

NOISE REDUCTION IN RELUCTANCE MACHINES

5

Abstract

In a switched reluctance machine, the air gap between aligned rotor and stator poles is defined to have an inner region of uniform length and outer regions of increasing length. The outer regions are flanked by extension portions on one or both of the poles that form a radiussed transition region on the pole between each outer region and a side wall of the pole. The at least one of the poles has a waist portion between the extension portions and the body of the lamination. As the rotor rotates with respect to the stator, alignment of the poles more gradually modifies the flux path such that radial forces tending to distort the stator and give rise to vibration and acoustic noise are reduced. The waist portion decreases the inductance of the stator winding in the minimum inductance position of the rotor.

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Figure 8C

This Sheet Has Been Replaced

