

Mark Water Pumps testing has a bearing on water pump reliability

The primary aspect of an automotive water pump is its bearing, which ensures rotation of the pump to drive coolant around engine block and radiator to dissipate heat. A rotating part, a reliable water pump bearing is symbiotically linked to overall engine reliability, so ensuring that water pump bearings are ready for the rigours of the road is a key concern for OEM engineers and aftermarket providers alike. Physical testing is the only sure-fire way to prove bearing reliability, which is why leading automotive water pump manufacturer Mark Water Pumps Limited (MWPL), places such emphasis on it.

MWPL offers its testing facilities to the wider automotive industry, with capacity available to test products and deliver validation paperwork at 24 hours' notice. A huge range of products can be tested on-site, including water pumps, expansion tanks, thermostats, cooling systems, clutches, brakes, oil pumps, belts, wheel and idler bearings.

If a water pump bearing fails, at the very least the pump will require replacement. The water pump ensures heat from the engine can dissipate into the air when the coolant reaches the radiator, so failure presents a multitude of mechanical risks as the engine overheats. Damage can include seized pistons, cracked cylinder heads and damaged bearings. Rebuilding an engine isn't exactly cheap either. Consequently, MWPL physically tests products available in its PROFLOW range of water pumps at an in-house facility to prove performance and reliability. Naturally, the sealed-for-life water pump bearings are a part of this rigorous endurance and destructive testing regime.

David Lewis, Plant Manager at MWPL, explains: *"We are a provider of water pumps to global car manufacturers such as Volvo, Aston Martin, Jaguar Land Rover and GM; so, our product range must operate to the highest possible reliability standards. Bearings are a key subcomponent of any water pump, so we test them in two different ways."*

"First, we employ specialised bearing endurance rigs so we can test them in isolation. Subsequently, we test them as part of the complete water pump, utilising one of our seven on-site water pump endurance rigs to perform complete product life cycle testing. This delivers a high level of quality assurance and confidence to our customers, whether they be from an OEM or the aftermarket."

Bearing endurance rigs utilise a motor and gearbox, which drive the bearing through a belt, which is spun at load to the required speed for extended periods of time. The inner race of the bearing is spun by the shaft, while the outer race is held stationary. This allows MWPL to explore all aspects of the bearing's performance, right up to its point of failure.

Likewise, water pump endurance rigs can be programmed to replicate the entire coolant pumping life cycle of the component, delivering proof of performance or accurate failure analysis data as required. The component is operated at the upper limit of its performance envelope, pumping hot water to accurately reflect the real-world conditions of the engine bay. Such testing can eliminate potential issues such as excessive heat and noise, factors that computer testing cannot accurately assess.

"This testing is vital in proving the reliability of our products," adds David. "Pumps with poor quality rotating parts, such as those from some import markets, can often cause more harm to a vehicle. Cheap bearings are a key factor in premature water pump failure, so our testing programme ensures we can prove our PROFLOW range is up to the task."

Photograph Captions

Photo Caption 1:

Water pumps with bearings are tested on these water pump endurance testing rigs for 2,000 hours on varying speed test cycles as part of the testing capabilities at Mark Water Pumps.

About Mark Water Pumps Ltd

Mark Water Pumps Limited is an automotive parts manufacturing company based in Wales that specialises in producing automotive water pumps for both OE customers and the Aftermarket supply chain.

An extensive product range is available for the aftermarket, in addition to direct product supply for many large automotive companies, such as Volvo, Aston Martin & JLR.

The company designs, manufacture and tests water pumps and cooling pumps for OE, OES & aftermarket applications. In-house design, high-pressure aluminium die casting, engineering, manufacturing, assembly and testing, plus a large stock facility are all located on one site.

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