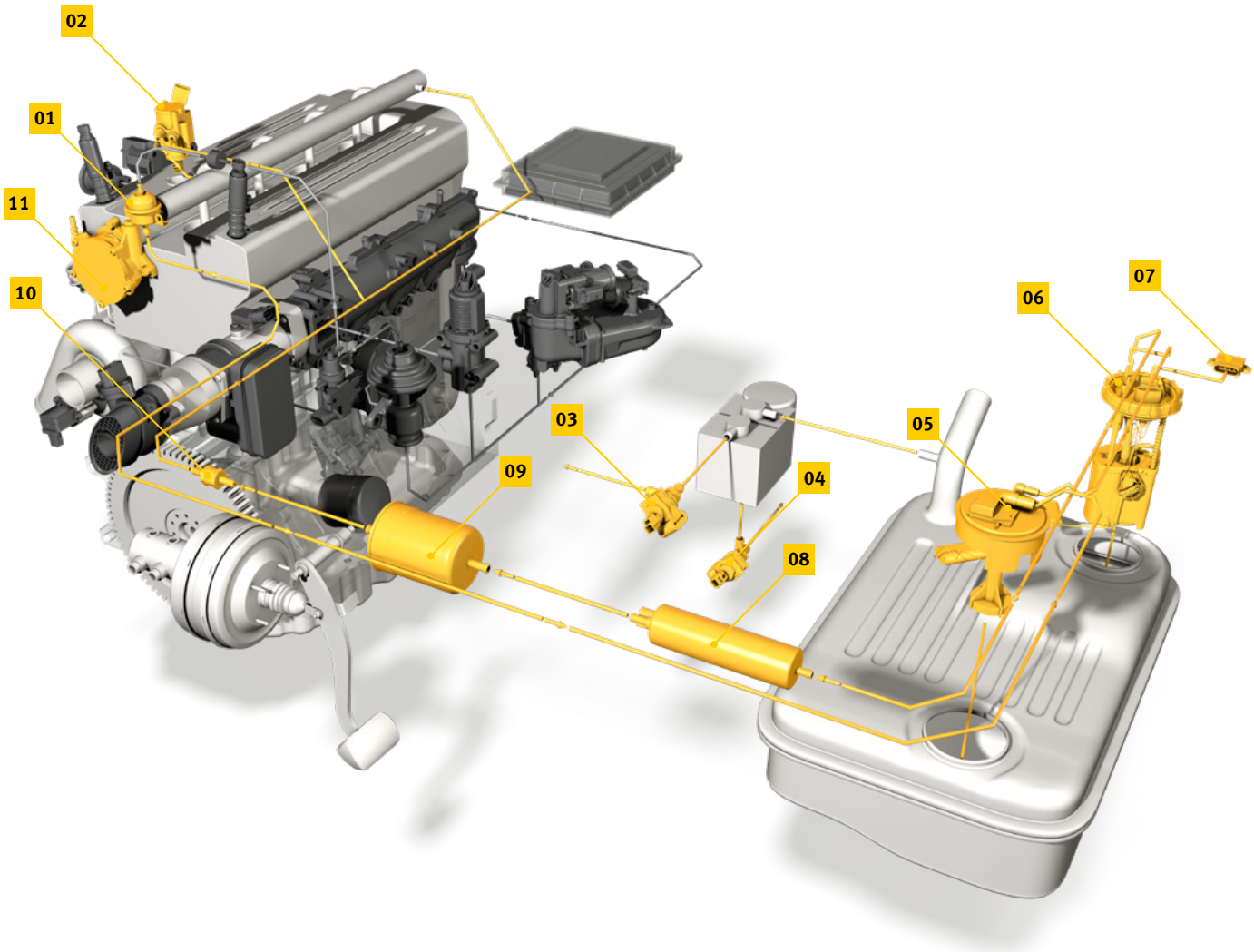


FUEL SUPPLY
AN EXTENSIVE PRODUCT RANGE IN TRIED-AND-TESTED QUALITY

From fuel pumps, pump modules, sender units, system-pressure regulators and non-return valves to regeneration valves and ACF valves – Motorservice offers a wide range of components that are indispensable in the fuel system – in tried-and-tested Pierburg quality.

PRODUCT RANGE

01 Fuel pressure regulators
02 High-pressure fuel pumps
03 Activated carbon filter regeneration valves
04 Active carbon filter shut-off valves
05 Fuel tank sender units
06 Fuel delivery modules (in-tank)
07 Fuel pump control units
08 Fuel pumps (in-line)
09 Fuel filters (Kolbenschmidt)
10 Fuel check valves
11 Tandem pumps fuel / vacuum



FUEL DELIVERY MODULES

Fuel delivery modules are located in the fuel tank. They consist of the flange cover, the fuel pump in the swirl pot and other possible attachments such as a sender unit or pressure regulator.

In addition to complete fuel delivery modules, Motorservice also has attachments such as sender units, gaskets and service-friendly repair kits in the product range.

ELECTRIC FUEL PUMPS

Electric fuel pumps deliver the fuel to the injection valves with a defined pressure. They are available both for specific vehicles and for universal use in various pressure and output levels. Inline fuel pumps are situated in the fuel line. In-tank fuel pumps are installed in the fuel tank.

Motorservice is a leading supplier of electric fuel pumps in the aftermarket.

MECHANICAL FUEL PUMPS

Classic mechanical fuel pumps are often installed in older vehicles. They are driven directly by the engine by means of tappets or levers. Motorservice has included various types for use in older vehicles in its product range. For FSI, TFSI, and TSI engines from VAG, mechanical high-pressure pumps ensure the necessary injection pressure of approx. 120 to 200 bar. Tandem pumps fulfill the function of a mechanical vacuum pump and are also used for the fuel feed.

FUEL PUMP CONTROL UNITS

The control unit is a part of the demand-based fuel supply in modern engines. This means that, in contrast to unregulated fuel supply, only the required amount of fuel is supplied. This reduces power consumption and saves fuel. In each case, the characteristic curve is specific to the vehicle engine and model.

With our range of 19 control units in OE quality, you can achieve market coverage of over 10 million vehicles.

FUEL PRESSURE SENSORS

These components, also known as rail pressure sensors, complement Pierburg's existing range of fuel supply and sensors.

In many cases, the rail may only be purchased as a complete unit with all attachments. However, Motorservice offers the actual pressure sensor separately as a replacement part.

FUEL PRESSURE REGULATORS

Fuel pressure regulators are used in petrol engines with fuel injection. They maintain the fuel at the constant pressure necessary for the injection nozzles.

FUEL CHECK VALVES

Fuel check valves are installed in fuel lines. They allow fuel to flow in one direction only and prevent the fuel tank from draining or lines from running dry.

Motorservice offers fuel check valves with connection diameters of 6, 8, 10, and 12 mm.

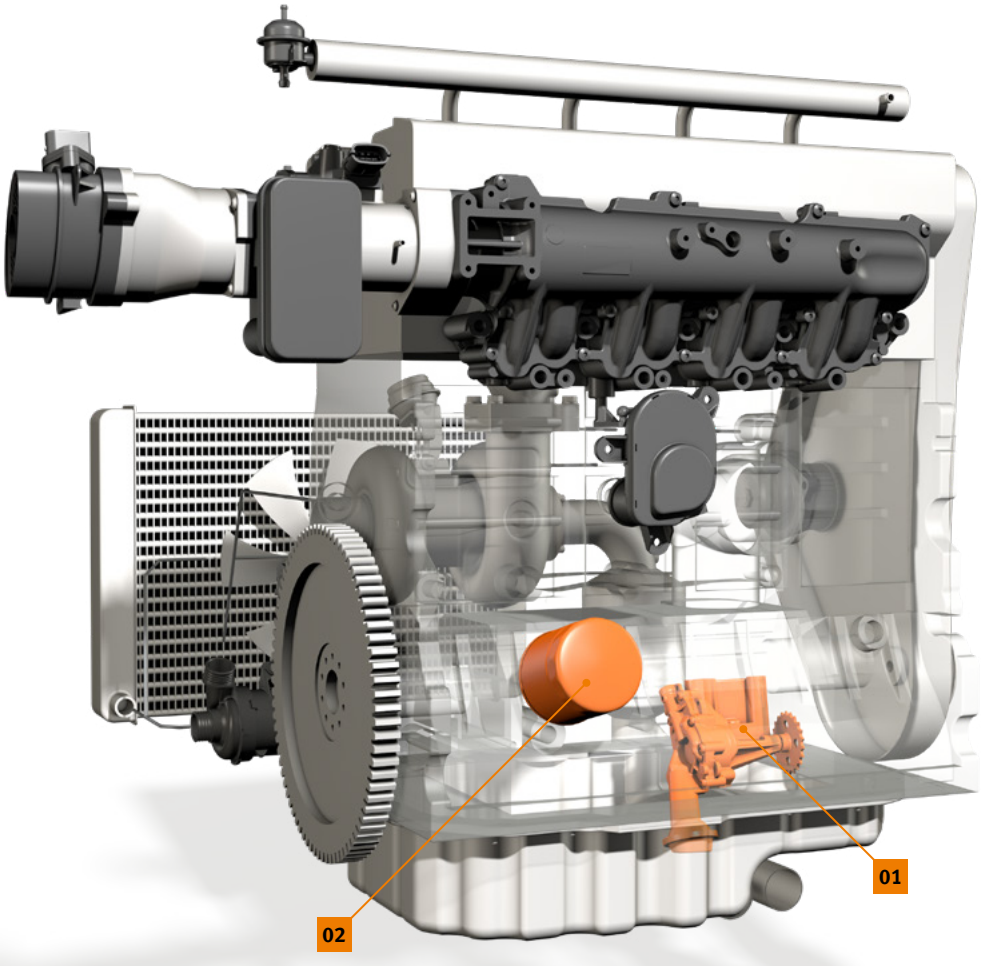
OIL SUPPLY
DURABILITY FOR THOUSANDS OF KILOMETRES

