Design rules for Stators with Flux Barriers

Johannes Walter Gerold[1], Dieter Gerling[2]
[1]FEAAM GmbH, D-85579 Neubiberg, Germany
[2]Universitaet der Bundeswehr Muenchen, D-85579 Neubiberg, Germany
j.gerold@feaam.de, dieter.gerling@unibw.de

Abstract- **This paper presents design rules for stators with flux barriers to increase the power density of machines with concentrated windings while reducing the losses. The rules are used for new winding and stator designs. The results obtained by FEM simulations reveal that the working harmonic is increased and hence a higher power density can be achieved. To give more insights the new designs are simulated with permanent magnets rotors and the results reveal that not only the torque is increased but also the losses can be decreased.**

Keywords **—** ***MMF harmonics, magnetic flux-barrier, permanent magnet synchronous machines, finite element method***

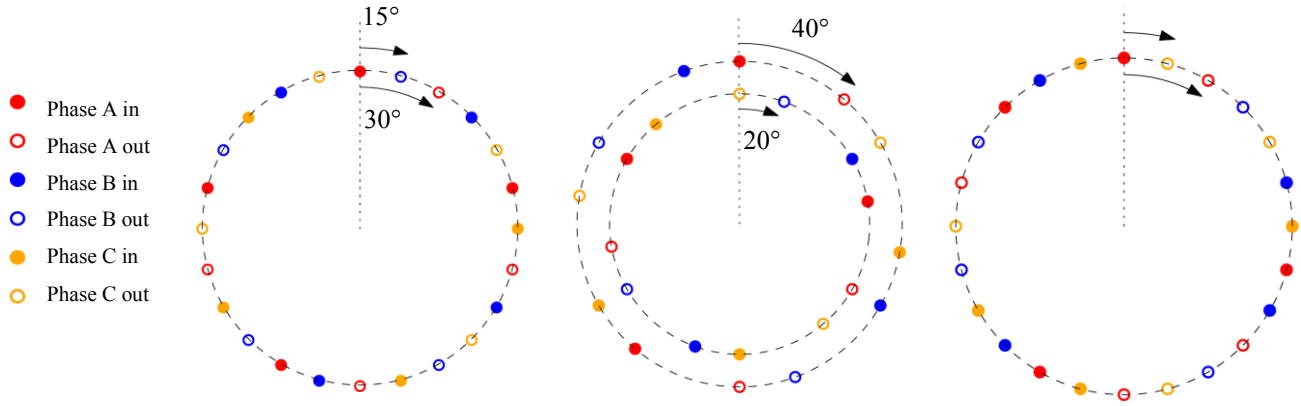

Illustration of three suitable windings for a beneficial use of flux barriers in the stator.

For more information, please contact info@feaam.de!

FEAAM GmbH