New economic electric water cooling pump for automobiles

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Aisin Seki electric water cooling pump installed in engine (red circle) © Aisin Seiki

The low cost, high efficiency electric pump offers an environmentally friendly alternative to mechanical counterparts. Aisin Seki Co., Ltd has now successfully developed a smaller, cheaper electric cooling pump through some effective efficiency optimisations.

Cars traditionally use mechanical water cooling pumps, which have a flow rate dependent on the engine speed. Electric cooling pumps offer greater control over the water flow allowing significant fuel economies, particularly important in view of rising environmental concerns. However electric pumps are traditionally much larger than their mechanical counterparts.

Among other adaptations, the Aisin electric pump uses a newly shaped impeller to improve performance. In addition, the design positions the components so that both the motor efficiency and the centrifugal pump mutually benefit. The pump also uses fewer components, allowing it to occupy less space.

With the efficiency improvements less heat is generated. The pump design also incorporates an aluminium enclosure, which acts as a heat sink, further easing the heat resistance requirements. Notably, the cost of the electric pump was reduced by using an inexpensive and heat resistant printed circuit board.

The new engine pump will allow significant fuel economies, reducing fossil fuel consumption, and the expense of running the engine. It has been designed so that it can be installed in the same position as mechanical pumps, thereby simplifying the move to electric powered pumps.

Provided by Aisin Seki Co.