Rheinmetall is the OE supplier for all reputable engine manufacturers of the automotive and light utility vehicle industry, has numerous patents for oil pumps and produces tens of millions of oil pumps worldwide each year. Based on this know-how, Motorservice offers a wide product range for over 3,000 engine applications from the renowned Kolbenschmidt, Pierburg and BF brands. Benefit from this experience at a fair price / performance ratio.

PRODUCT RANGE

01 Oil pumps (unregulated, variable and tandem pumps for passenger cars and utility vehicles)
02 Oil filters (Kolbenschmidt)

Not listed in the graph:
- Oil coolers for passenger cars and utility vehicles



UNREGULATED OIL PUMPS

Oil pumps ensure that engine parts are supplied with a sufficient quantity of lubricating oil. For sufficient cooling and lubrication, the total oil volume must be pumped 4 to 6 times per minute through the engine.

Moreover, the oil pump design must ensure that the lubricating points are supplied with fresh oil as fast as possible after cold starting, and the flow rate is always adequate even at low engine speeds.

VARIABLE OIL PUMPS

To reduce CO_2 emissions, Pierburg has developed variable oil pumps. With oil-hydraulic tasks, which are in part new, such as hydraulic valve clearance and camshaft compensation, piston cooling and many more, modern engines require disproportionately large oil volumetric flows, particularly at lower engine speeds.

The delivery rate of the variable oil pumps can be adapted flexibly to the required oil volumetric flow, depending on the temperature, speed and load state of the engine. They help to deliver the oil when required, and thus save fuel.

TANDEM PUMPS VACUUM / OIL

In tandem pumps, supply pumps for different media are combined on a common axle. While the single-vane vacuum pump generates the vacuum for the brake booster, the connected oil pump takes over either the function of the main oil pump or draws in excess oil from the cylinder head as an oil suction pump.

OIL COOLERS

In most engines, oil coolers are used to selectively reduce the oil temperature. Due to the temperature output to the engine's coolant circuit, the oil temperature can be reduced by up to 30°C. As oil coolers are difficult to clean, Motorservice recommends always replacing this component.

The quality of an oil pump in terms of design and workmanship contributes significantly to a long and efficient engine life. Don't take any chances and choose one of the renowned pumps from the Pierburg or BF brands.

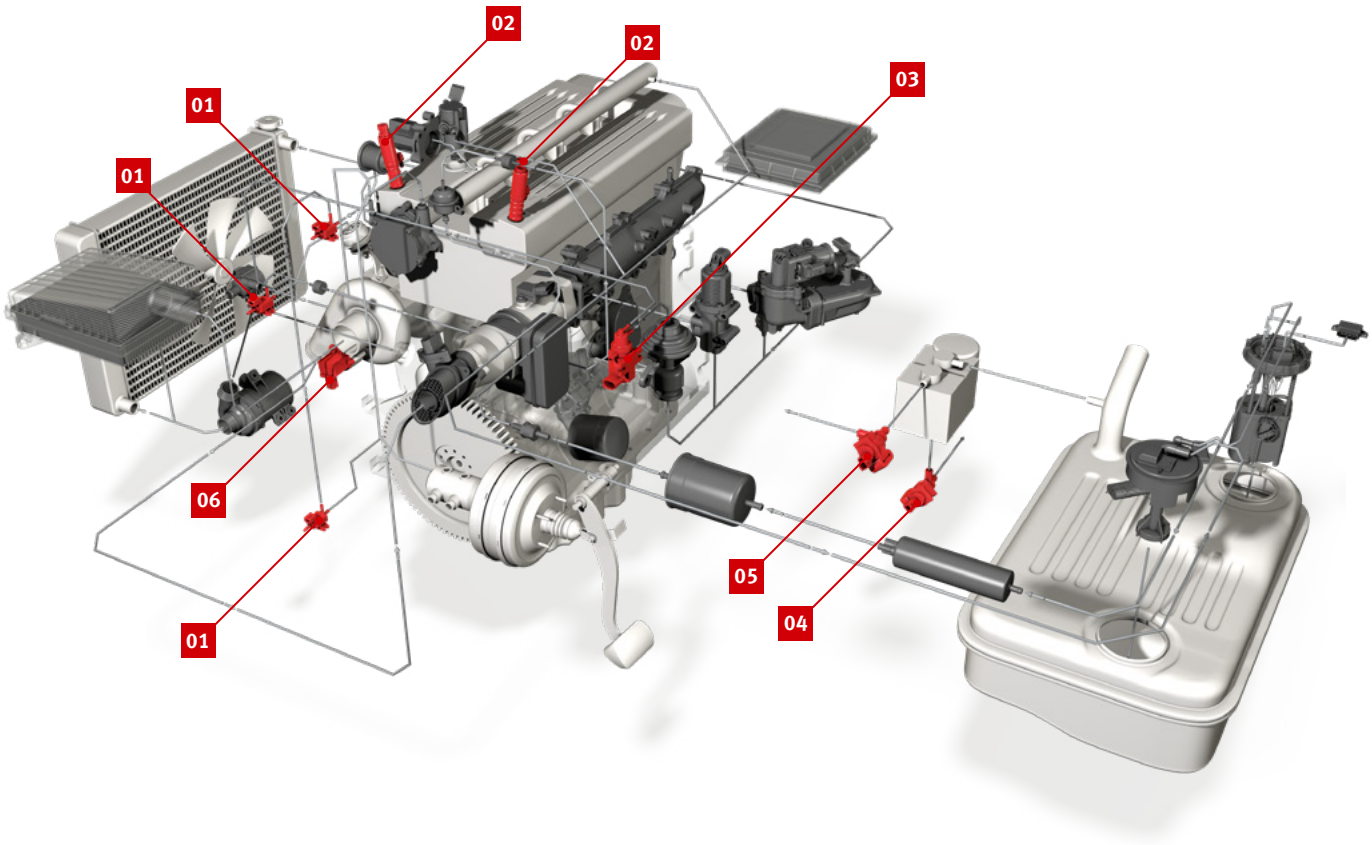
ELECTRIC VALVES
SMALL COMPONENTS WITH A BIG IMPACT

Electric valves are important components for switching and controlling as well as for implementing comfort and safety functions. They are used for the purposes of operating pneumatic actuators or for switching between two or more states.

Valves offer great potential for the independent spare parts trade, since they can be monitored by the OBD system either directly or indirectly. If these valves fail, replacement is essential. Trust the OE quality of Pierburg, the market leader with an OE production of over 125,000 valves a day and more than 350 valves in series production.

PRODUCT RANGE

01 Switchover valves
02 Control valves and central magnets for camshaft adjustment
03 Pressure transducers
04 ACF shut-off valves (activated carbon filter valves)
05 ACF regeneration valves (activated carbon filter valves)
06 Recirculating air valves



PRESSURE TRANSDUCERS

For continuous control of pneumatic EGR valves, VTG turbochargers and bypass EGR cooler switching.

Motorservice supplies 86 articles covering over 110 million vehicles.

SWITCHOVER VALVES

Switchover valves are used wherever a simple open-close function is needed for pneumatic actuators, e.g. to actuate secondary air valves, intake manifold flaps and bypass flaps on EGR coolers. However, they can also use clocked control, e.g. for boost pressure valves (wastegate).

Motorservice supplies 81 articles covering over 100 million vehicles.

