# STM32 PMSM SDK 5.2 training

T.O.M.A.S. team

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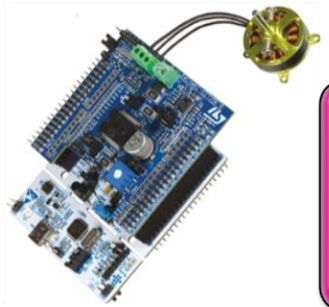
# Motor Control Development Workflow



**#2 – Motor Characterization**



Hardware Setup

Motor Characterization

# Hands-on:

## How to set motor, power stage, startup,... parameters

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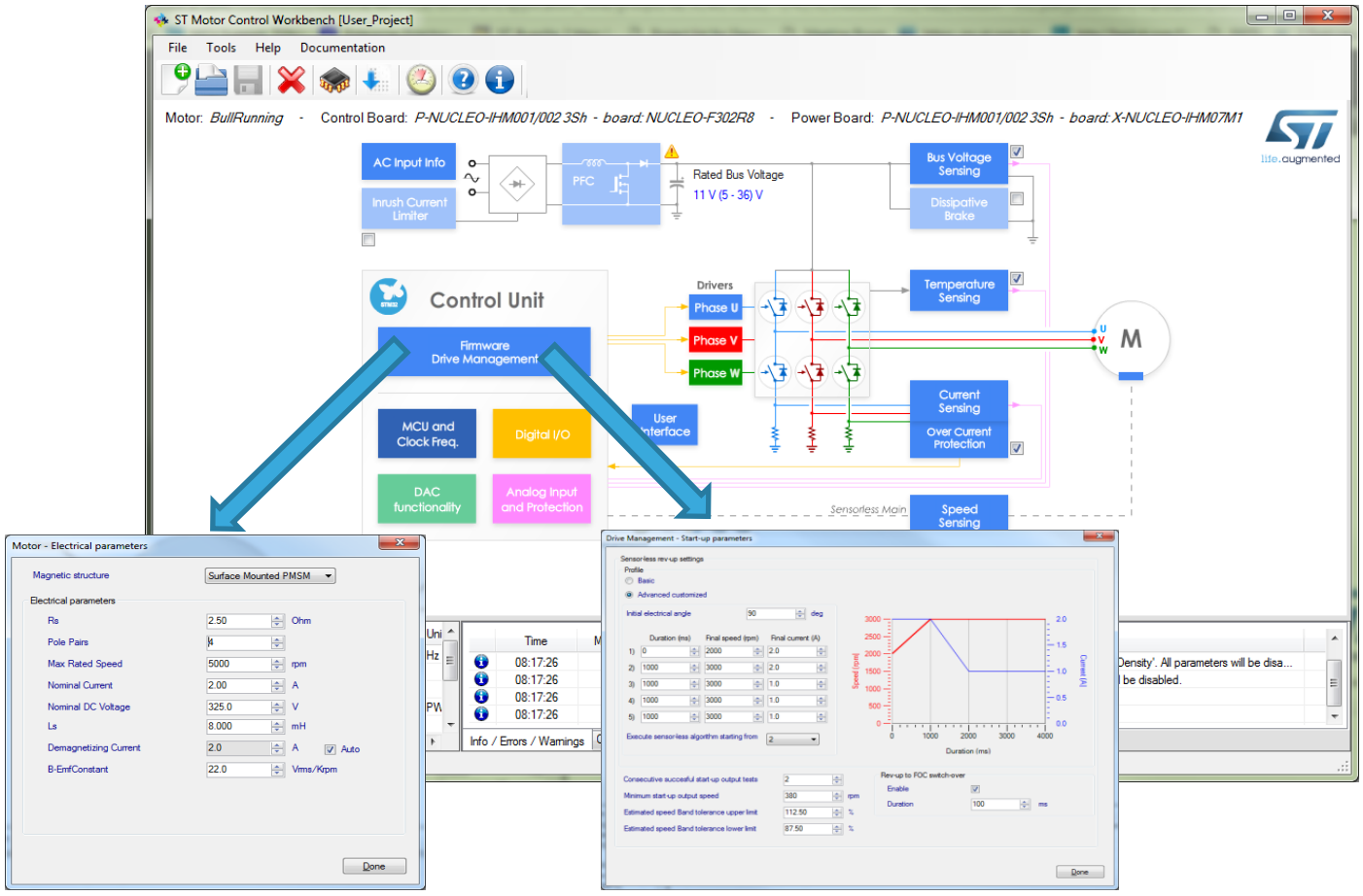
# Tools: ST Motor Control Workbench



