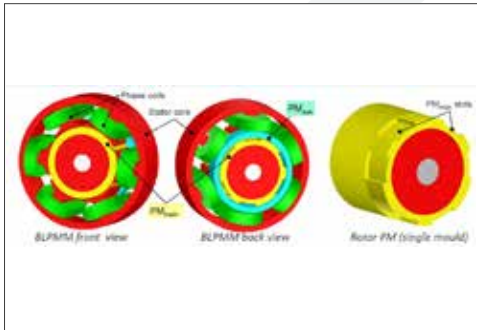




# Auxiliary PM arrangement



**MATE PROJECT** is an innovative Engineering Company for Motors, Electronic Control Boards, Electrical Drives, Prototypes will present at Coiltech how improve the dynamic performances of small single phase self-starting permanent magnet electric motors.

The target of this patent are the small **single-phase brushless** PM motors with self starting capability for household appliances. The core of the innovation is the **Auxiliary PM arrangement** to mitigate typical drawbacks of single-phase PM drives (low starting torque, high torque ripple, uncertain synchronization capability with low damping).

The construction consist of a Rotor with permanent magnet (**PMmain**) extended outside the lamination stack and provided with **suitable spaced slots** (one for each pole) and of fixed auxiliary magnet (**PMaux**) with a **doubled pole number** than PMmain.

The main features achieved with this innovation are:

Increase of starting torque allow improvement of starting performances, reduction of torque and speed oscillations means a reduction of noise and vibrations and improvement of stability. On application like Ventilation there's the possibility to have symmetric and reduced air-gap and to use less performing magnets and the increase of load torque and inertia give the possibility to have Single Phase instead of Three Phases.