ACTIVATED CARBON FILTER VALVES (ACF VALVES)

ACF valves are important components in the fuel tank ventilation system as well as the fuel tank leakage diagnosis.

The fuel tank ventilation system stops fuel vapours containing harmful hydrocarbons from escaping into the atmosphere. It also provides air to the fuel tank, for example if a vacuum forms in the tank when fuel levels fall or the ambient temperature is low.

Motorservice supplies 11 articles covering over 10 million vehicles.

RECIRCULATING AIR VALVES

The recirculating air valve for boost pressure control prevents the turbocharger from slowing down unnecessarily when the throttle valve closes suddenly. This reduces the turbo lag effect significantly.

Motorservice supplies 22 articles covering over 30 million vehicles.

CONTROL VALVES AND CENTRAL MAGNETS FOR CAMSHAFT ADJUSTMENT

Depending on the engine speed, the control valves guide the oil flow through various oil channels to the respective chambers in the hydraulic camshaft adjuster. As a result, the camshaft is turned relative to the camshaft gear and the control times are altered. This improves operating behaviour under full load and part load, and reduces fuel consumption.

Motorservice supplies 41 articles covering over 85 million vehicles.

FILTERS
KEEP DIRT AT BAY

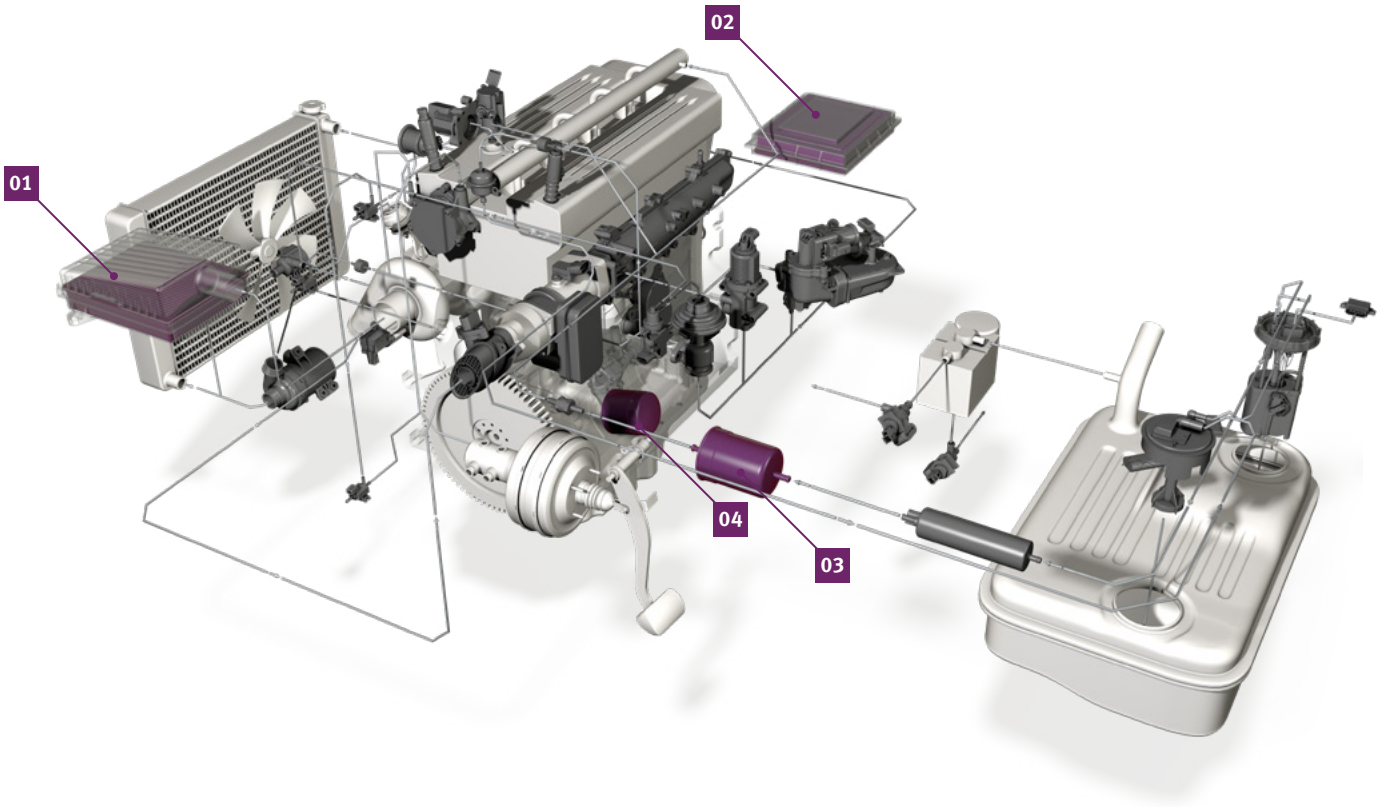
Engine filters protect the engine against impurities in the oil, air and fuel. High-quality filters are essential for ensuring long durability and for minimising wear on engine parts.

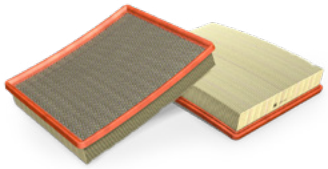
PRODUCT RANGE

01 Air filters
02 Cabin filters
03 Fuel filters
04 Oil filters

Not listed in the graph:

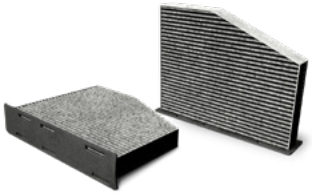
- Coolant filters
- Urea filters
- Gear oil filters
- Air dryers for brake systems
- Special filters
- Oil centrifuge filters





AIR FILTERS

The optimised particulate separation efficiency of the air filter minimises the wear on pistons, piston rings and the running surface of cylinder liners. The air filter, adapted to the engine characteristics and installation space, effectively suppresses disruptive intake noises.



CABIN FILTERS

Cabin filters prevent foreign particles such as dust, pollen, spores and soot in the ambient air from entering the passenger compartment through the ventilation system. Cabin filters with activated carbon are not only fine filters for solid particles, they also absorb unpleasant odours and harmful gases such as nitrogen oxides, sulphur dioxide, ozone and hydrocarbons, and prevent them from entering the passenger compartment at a rate of 95%.

FUEL FILTERS

Even minor impurities in the fuel system can lead to severe malfunctions. Modern injection systems, in particular, require an extremely clean, pulsation-free and homogeneous fuel supply.

OIL FILTERS

Foreign bodies that get into the engine with the fuel or via the intake air and abraded metal that arises within the engine are filtered out of the oil circuit and trapped by the oil filter.

COOLANT FILTERS

Coolant filters protect the engine cooling system by filtering out impurities.
The additives in the filter are also released into the cooling system at a controlled rate.

