

Numerical Study of a 6080HP Open Drip Proof (ODP) Motor

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Abstract : CFD(Computational Fluid Dynamics) is conducted to numerically study the flow and heat transfer features of a two-pole, 6,080HP, 60Hz, 3,150V open drip-proof (ODP) motor. The stator and rotor cores in this high voltage induction motor are segmented with the use of spacers for cooling purposes, which leads to difficulties in meshing when the entire system is to be simulated. The system is divided into 4 parts, meshed separately and then combined using interfaces. The deviation between the CFD and experimental results in temperature and flow rate is less than 10%. The internal flow is further examined and a final design is proposed to reduce the winding temperature by 10 degrees.

Keywords : CFD, open drip proof, induction motor, cooling

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