OBJECTIVE

From customer specifications, CEDRAT TECHNOLOGIES provides optimizations and upgrades to existing COTS electromagnetic actuators and motors using its CAD tools and lab facilities.

Fig. 1: BLDC simulation with Flux

RETROFIT PROPOSED SERVICES

⟩ REVERSE ENGINEERING AND MODELLING:

CEDRAT TECHNOLOGIES is equipped with the latest instruments in the field of 2D & 3D inspection. In addition, our multidisciplinary team of experts provides their experience for the magnetic characterization of your samples including the data base on the materials' magnetic properties. This retrofit step may be useful when building a relevant model for optimisation purpose.

Fig. 2: BLDC motor integration

⟩ OPTIMISATION:

Combining years of experience in electrical and mechatronics engineering and leadership in electromagnetic software manufacturing, CEDRAT TECHNOLOGIES provides advanced modelling and optimisation services.

Based on leading software solutions, our services cover electromagnetic analysis (with Flux, SPEED and InCa3D), thermal analysis (with Flux and Motor-CAD) and control command (with Matlab/Simulink, Portunus).

Fig. 3: Micro motors test bench

⟩ MANUFACTURING ASSEMBLY INTEGRATION & TESTS:

Once optimisation outcomes underline the benefit of one material, one geometry, lubrication or one wire technology... CEDRAT TECHNOLOGIES is able to handle the brushless motor fabrication process: From strips stacking and stator insulation to micro winding and mechanical integration, our lab facilities is equipped with fixture tools to perform the fabrication of brushless motor or magnetic actuators.

Furthermore, thanks to our background in motor designing and testing, dedicated motor & micro motor test benches are available to measure load curves, efficiency, and consumption...in the range of (1W-5kW)

⟩ DRIVE ELECTRONICS

CEDRAT TECHNOLOGIES masters in developing codes and designing the PCB of Brushless sensorless motors

EXAMPLE WITH A MICRO BRUSHLESS DC MOTOR

In the frame of MUFLY FP6 project, CEDRAT TECHNOLOGIES developed the drive electronics of a 3 phases BLDC including the code and the PCB. In addition, starting from a commercially available micro B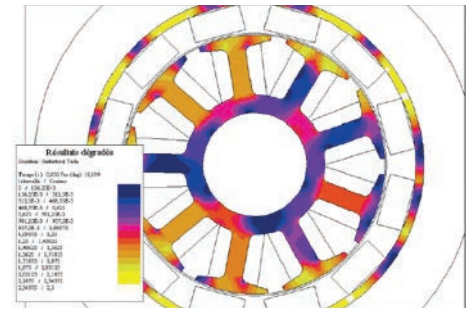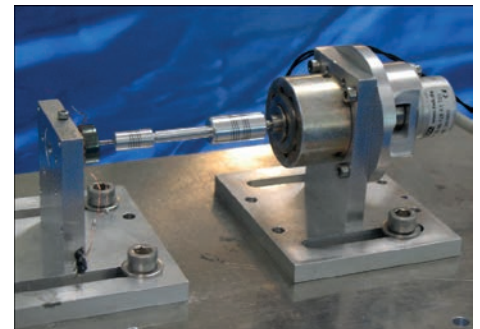LDC motor, we succeeded in improving the efficiency.