



Thermal management as a future task in the automotive industry

Alena Gebhardt
Marketing Assistant
ebm-papst St. Georgen

New electronic water pump with external rotor motor

Phone: +49 7724 / 81-1311
Fax: +49 7724 / 81-1459
alena.gebhardt@de.ebmpapst.com

Contact for Group press office

Phone: +49 7939 / 81-7105
presse@de.ebmpapst.com
http://twitter.com/ebmpapst_news
<http://facebook.com/ebmpapstnews>
www.ebmpapst.com

One of the great challenges for the automotive industry is the growing electrification of the vehicle. Depending on the degree of electrification, modern thermal management takes over new tasks, which, in turn, require new components. Additionally, there are ever stricter emission and consumption standards, which require improvements to existing cooling circuits and their components, as well as completely new systems.

For this reason, the fan specialist ebm-papst from St. Georgen is expanding its existing aerodynamics product portfolio by adding a new category: liquid cooling, electrically operated water pumps. This was an obvious development step, since the expertise in main components, motors and control electronics, has grown in 70 years of working with fans. The drive-related aspects of the two product groups also scarcely differ in manufacturing and quality assurance. Even in the fluid-dynamic design of the pump, the developers were able to make use of our wealth of experience in material selection and calculation methods. The first water pump was presented at the IAA trade fair in September 2011. Proven technology acts as the drive: an efficient and wear-free external rotor motor with EC technology (Electronic Commutation) designed for the specific application.

For the user, the advantage of the new electrically operated water pumps from ebm-papst St. Georgen lies in the compact design and the high running smoothness, which are inherent features of the external rotor motor. Designed as a canned motor pump, the impeller also serves as the rotor of the motor. Seals that are prone to failure are omitted, as are auxiliary magnets for a magnetic coupling. This means that a minimum size of just 75x75x84mm (LxWxH) is possible. In addition, with its optimised hydrodynamic design, the 20-watt pump has an overall efficiency of 35% and, with approximately 0.35 bar, attains an operating pressure up to 50% higher than comparable pumps. The permitted operating temperatures range from -40 °C to +130 °C.

Efficiency stood in the foreground for the developers; therefore, value was placed in optimum flow regulation and the drive was calculated for the specific application requirements. The outstanding overall efficiency for small water pumps confirms this. It has 20-mm hose connections and, depending on the configuration, a delivery volume of up to over 35 litres/min. This "less-is-more concept" gave rise to the new compact pump, which ensures maximum heat dissipation with the lowest intrinsic consumption for motors, battery cooling in hybrid and electric vehicles, and other advanced tasks.



Thermal management as a future task in the automotive industry

New electronic water pump with external rotor motor

Alena Gebhardt
Marketing Assistant
ebm-papst St. Georgen

Phone: +49 7724 / 81-1311
Fax: +49 7724 / 81-1459
alena.gebhardt@de.ebmpapst.com

Contact for Group press office

Phone: +49 7939 / 81-7105
presse@de.ebmpapst.com
http://twitter.com/ebmpapst_news
<http://facebook.com/ebmpapstnews>
www.ebmpapst.com



Figure 1: Electronic water pump with external rotor motor

About ebm-papst

The ebm-papst Group is the world's leading manufacturer of fans and motors and is a pacesetter for the ultra-efficient EC technology. In the last fiscal year 10/11, the company generated turnover of over 1.3 billion EUR. ebm-papst employs over 11,000 people at 17 production sites (including Germany, China and the USA) and 57 sales offices worldwide. Fans and motors of the global market leader are represented in many industries, including ventilation, air-conditioning and refrigeration technology, household appliances, heating engineering, in IT/telecommunications, in medical technology as well as applications in automotive and commercial vehicle engineering. The St. Georgen location has the Herbolzheim Plant in Germany, two plants in Vecsés and Celldömök and a plant in China. ebm-papst St. Georgen GmbH & Co. KG employs a total of 3,400 employees.

More information can be found at www.ebmpapst.com or is available from Alena Gebhardt – alena.gebhardt@de.ebmpapst.com – +49 7724-81-1311