



Brand of **NTN** corporation

AUXILIARY ELECTRIC WATER PUMP



A growth market

The electric water pump market is experiencing continuous development.

This trend is attributable to the growing demand for electric and hybrid vehicles, which require more effective and energy-efficient cooling systems. Tighter environmental regulations, lower emissions standards, and energy efficiency demands in many countries are also key factors driving the increased use of electric water pumps in the automotive industry. The development of more and more high performance turbocharged vehicles is also contributing to that growth.

Electric water pump – technical component with a variety of applications

Electric water pumps play an essential role in our motor vehicles. Their operation **circulates coolant** around the engine and other systems, reducing excess heat caused by their operation.

The **main water pump** cools the internal combustion engine. In electric vehicles, it is responsible for the thermal management of the power electronics and the battery.

The **auxiliary electric water pump** on the other hand has many other functions cooling specific components such as the turbocharger, EGR valve and gearbox oil.



Different types of electric water pumps

Electric water pumps are classified into two families: main and auxiliary electric water pumps.

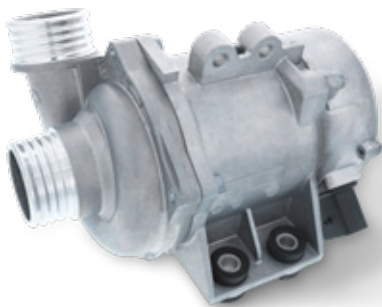
Main electric water pump (EWP)

«These pumps are designed to provide **cooling and maintain a constant temperature in internal combustion engines**. The pumps can also cool the **power electronics and the batteries of electric and hybrid vehicles** – vital functions that are becoming increasingly complex.

Electric vehicles require an efficient cooling system to optimise battery service life and guarantee optimal performance, especially during the fast-charging process. Such vehicles require multiple cooling circuits. There are two types of cooling systems for electric vehicles: **liquid cooling and air cooling**. Liquid cooling driven by an electric water pump is the most common choice because it is the most efficient one.

Electric water pumps offer many advantages over mechanically driven water pumps, including:

- **Reduced energy consumption**
- **Better performance at low rpm** and therefore better fuel economy
- **Longer service life of components** cooled by the pump



Auxiliary electric water pump (AEWP)

These are versatile systems designed for different applications requiring additional water circulation.

They are used to:

- **regulate temperature in the passenger compartment**
- cool the **turbocharger and the gearbox oil**
- **collect heat and distribute hot air in the vehicle** while the heating is active

Some vehicles have as many as four electric water pumps. These water pumps are used in IC-engine, hybrid and electric vehicles.



Product range

Initially comprising of 5-part numbers, the current range of main electric water pumps now includes more than **40-part numbers for auxiliary electric water pumps**. These products are being launched in the context of the electrification of the POWERTRAIN range.

The auxiliary electric water pumps complement the initial product range, which now covers more than 75% of vehicles registered in Europe today. Specifically, they are used on major hybrid and electric vehicles (e.g., AUDI A3 TFSI Mild-Hybrid, AUDI A3 1.4 TFSI E-tron, VW Golf VII e-Golf, MERCEDES-BENZ A CLASS Mild-Hybrid, VOLVO PHEV V60, TOYOTA Prius PRIUS Liftback Hybrid, SMART Fortwo electric, etc.).

SNR auxiliary electric water pump

Design

The auxiliary water pumps comprise a watertight housing made of aluminium or polyphenylene sulphide (PPS) which contains the impeller, the stator and the electronic board that controls the impeller speed.

All of these high quality components feature high temperature resistance. They are specifically designed to meet the needs of heating and cooling in today's increasingly complex vehicles (ICE/HEV/PHEV/BEV).