UREA FILTERS

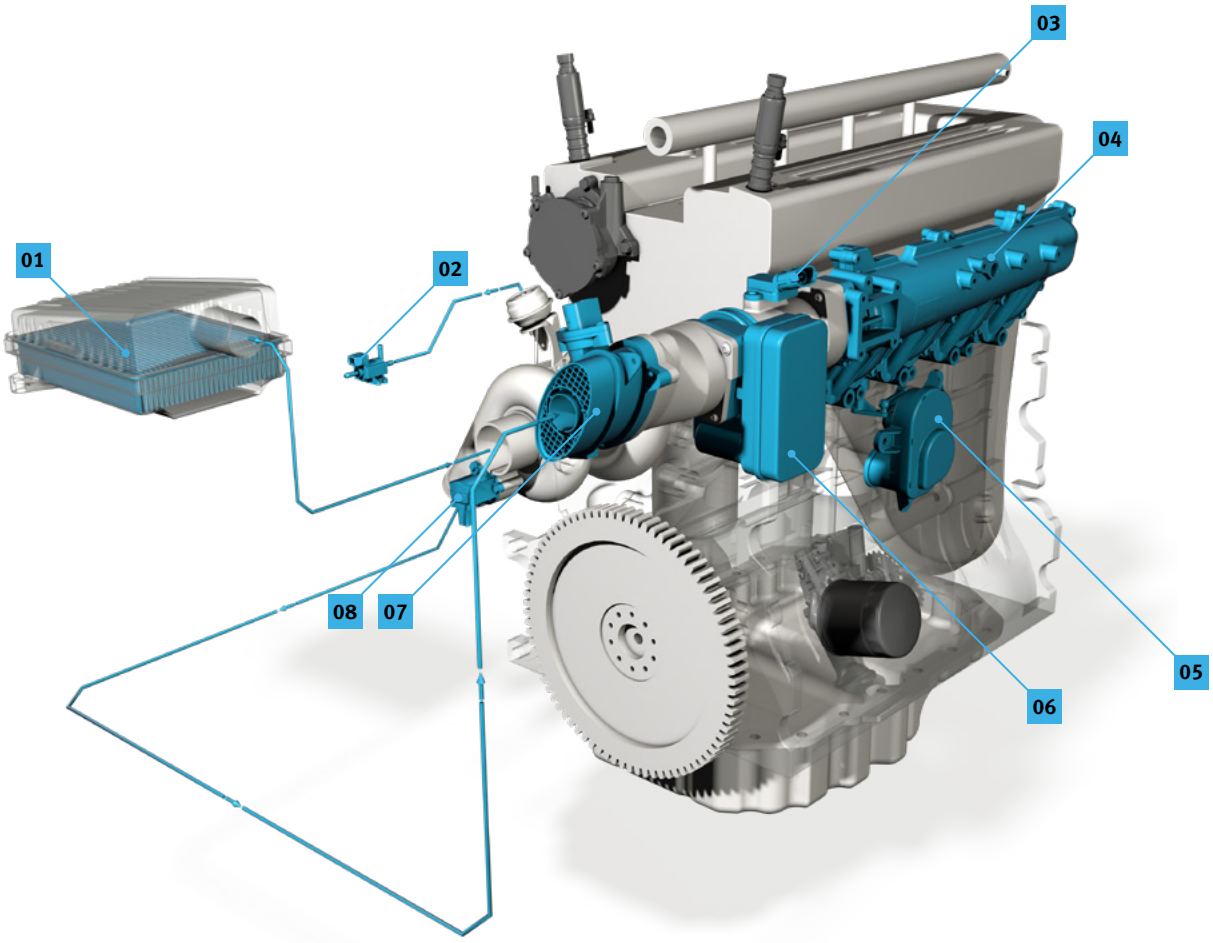
In modern exhaust treatment systems with SCR (selective catalytic reduction) catalytic converters, urea filters filter the urea solution, thereby protecting system components against wear.

AIR SUPPLY
FOR INCREASED EFFICIENCY AND MORE DRIVING ENJOYMENT

Throttle valves, intake manifolds and drive modules for controlling the optimal air quantity – due to their sophisticated quality, these products guarantee optimal performance, driving comfort and the correct torque, with the lowest possible fuel consumption.

PRODUCT RANGE

01 Air filters (Kolbenschmidt)
02 Pressure transducers (for controlling the VTG turbochargers)
03 Air pressure sensors
04 Intake manifolds / variable intake manifolds
05 Electric drive modules
06 Throttle valves / regulating throttles (as well as attachments like idle controllers)
07 Air mass sensors
08 Recirculating air valves



THROTTLE VALVES

In petrol engines, the throttle valve controls the quantity of air fed to the engine. The position of the throttle valve determines the performance of the engine.

The comprehensive product range of throttle valves from the European market leader Pierburg extends from mechanical to fully electronic “drive-by-wire” E-throttle valves.

In addition, Motorservice offers attachments as replacements such as throttle potentiometers and idle controllers in its product lineup.

REGULATING THROTTLES

The regulating throttle on a diesel engine creates a vacuum in the intake air system. This vacuum is required to increase and control the exhaust gas recirculation rate. It is additionally an essential component for regenerating the diesel particulate filter.

Pierburg regulating throttles cannot be replaced by regulating throttles from other suppliers.

AIR MASS SENSORS

Air mass sensors record the air mass flowing into the engine. Its signal is used to calculate the injected fuel quantity, and in diesel engines also to regulate the exhaust gas recirculation.

Motorservice offers Pierburg air mass sensors with a flow pipe or as a separate plug-in probe.

INTAKE MANIFOLDS

Their original task was to distribute the air-fuel mixture amongst the individual cylinders. However, intake manifolds have been continuously developed since then and nowadays are crucial for increasing performance and efficiency while reducing pollutants and fuel consumption.

Pierburg has a 90% market share in Europe for aluminium or magnesium intake manifolds.

AIR PRESSURE SENSORS

Pressure sensors provide critical input variables for engine control. The frequently used abbreviation “MAP sensors” is derived from “Manifold Absolute Pressure”.

With around 60 OEM references, these sensors cover almost 700 applications at Audi, VW, Škoda, Seat, Opel, Vauxhall, Fiat, and PSA.

This corresponds to a global vehicle fleet of more than 90 million vehicles.

ELECTRIC DRIVE MODULES

Electric drive modules are used whenever fast, precise adjustment of passages or angles is required. A typical application is adjusting flaps on an intake manifold.

TURBOCHARGERS

PRESSING AHEAD TOWARDS GREATER EFFICIENCY AND PERFORMANCE

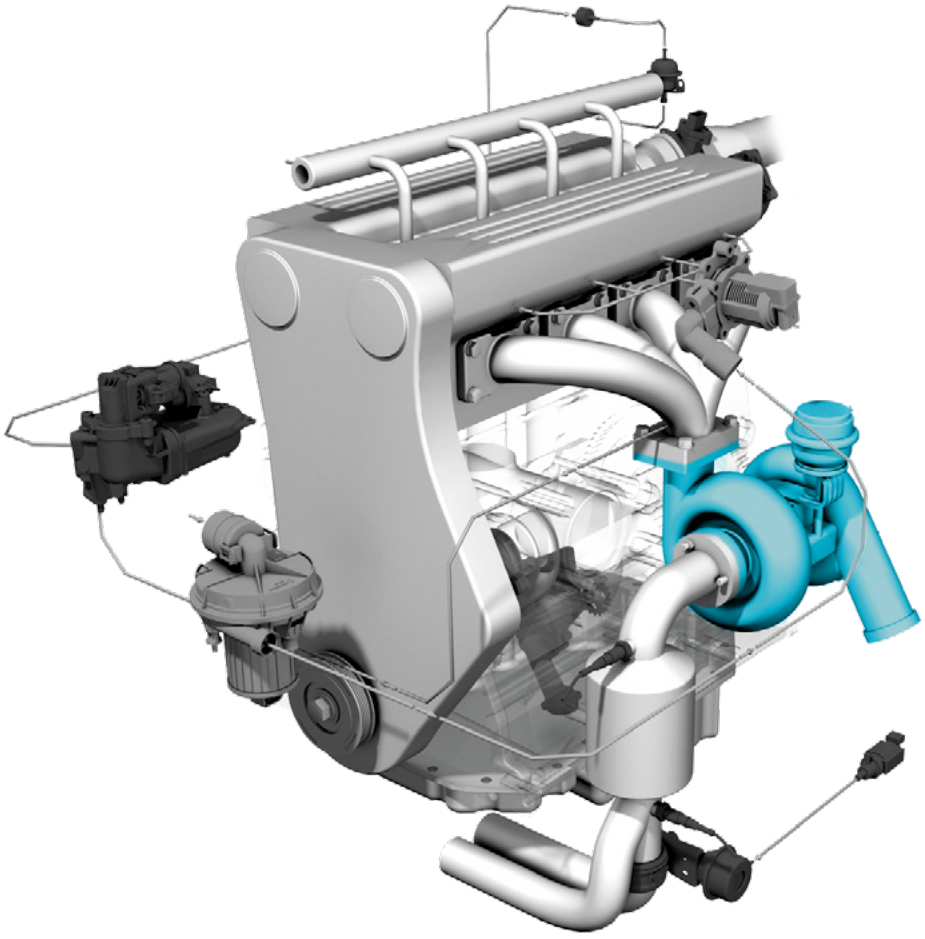
Turbochargers are used in almost all modern passenger car engines and are increasingly also found in utility vehicle engines. They increase engine performance, improve efficiency and contribute to reducing emissions. Inadequate maintenance or other defective engine components can have a major impact on a turbocharger‘s durability – or even cause it to fail.

With our Pierburg turbochargers, we offer first-class solutions: They set new standards in engine technology by creating the perfect balance between performance, efficiency and environmental friendliness. Designed for the most demanding applications, they guarantee maximum reliability and precision.

Our reconditioned turbochargers from turbo by Intec are an economical and environmentally friendly alternative: This makes them ideally suited to Motorservice‘s high-quality spare parts portfolio.

