Studi Pengaruh Ketidakseimbangan Tegangan Suplai terhadap Kinerja Motor Induksi Tiga Fasa

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Abstrak

Unbalanced voltage is the condition of three phase voltage that is unbalance either on magnitude or phase angle. One of the factor caused unbalanced voltage is the unbalanced current that is caused by single phase load Single-phase loads are widely used in residential dan lighting systems. Variation on single-phase loading causes currents flowing in phase conductors to be different from one another. Due to this unbalanced currents, there would be unbalanced voltage drop on each phase. In the end unbalanced voltage may supply three-phase loads such us induction motors. On induction motors, unbalanced supply voltage may cause many damage. This paper investigates the ejects of the unbalanced supply voltage on three-phase induction motor with various unbalance factor from 0,35 % until 9,7 %s. Under five different voltage magnitude unbalance conditions, the performance of the induction motor has been analyzed through testing on the laboratory. It is found that the increasing unbalance factor leads to decreasing of motor's rotating speed increasing of load current, and decreasing of motor's efficiency.