



# Modular Permanent-Magnet Synchronous Motors with high Electromagnetic Utilization

By Csaba Zsolt Deák

Shaker Verlag Apr 2012, 2012. Buch. Book Condition: Neu. Neuware - Variable speed electric drive systems became very important in recent years in many ranges of mechanical engineering as replacement for mechanical drive components, based on their technical advantages and cost reduction possibilities, due to the continuous developments in this area. Industrial customers are looking for compact drive systems with small volume, which offer higher efficiency and a reduced heat generation. Therefore, a big demand exists for electrical drives with high power- and torque density, which produces at the same time small losses. Basically, all types of electrical motors can be used in drive systems, but not many of them could fulfill all of these demands. The most widely used drive motors are asynchronous induction motors, permanent magnet (PM) synchronous motors and switched reluctance motors. The best solution for general purpose seems to be the permanent magnet synchronous motor, due to its high efficiency and good dynamic and variable speed properties. It also presents the highest development potential at the moment, as its power- and torque density can be increased with the use of high energy rare earth permanent magnets, combined with flux concentration and reluctance torque. The efficiency can...



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