PRODUCT RANGE

- Unregulated turbocharger
- Regulated turbocharger with:
  – boost pressure control via wastegate
  – variable turbine geometry (VTG)
  – variable intake geometry (VNT)
- Customized solutions



TURBOCHARGERS FROM PIERBURG

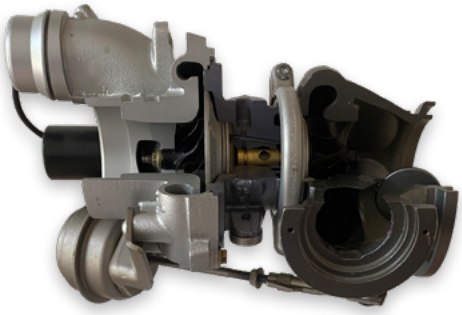
- **Versatile product range**
  High-quality turbochargers suitable for a wide range of engine types in passenger cars, utility vehicles and other applications.
- **Experience and expertise**
  Decades of experience ensure the highest quality and reliability.
- **Production according to OE standards**
  Production according to the strict stipulations of the original equipment specifications.
- **Use of genuine parts**
  Use of original spare parts for maximum compatibility and performance.
- **Mounting-friendly attachments**
  Pierburg OE products are available, in some cases these come pre-assembled.
- **Gasket sets included**
  All Pierburg turbochargers are supplied with matching gasket sets to ensure easy installation.
- **Highest quality standard**
  In-house test rigs and calibration machines guarantee consistently high quality standards.

TURBO BY INTEC

- offers a wide range of high-quality turbochargers for many common engine types for cars / commercial vehicles as well as other applications
- extensive experience in the reconditioning of turbochargers to a high standard
- Reconditioning according to OEM specifications (clearance, etc.)
- for 99% of bulk loaders using original replacement part kits
- Performance Line offers specific customization for rally and racing vehicles.

FUNCTIONALITY

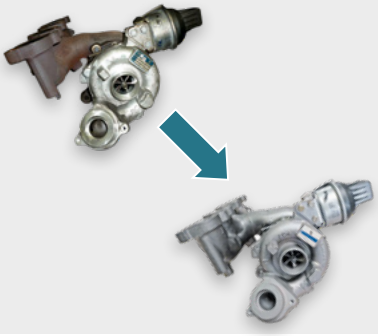
The exhaust gases produced during combustion drive a turbine, which is connected to the compressor wheel via a shaft. The compressor wheel, which rotates at speeds of up to 400,000 rpm, compresses the intake air and thus feeds a greater air volume to the engine. This enables the reduction of CO_2 emissions and fuel consumption without compromising performance.



REMANUFACTURING

Sustainable – reuse instead of throwing away

Each turbocharger is completely disassembled and extensively cleaned. In this process, all individual parts are checked for their reusability. After the individual reconditioning, the turbine shaft is rebalanced, and the pneumatic or electric control is calibrated. Finally, each turbocharger must pass a performance test. For follow-up purposes, all data relating to the repair is stored and the turbocharger receives an Intec badge.

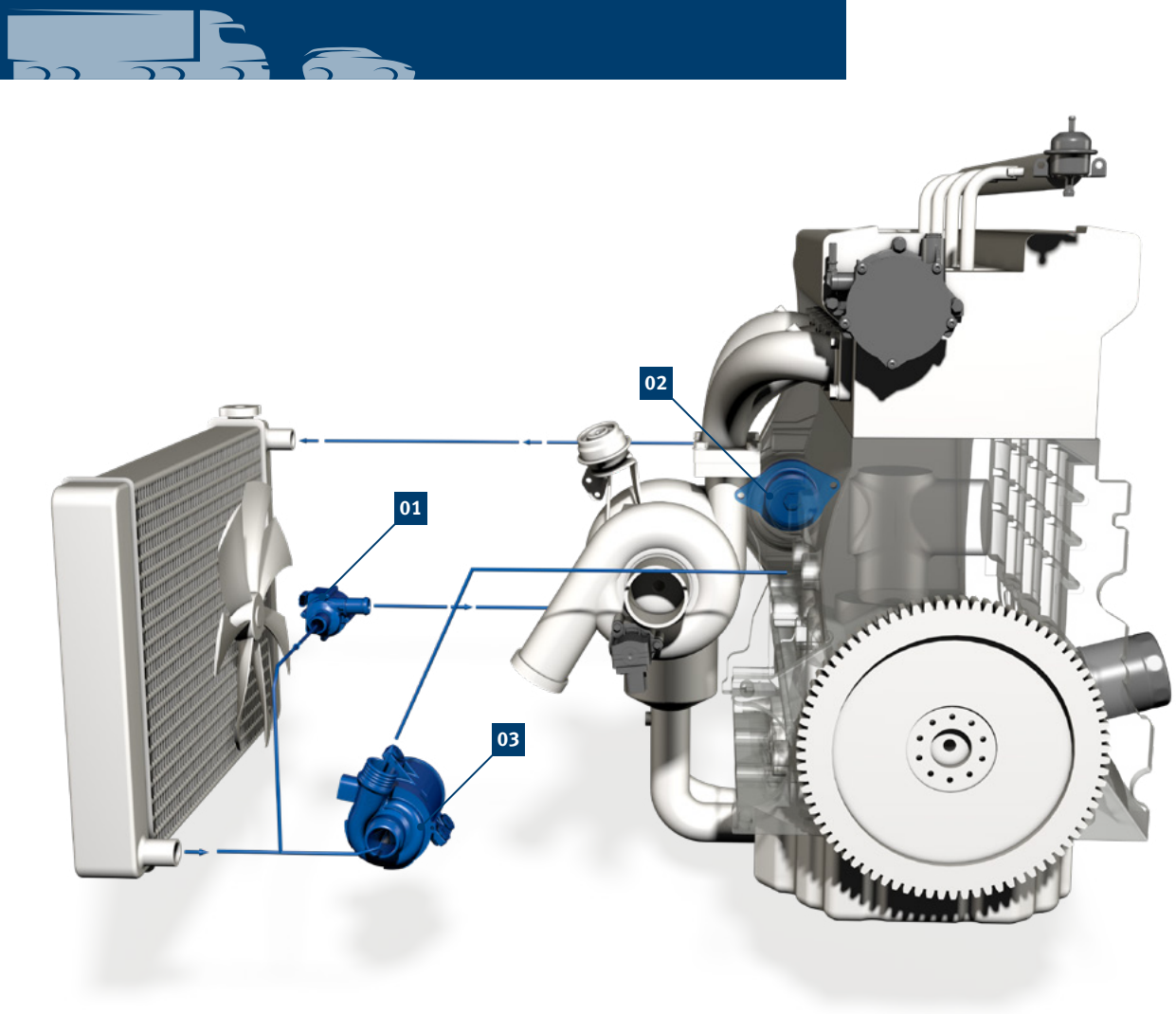


ENGINE COOLING
WATER PUMPS – COOLING FOR A LONG ENGINE LIFE

The water pump is the central component in the coolant circuit. Mechanical water pumps are a well-established solution.

Electrically powered coolant pumps provide demand-based engine cooling, reduce power requirements and cut frictional losses, fuel consumption and pollutant emissions.

Pierburg production sites produce more than seven million mechanical and electrical water pumps for motor vehicles and utility vehicles every year.

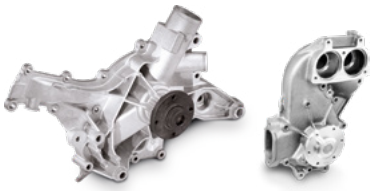


PRODUCT RANGE

01 Water circulating pumps
02 Mechanical water pumps
03 Electrical water pumps (coolant pumps)

VARIABLE MECHANICAL WATER PUMPS

With its variable mechanical water pumps, Motorservice offers another innovative state of the art and up to the minute thermal management product in the aftermarket sector. The pumps are used to comply with current and future emissions standards. Regulated and demand-based cooling saves fuel and thus reduces CO_2 emissions. The options for regulating the volumetric flow include electromagnetic couplings, thermostat modules with thermostat valve, electronically actuated rotary slide valves with worm gear, covering the impeller with an electro hydraulic of pneumatic adjustable ring, and pneumatic bypass flaps inside the pump module. As a result, the pumps are in line with the current trend towards smart accessories in combustion engines.



MECHANICAL WATER PUMPS

The cooling liquid of the water pump absorbs the heat from the engine block and cylinder head and releases it into the ambient air through the cooler. Depending on their design, mechanical water pumps are located either externally on the engine in their own pump housing or are flanged directly on the crankcase and are driven by a V-belt, toothed belt or the engine directly.

Motorservice water pumps have the following quality features:

- High-quality sliding ring sealing cartridge
- Maintenance-free, long-life rolling bearings
- Flow-optimised impellers made from plastic, steel, aluminium or brass
- Gaskets and O-rings are included in the scope of supply

ELECTRICAL WATER PUMPS

Electrical water pumps make a significant contribution to emission control on modern engine designs.

A delivery rate that is not dependent on the engine speed enables demand-based cooling. This reduces the power requirements whilst also cutting down on frictional loss, fuel consumption and pollutant emissions.

Pierburg has made this technology ready for series production and is the world's first series-production supplier of electrical water pumps.

