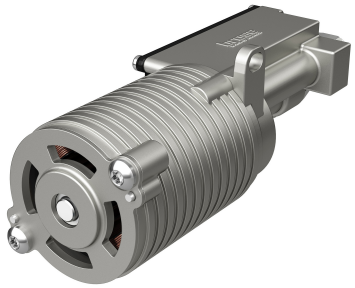
Electric oil pump and climate compressor: System solutions from Brose



Frankfurt am Main (16. September 2015) Lightweight, quiet, efficient and comfortable: Brose is making its mark with intelligent products for drive train actuator and air conditioning systems. The mechatronics specialist will unveil an electric oil pump and a newly developed air conditioning compressor at the 2015 International Motor Show. The compact systems make driving more efficient and more comfortable – for both conventional drives and in electric and hybrid vehicles.

The electric oil pump plays a key role in automatic start-stop technology and “coasting”, for example. Both modes of operation save fuel and reduce up to 10 grams of harmful CO2 emissions by turning off the internal combustion engine. The pump maintains oil pressure in the transmission in these driving modes. Handling is not affected and the vehicle restarts without any time delay. The driver also notices that the transmission works smoother and quieter. The auxiliary system allows engineers to make the main transmission oil pump smaller when used with variable as well as automatic and dual clutch transmissions, resulting in further savings in fuel consumption and emissions.

The system comprises an electronically commutated motor, an electronic control unit (ECU) and a hydraulic pump for a power range of 50 to 350 watts. Compared to component solutions, the electric oil pump is lighter and ensures optimum performance. It is available with ferrite or rare earth magnets, depending on customer requirements. Series production will start in 2018.

New air conditioning concepts for hybrid and electric vehicles

Interior air conditioning is a great challenge for hybrid and electric vehicles. This is because the internal combustion engine operates both the oil pump and the conventional air conditioning system. If the engine is turned off, so is the air conditioning. This is where Brose’s electric air conditioning compressor comes in: it takes over the role of the internal

combustion engine to provide the same level of comfort – even if the vehicle has an electric drive. The motor also offers new functions such as auxiliary air conditioning.

Here, too, the automotive supplier combines the motor, ECU and compressor in a single, compact system. Operation is possible in both 48-volt and high-voltage electrical systems. Conventional chemical solutions as well as environmentally-friendlier CO2 gas can be used as a refrigerant. The efficient operation reduces pollutants by up to four grams per kilometer. In addition, the use of a scroll compressor ensures a constant coolant flow rate and low-noise operation.

In the future, it will also be possible to use the electric air conditioning compressor as a heat pump in electric vehicles. Where CO2 is used as a refrigerant, this can also effectively heat the interior without significantly reducing the vehicle's range. In this way, Brose's air conditioning compressor is a key technology for e-mobility.