Water pumps

Typical damage patterns and their causes

DRIVER'S BEST FRIEND

MEYLE

MEYLE water pumps – pioneering advancements instead of technological dead end!

The water pump quality depends upon the use of high grade components. These ensure competent repair in the workshops and satisfied customers. But even the best selection of materials cannot prevent premature water pump damage caused by ignoring fitting instructions.

In an ongoing dialogue with repair professionals our experienced specialists identify the external factors primarily responsible for early water pump failure. The following section describes typical damage patterns and their causes.

Water pump leakage

The problem:

A leaking radial seal results in water pump leakage.
The radial seal reacts sensitive to particles and will not seal properly. These can penetrate the sealing gap of the mechanical seal and destroy the sliding surfaces.
Caution: Small amounts of fluid egressing from the bleed hole shortly after installation are harmless, as the sealing elements do not settle until after the run-in period.

Possible effects:

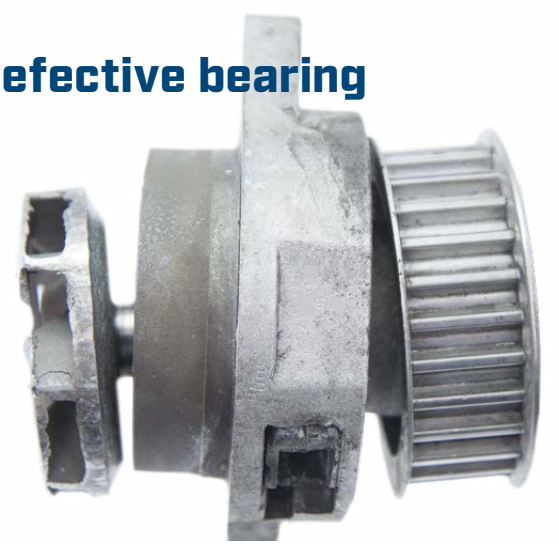
- coolant loss
- risk of engine over-heat
- possible damage of the shaft bearing

MEYLE‘s advice:

Thoroughly flush the cooling system prior to installing the new water pump to remove contaminants.

Follow the flush procedures recommended by the vehicle manufacturer and use the specified fluids.

Defective bearing



The problem:

Excessive strain frequently caused by incorrect belt tension results in bearing damage. The effect: Bearing failure.

Possible effects:

- noise from the pump
- water pump failure
- in worst case engine damage

MEYLE‘s advice:

When tensioning the belt, observe the vehicle manufacturer‘s specifications and use the recommended special tooling. We recommend that all belt drive components be replaced. Unusual noise coming from the belt drive must be checked immediately.

Damage to the housing

The problem:

Incorrect alignment when installing the water pump and over-tightend screws lead to strain which can cause fissures in the housing. These structural damages lead to leaks and eventually failure.

Possible effects:

- water pump leakage
- engine damage

MEYLE‘s advice:

To ensure strain-free installation clean the seal face thoroughly, hand tighten the screws. Follow the installation procedures recommended by the vehicle manufacturer and apply the specified torques. Only use the respective fastening bolts for water pump assembly and tighten them to the torque specified by the manufacturer.

Corrosion and cavitation in the cooling system

The problem:

Insufficient and/or incorrect coolant additives cause corrosion, scaling and cavitation in the cooling system with negative effects on the water pump components and risk of mechanical seal contamination as well as early wear of the slide rings.

Possible effects:

- leakage
- cavitation damage
- damage to other cooling system components
- early slide ring wear

MEYLE‘s advice:

Check the coolant condition on a regular basis and observe the replacement intervals specified by the vehicle manufacturer at all times.
Note: Never blend different types of coolant.

Coolant and antifreeze

The problem:

Improper use of coolant. The coolant used is not specified for the given engine or the mixing ratio is incorrect. At worst, there is no coolant at all or the water is contaminated. Mixing incompatible coolants results in even greater damage.

Possible effects:

- thermal damage
- frost damage
- chemical reactions
- deposits
- corrosion and cavitation damage

MEYLE‘s advice:

Check the antifreeze concentration using a spindle (recommended value: -20 to -30°C / -4 to -22 °F).
Use the MEYLE antifreeze or the product authorised by the manufacturer as specified in the installation manual. Do not blend different types of coolant.
Important:
Coolants must be treated as heavy metal waste and disposed of accordingly!

Sealants

The problem:

Cooling system contaminated owing to incorrect use of silicon sealant.

Possible effects:

- mechanical seal damage
- clogging of the coolant system

MEYLE‘s advice:

Only use the sealant provided with the MEYLE product or recommended by the vehicle manufacturer.
Use silicon sealant sparingly and protect the cooling system from sealant ingress.

Pre-damage of the mechanical seal

The problem:

Failure to bleed the cooling system correctly can cause flow breakaway and insufficient coolant circulation. This will reduce cooling performance and result in overheating and damage to the engine and/or its components.

Possible effects:

- overheating and ultimately destruction of the mechanical seal (thermal (pre-)damage and/or material desintegration)
- leakage

MEYLE‘s advice:
Bleed the cooling system according to the manufacturer‘s specifications.
If no coolant is discharged into the expansion tank, turn off the engine and bleed the cooling system again.
Do not allow the water pump to run dry at any time.

MEYLE parts are available from:

777 200 0646

4 040074 221426

Caution:

- These instructions are for information purposes only and are no substitute for the specifications of the vehicle manufacturers.
- Repairs may only be performed by properly trained staff.

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