WATER CIRCULATING PUMPS

Water circulating pumps are used where cooling or heating functions need to be performed independently of the coolant circuit. In independent heating systems, water circulating pumps are used, for example, to rapidly heat the passenger compartment.

The first generation alone was tried and tested millions of times over, proving itself to be a simple and robust coolant pump.

The second to fourth generations then underwent further optimisation in terms of dimensions, weight, control and hydraulic power.

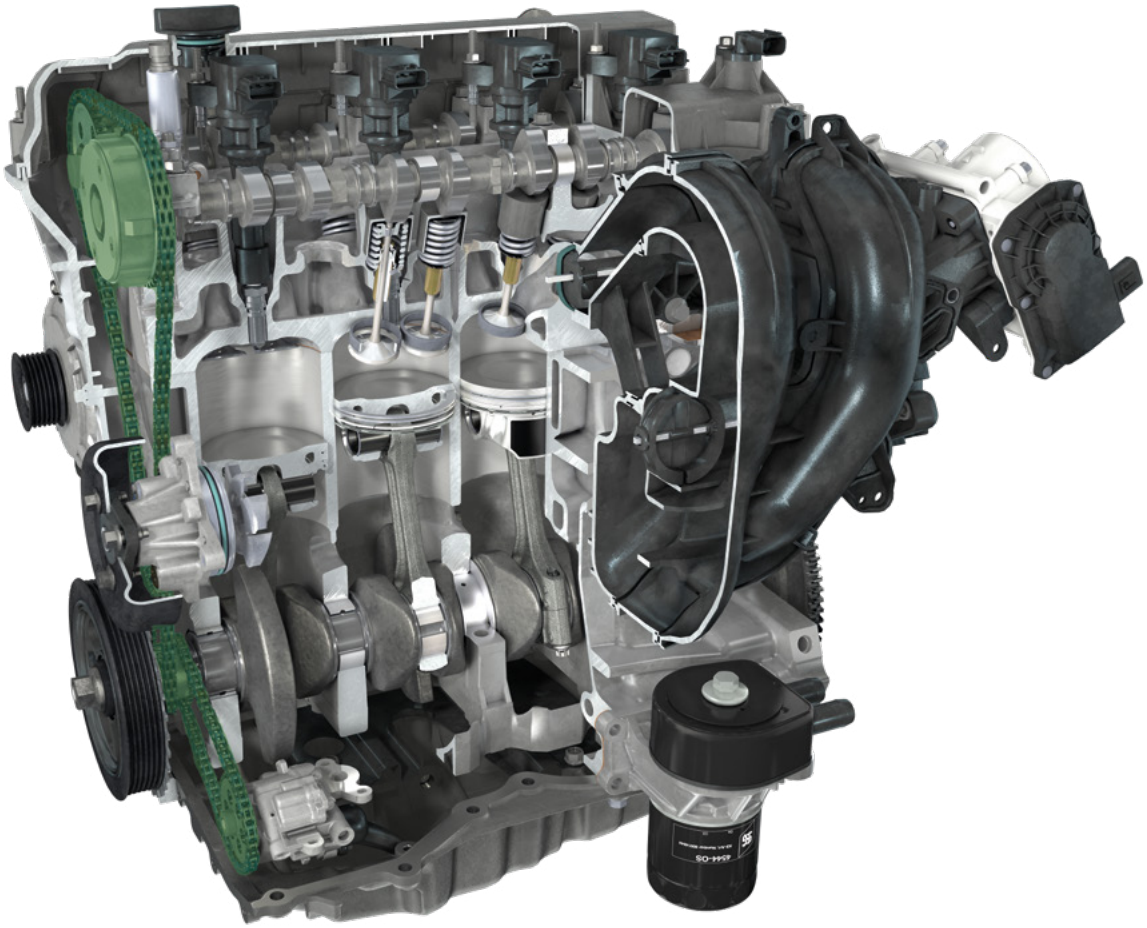
TIMING CHAIN KITS
PRECISION AND STABILITY, FOR RELIABILITY AND POWER

In around a third of all passenger car engines, the camshafts are powered by timing chains. Malfunctions to the engine's primary drive normally result in expensive repairs, which is why it is worth opting for quality products.

PRODUCT RANGE

Timing chain kits consisting of:

- Timing chains
- Guide and sliding rails
- Tensioner blades
- Chain tensioners
- Gaskets
- Crank and camshaft gears
- Camshaft adjusters



TIMING CHAIN KITS

During reconditioning and scheduled servicing of the chain drive, all components affected by wear and the associated gaskets should always be replaced. The kits are put together for specific engines.

SPROCKETS

Normally made of sintered metal or precision punched metal to save weight. Often have special fittings and grooves for mounting in the correct position.

TENSIONER BLADES, SLIDING AND GUIDE RAILS

Made of aluminium and plastic. They tension and guide the chains. They usually have special sliding surfaces to reduce noise and friction.

CHAIN TENSIONERS

Mechanically and hydraulically dampened designs. Their main tasks are: Maintaining the chain tension at all times, compensating for chain wear and the vibrations in the primary drive.

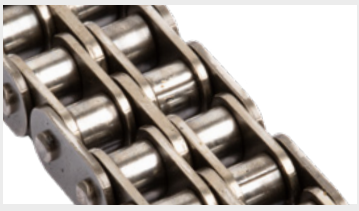
CAMSHAFT ADJUSTERS

Capable of twisting the camshaft and thus adjusting the opening times of the valves to the engine operating mode.

TYPES OF CHAIN

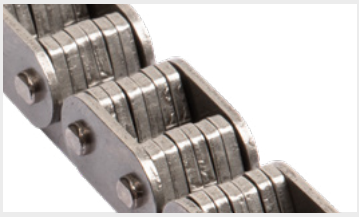
BUSH AND ROLLER CHAINS

Single or multiple row. Roller chains have an additional roller on each bush to reduce friction.



SPROCKET CHAINS

Individual shackles with teeth pointing inwards for the gear wheels. The chain has no openings on the outside.



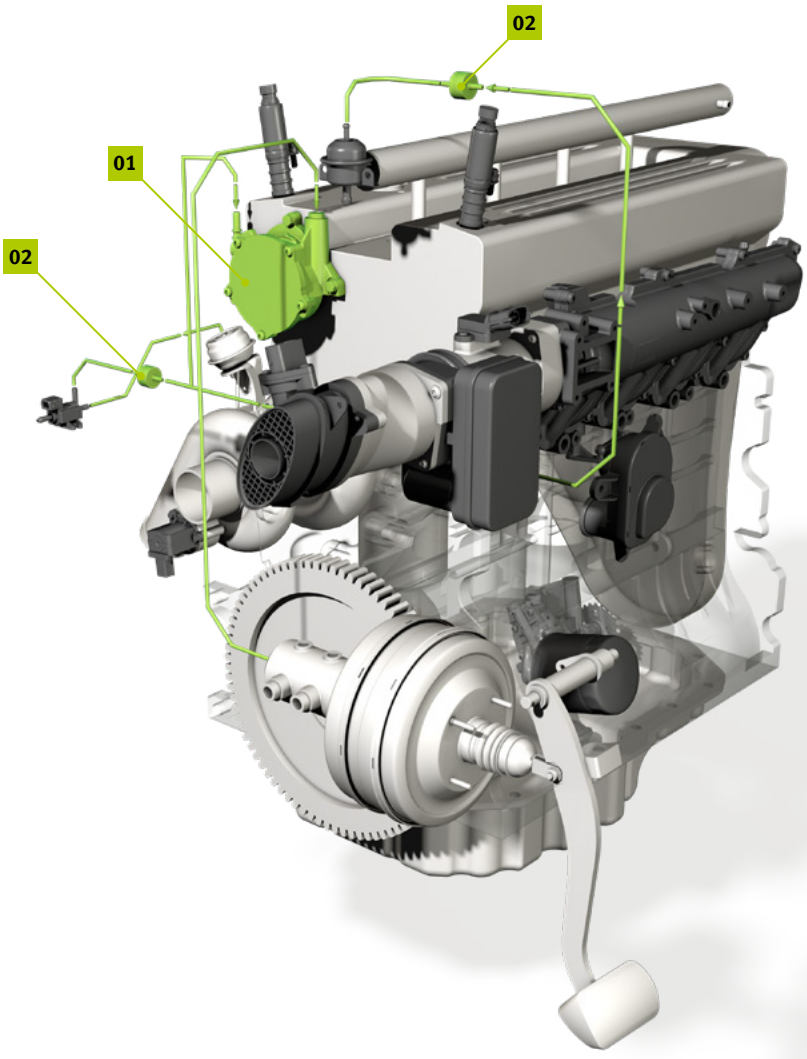
VACUUM PUMPS
FORCE INCREASE FOR MANY APPLICATIONS

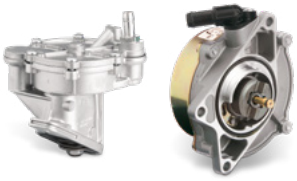
Vacuum pumps produce the required vacuum for the brake boosters, as well as for controlling the functions of the central locking system, air conditioning, automatic transmission unit, emission control systems and other control elements. Due to the hydraulic principle, this allows for high adjusting forces in a small installation space.

