

### ETEL S.A.

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### Master Thesis: Independent Coils High Performance Motor

ETEL is a technology company manufacturing electric motors, motion systems and motion controllers. Particularly, the torque motors are heavily present in Industry Applications, they are optimized and developed to maximize the available torque per given active volume through a complete motor range, including the [TMK torque motors](#), the most advanced high speed-high torque product. In ETEL torque motors the 3-phase feeding is used according to market standards. Anyway this may limit the motor performances and capabilities, since this last one is not exploited with full freedom.

This master thesis gives the student the opportunity to investigate the potential of non-three phase configurations and to validate his findings with a real prototype. The additional given freedom is to drive each coil of the motor as if it were independent to each other, starting from the stator of a ETEL TMK, where each coil will be initially independent, not connected in the classical winding configuration. The control strategy chosen for the winding will be key as well. The target is increasing the machine performance and/or creating uniqueness.

This master thesis job will be carried out mainly at ETEL SA.

Background in mechanical, electrical or power electronics engineering is required, including basis in electromagnetic circuits modelling.

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