Water pump

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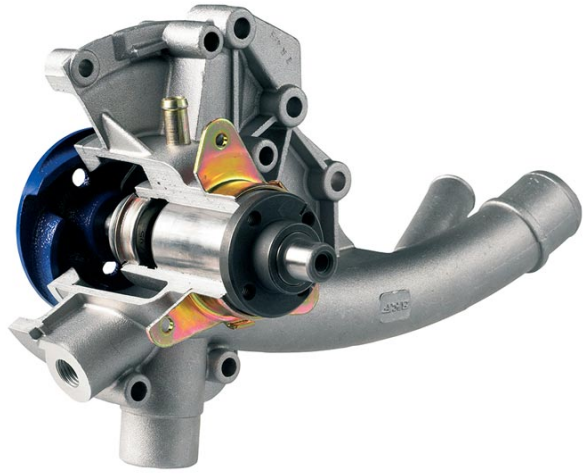
Function



So that the cooling system can release the heat generated by the engine in the best possible way, the coolant must circulate in the system. The water pump must drive the coolant and safeguard the circulation required for heat exchange. As such, within the heating and cooling system, it helps the engine to reach optimum operating temperature quickly, to stay at this temperature and to avoid overheating.

Types of water pumps

Depending on the engine concept, water pumps with mechanical or electric drives are used in modern cars.

Water pumps with mechanical drives

Water pumps with mechanical drives are integrated in either the toothed belt drive or the V-ribbed belt drive. The transmission ratio between crankshaft drive and water pump impeller results in fixed link between its speed and the speed of the engine.

Water pumps with electric drives

Water pumps with electric drives run independently of the speed of the engine. Their performance can be adapted to cooling requirements. This means that operating temperature can be reached more quickly. As they are more efficient, electric water pumps also help to reduce fuel consumption.

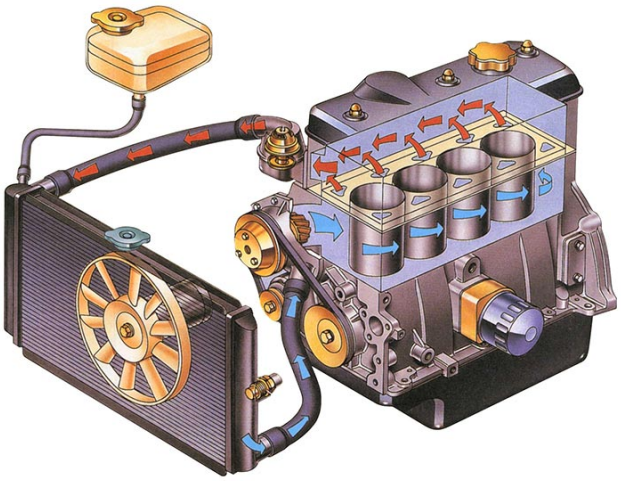
Safety

When a faulty water pump is replaced, the gasket and the complete belt drive should always be replaced to prevent the premature failure of the system (which can even extend to the engine being written off) a short time later.

Depreciation

The water pump is maintenance-free. It is designed to last the entire service life of the vehicle. However, the water pump can be damaged as a result of

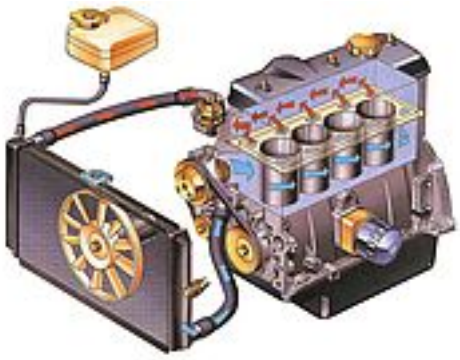
- high levels of stress and strain,
- incorrect belt tension or
- damage in the belt drive.



Regular inspections of the entire heating and cooling system as part of routine maintenance and service work can help to detect and rectify relevant damage, leaks and excess wear at an early stage.

Water pumps integrated in toothed belt drives should be replaced at the same time as the toothed belt. This is because the gear wheel of the water pump wears just as the toothed belt does. A worn water pump impeller can cause premature damage to the toothed belt, making repeat repairs necessary in and around the toothed belt drive.

Images



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Source: https://www.my-cardictionary.com/dictionary/drive-system/water-pump