As an OEM, Pierburg boasts decades of expertise in development and manufacturing, and its innovative concepts have made significant contributions to the state of the art.

PRODUCT RANGE

01 Vacuum pumps
02 Non-return valves (vacuum)





MECHANICAL VACUUM PUMPS

Mechanical vacuum pumps can be driven by camshafts, tappets, chains, belts, or cams. Well-tried pumps are those in which a piston or diaphragm moves back and forth and creates the vacuum.

A more recent development is the rotary-driven vane pump. A rotor, with one or more blades, creates working spaces, whose size changes during the operating cycle.

TANDEM PUMPS FUEL / VACUUM

In “tandem pumps”, vacuum pumps are combined with other supply pumps on a common axle. In the fuel / vacuum combination, they fulfill the functions of mechanical vacuum pumps and are also used for fuel feed.

TANDEM PUMPS VACUUM / OIL

While the single-vane pump generates the vacuum for the brake booster, the connected G-rotor oil pump draws excess oil out of the cylinder head and delivers it back to the oil sump.

ELECTRIC VACUUM PUMPS

Electric vacuum pumps can be switched on independently of a vehicle engine – and on demand.
This saves fuel and reduces emissions.

In hybrid vehicles, electric vacuum pumps maintain braking power assistance even when the combustion engine is switched off.

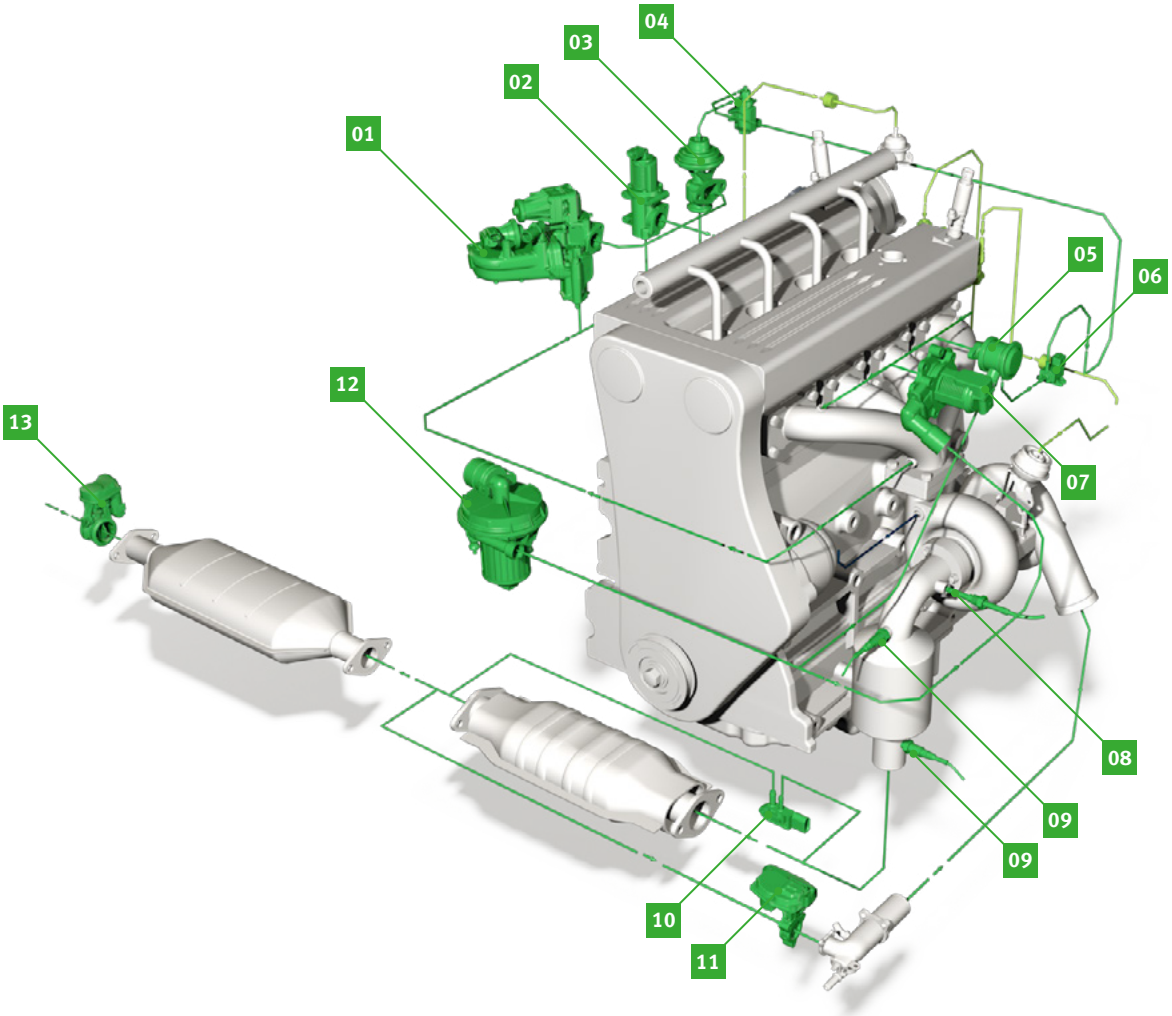
EMISSION CONTROL
50% FEWER POLLUTANTS BEFORE REACHING THE CATALYTIC CONVERTER

Tried and tested millions of times all over the world – up to 50% of the pollutants in exhaust gases are rendered harmless before they reach the catalytic converter through exhaust gas recirculation and secondary air systems. The components are now largely monitored by the on-board diagnostics (OBD) system.

There's a reason why Pierburg is represented as the OEM in a large number of modern vehicles with EGR valves and EGR coolers. The corrosion and temperature-resistant materials used in the Pierburg products guarantee lasting function under the harshest conditions, e.g. aggressive exhaust gas condensate, temperatures up to 700°C and pressures up to 3 bar.

PRODUCT RANGE

01 EGR cooler modules (high pressure)
02 EGR valves (electrical, high pressure)
03 EGR valves (pneumatic, high pressure)
04 Pressure transducer for controlling pneumatic EGR valves
05 Secondary air valves (pneumatic)
06 Switchover valves for controlling pneumatic secondary air valves
07 Secondary air valves (electrical)
08 Switchover valves for controlling the exhaust gas flap
09 Lambda sensors
10 Differential pressure sensors
11 EGR valves (low pressure)
12 Secondary air pumps
13 Exhaust gas flaps (electrical)



EGR COOLERS

In order to keep up with the increasingly strict emissions regulations, exhaust gas recirculation systems are required.

Cooled exhaust gas reduces the peak combustion temperature. This significantly reduces the amount of nitrogen oxides. Additionally, cooled gases are denser than warmer ones. This means that at the same boost pressure, a larger volume of gas fits into one cylinder filling. This produces a “leaner” combustion which also improves fuel consumption and particulate emissions.

EGR VALVES

Nowadays all modern diesel engines must be fitted with EGR systems in order to comply with exhaust gas regulations.

Exhaust gas is removed immediately after the cylinder and mixed with the intake air. This means that less oxygen reaches the cylinder, which results in a lower combustion temperature. As a result, the amount of nitrogen oxides in the exhaust gas can be reduced by up to 50%. In petrol engines, this can also reduce carbon dioxide emissions and fuel consumption.

A low-pressure EGR system is also required to achieve the limit values from Euro 6/Tier 2. Here, the exhaust gas is extracted on the low-pressure side behind the particle filter and fed back in front of the compressor of the turbocharger. An exhaust flap ensures the necessary exhaust back pressure.

EXHAUST GAS FLAPS

Exhaust gas flaps are an important element in modern engines for emission control and increased comfort. They direct the exhaust gas into different exhaust tracts depending on the operating state.

Fields of application for areas close to the engine:

- DeNOx catalytic converters
- Low-pressure exhaust gas recirculation
- HC absorbers

Motorservice’s product range encompasses pneumatic and electrical exhaust gas flaps as well as exhaust gas flaps for motorcycles. All flaps are designed for extreme gas temperatures from –40°C to +950°C and a durability of over 1,000,000 switching cycles.