The STMCWB software reduces the design effort and time in the STM32 PMSM FOC firmware library configuration. The user, through a graphical user interface (GUI), generate all parameter header files which configures the library according with the application requirements

**Quick setup of the library according with customer needs**



# Hands-on:

## How to measure motor parameters

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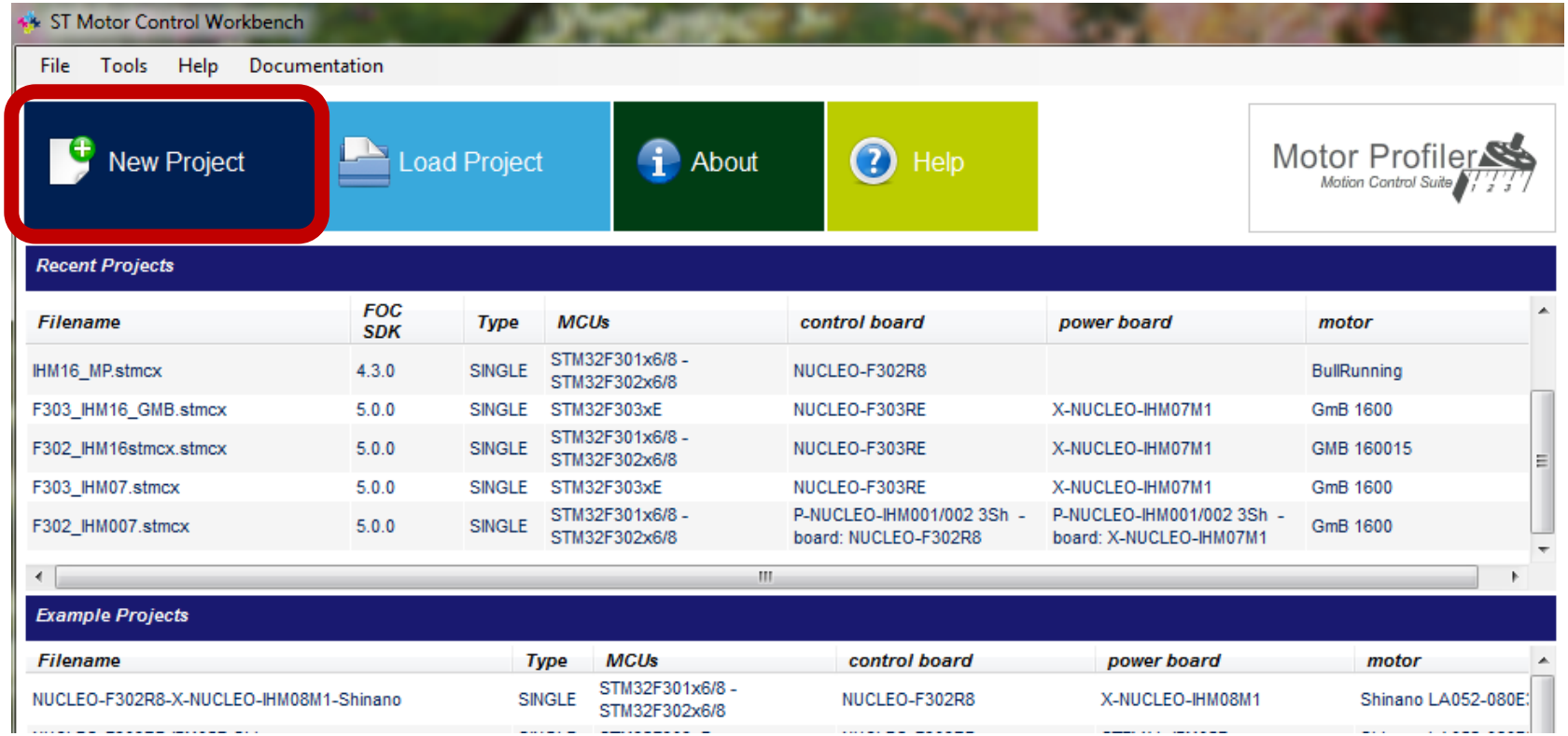
# Create new project



