STEADY-STATE MODELLING OF SINGLE-FRAME CASCADED INDUCTION MACHINES

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The Single-Frame Cascaded Induction Machine (SFCIM) is a single-unit version of the well known cascade connection of the two machine system. It has applications in the areas of low-speed running with slip-power recovery, variable-speed constant-frequency generation and as a high-power stepping motor.

Unconventional stator and rotor windings are currently available for the SFCIM. This paper presents a theoretical model for an SFCIM having two stator windings and a Multicircuit Single-Layer Bar rotor winding. The model uses the concept of "Cyclic Inductances", and the phasor equations thus developed are similar to those found in mesh analysis of electrical circuits.