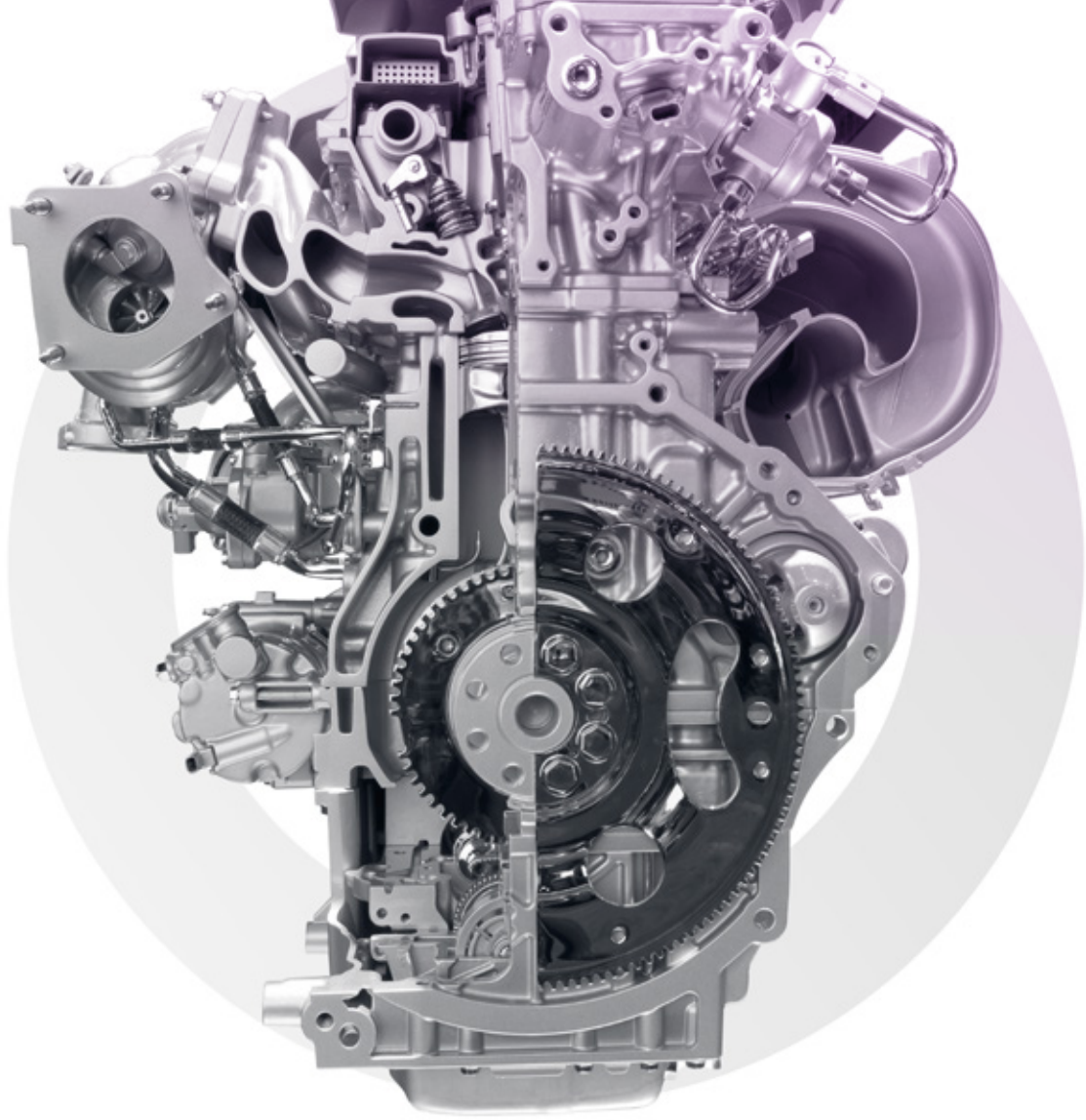


A major player in innovative electrical components

NTN is a world leading designer and developer of automotive parts. The group is continuously searching for innovations to offer as solutions to meet tomorrow's challenges. NTN recently introduced a new technology for electric water pump bearings that reduce friction by more than 30%, thereby helping consume less water resources.

The low-torque plastic bearing uses a resin called PPS made with unique lubricating grooves on its surface. Those grooves allow the water to penetrate more easily into the bearing's contact zones, thereby reducing the friction and wear under the water.

This innovation was specially designed for the electric water pumps used on hybrid, electric and hydrogen-powered motors. Among its benefits, it features excellent resistance to wear under water. Used in auxiliary and main electric water pumps, this technology helps save energy and reduce CO² emissions, especially in the latest generation of vehicles.



POWERTRAIN range - for the tough road ahead

With more than 3,200 part numbers, POWERTRAIN is one of the most complete ranges on the market. It includes two product families:

- **Engine timing:** timing belt kits with or without water pump, roller units (tensioners, idlers, hydraulic rollers), timing chain kits
- **Accessories:** accessory belt kits with or without water pump, accessory belts, accessory rollers, overrunning alternator pulleys, crankshaft (damper) pulleys, air conditioner bearings

Our complete engine timing and accessories range covers **nearly 94% of all vehicles registered in Europe today.**

We guarantee:

- Quality identical to the manufacturer's specifications
- High durability
- Outstanding performance
- An ability to innovate and to design the products of tomorrow
- Assistance through our service offering and technical support communications



Service

To satisfy your requirements , NTN supports you with

- Technical experts to assist you with your everyday issues
- On-site training courses and e-learning modules
- Technical datasheets and installation tips with our Tech'Infos
- An SNR Automotive Aftermarket [YouTube](#) channel dedicated to garage services





NTN

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