

Abstract

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Decoupled Vector Control of Series-Connected Synchronous Motor

Series Connected Synchronous Motor (SCSM) is a slip ring induction motor whose stator and rotor windings are connected in series. This motor runs synchronously with supply frequency at double nominal speed when runs as normal induction motor (IM). Like synchronous motors, this motor is not self starting and it starts with the same methods as the conventional synchronous motor. This motor is suitable for high speed applications. With a suitable controller and inverter, IM is capable of a fast torque response, peak torque of several times the rated torque. In this paper, a decoupled vector control for SCSM drive has been introduced. The vector control drive provides a wide range of speeds, high torque capability and high efficiency.