Pierburg has been developing these systems since the 70s up to present day, and have therefore made a significant contribution to the current state of the art.

EXHAUST GAS TEMPERATURE SENSORS

Exhaust gas temperature sensors monitor the hot exhaust gas flow and protect components from overheating.

Typical applications include protecting components which are sensitive to temperatures, such as turbochargers and all forms of catalytic converters, monitoring the free-burning process of the diesel particulate filter, controlling the optimal temperature range for catalytic converters and measuring the EGR exhaust gas temperature as part of on-board diagnostics (OBD). In the event of critical overheating, the control unit responds with suitable measures to reduce the temperature, e.g. through reduced performance (limp home function).

With more than 200 exhaust gas temperature sensors, Motorservice covers a fleet of over 140 million vehicles.

EXHAUST GAS PRESSURE SENSORS

Exhaust gas pressure sensors are the third product group in Pierburg's exhaust gas sensor division, alongside lambda sensors and exhaust gas temperature sensors.

This includes the following sensor types:

- Differential pressure sensors are mainly used to determine the loading condition of the particulate filter. They may also be used to determine whether components, such as an air filter or an EGR (Exhaust Gas Recirculation) cooler is clogged or blocked, for example.
- Exhaust gas backpressure sensors protect the engine and turbocharger from excessive overpressure.

With its current range of exhaust gas pressure sensors and differential pressure sensors, Motorservice covers approximately 120 million vehicles in the global vehicle fleet.

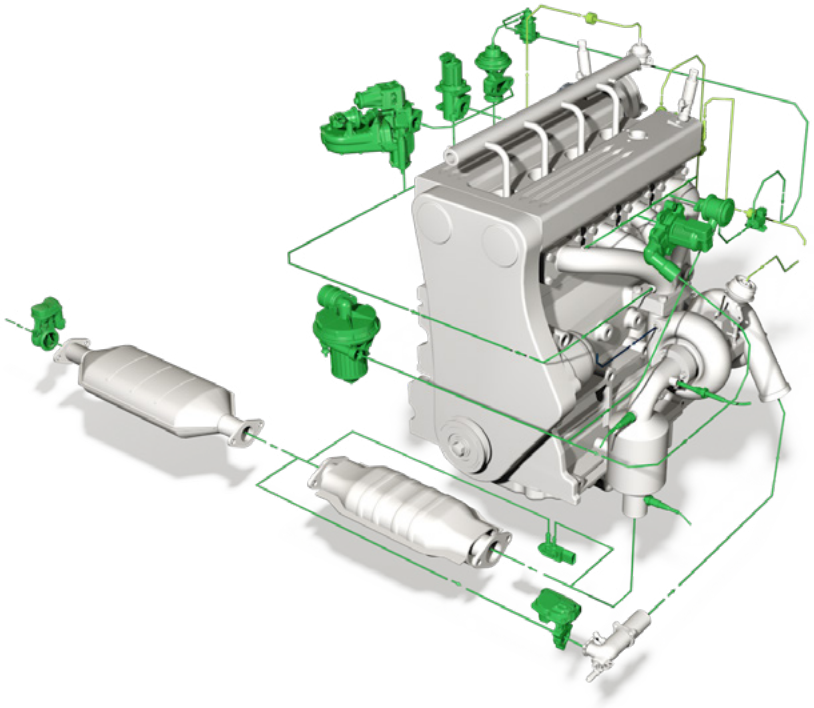
LAMBDA SENSORS

Lambda sensors measure the residual oxygen in the exhaust gas. This produces a lambda value, which the engine management system uses to regulate the mixture composition for the most optimal combustion possible.

Lambda sensors are the most important element in engine management systems in terms of ensuring perfect engine running with low emissions.

High operating temperatures and aggressive exhaust gas place high demands on lambda sensors. You should therefore choose specialist products for emission control.

With over 130 different lambda sensors, Motorservice covers the needs of over 200 million vehicles worldwide.



SECONDARY AIR PUMPS

Secondary air pumps are high-speed one or two-stage blowers. These draw in ambient air and inject them into the exhaust manifold downstream of the exhaust valves. In petrol engines this ensures a noticeable reduction of a large amount of carbon monoxide and unburnt hydrocarbons during the cold start phase – when the catalytic converter has not yet reached working temperature.

SECONDARY AIR VALVES

The secondary air valves are located between the secondary air pump and the exhaust manifold. The secondary air valve performs multiple tasks:

- The non-return function stops exhaust gas, condensate or pressure peaks in the exhaust tract from causing damage to the secondary air pump.
- The shut-off function ensures that secondary air is only routed to the exhaust manifold in the cold start phase.

IN MOTORSERVICE'S EXTENSIVE PRODUCT PORTFOLIO ARE THREE DIFFERENT TYPES OF PIERBURG SECONDARY AIR VALVES:

ELECTRICAL

Electrical secondary air valves have shorter opening and closing times and are more resistant against sticking due to soot or dirt.

PNEUMATIC

Pneumatic secondary air valves have proven their worth over decades.
They need to be actuated by a switchover valve.

PRESSURE-CONTROLLED

This type of secondary air valve opens due to pressure from the secondary air pump.

TOOLS AND TEST DEVICES
BY PROFESSIONALS
FOR PROFESSIONALS

For professional and quick mounting of their products, Motorservice offers a range of useful tools.

PRESSURE / VACUUM HAND PUMPS

Pressure / vacuum hand pumps can be used for checking and adjusting pressurerelated functions directly on the vehicle, practically anywhere that engineindependent pressure or vacuum generation is needed.

FUEL PRESSURE TEST KIT

The contents of this fuel pressure test kit enable the pressure and flow rate to be measured without dismantling the fuel pumps. All common fuel delivery systems can be checked for faults with the fuel pressure test kit.

REPAIR KIT FOR FUEL LINES

By means of the repair kit, smaller defective spots on fuel lines can be repaired quickly and efficiently.

REPAIR KIT FOR AIR CONDITIONING LINES

For repairing smaller defective spots on air conditioning lines made from aluminium and galvanised steel with external diameters of 8, 10, 12, 16 or 18 mm in passenger cars and utility vehicles.

- Suitable for R12, R134a and R1234yf refrigerants
- Operating pressure: max. 35 bar
- Burst pressure: over 60 bar

REPAIR KITS FOR COOLANT HOSES

Coolant hoses that have been damaged in individual spots can be repaired quickly and inexpensively with this repair kit; the damaged piece of tubing is removed and replaced with a new piece of tubing using the included hose connections and connectors (0° and 90°).

Motorservice's range offers two different repair kits for passenger cars and utility vehicles.

REPAIR KIT FOR COMPRESSED AIR LINES

Smaller defective spots on compressed air lines made from polyamide (PA) and with external diameters of 4, 6, 8, 10, 12 or 16 mm can now be quickly and inexpensively repaired with this repair kit. It is suitable for passenger cars and utility vehicles.

- Operating pressure: max. 10 bar absolute
- Burst pressure: 15 bar

SPECIAL TOOL FOR REPLACING AIR MASS SENSORS

The replacement of series-mounted air mass sensors is complicated due to the use of special screws (5-tooth or 6-tooth star-type inserts) with a central pin.

Motorservice provides the appropriate aftermarket special tool for air mass sensors.

FUEL PUMP FITTING TOOL

With this low-cost tool for mounting and removing fuel pumps, you no longer need to replace the entire fuel pump including its mounting.
Now only the fuel pump itself is replaced.

MINI-AMMETER

Using the mini-ammeter, power consumption can be measured simply and quickly, directly on the affected fuse in the vehicle's fuse box. There are two versions of the mini-ammeter for the most common flat fuses found in vehicles.

KNOW-HOW TRANSFER
PROFESSIONAL KNOWLEDGE FROM THE EXPERTS

WORLDWIDE TRAININGS
Direct from the manufacturer
Each year, around 4,500 mechanics and engineers benefit from our training courses and seminars, which we hold on-site in locations across the world or in our training centres in Neuenstadt, Dormagen and Tamm (Germany).

TECHNICAL INFORMATION
From practical experience for practical use
Our Product Information and Service Information publications, technical brochures and posters keep you at the forefront of the latest technological developments.

TECHNICAL VIDEOS
Knowledge transfer via video
Our videos provide you with useful information on our products, such as hands-on fitting instructions and system descriptions.

YouTube

PRODUCTS IN FOCUS ONLINE
Our solutions explained clearly
Interactive elements, animations and video clips provide interesting information about our products in and around the engine.

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RHEINMETALL myMOTORservice

TECHNIPEDIA
Technical information on all aspects of the engine
We share our know-how with you in our Technipedia. You can get professional knowledge direct from experts here.

MOTORSERVICE APP
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