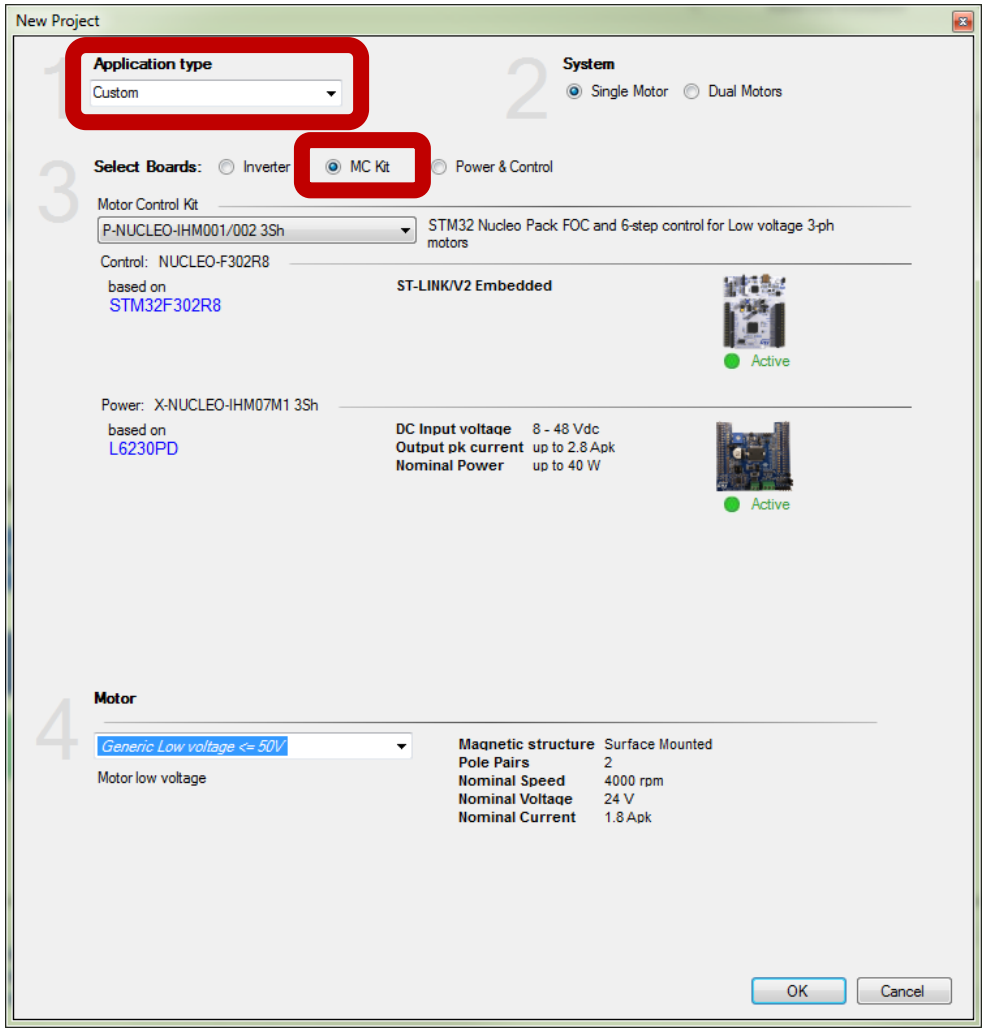
- Press the button **New Project**



# Select the Application type



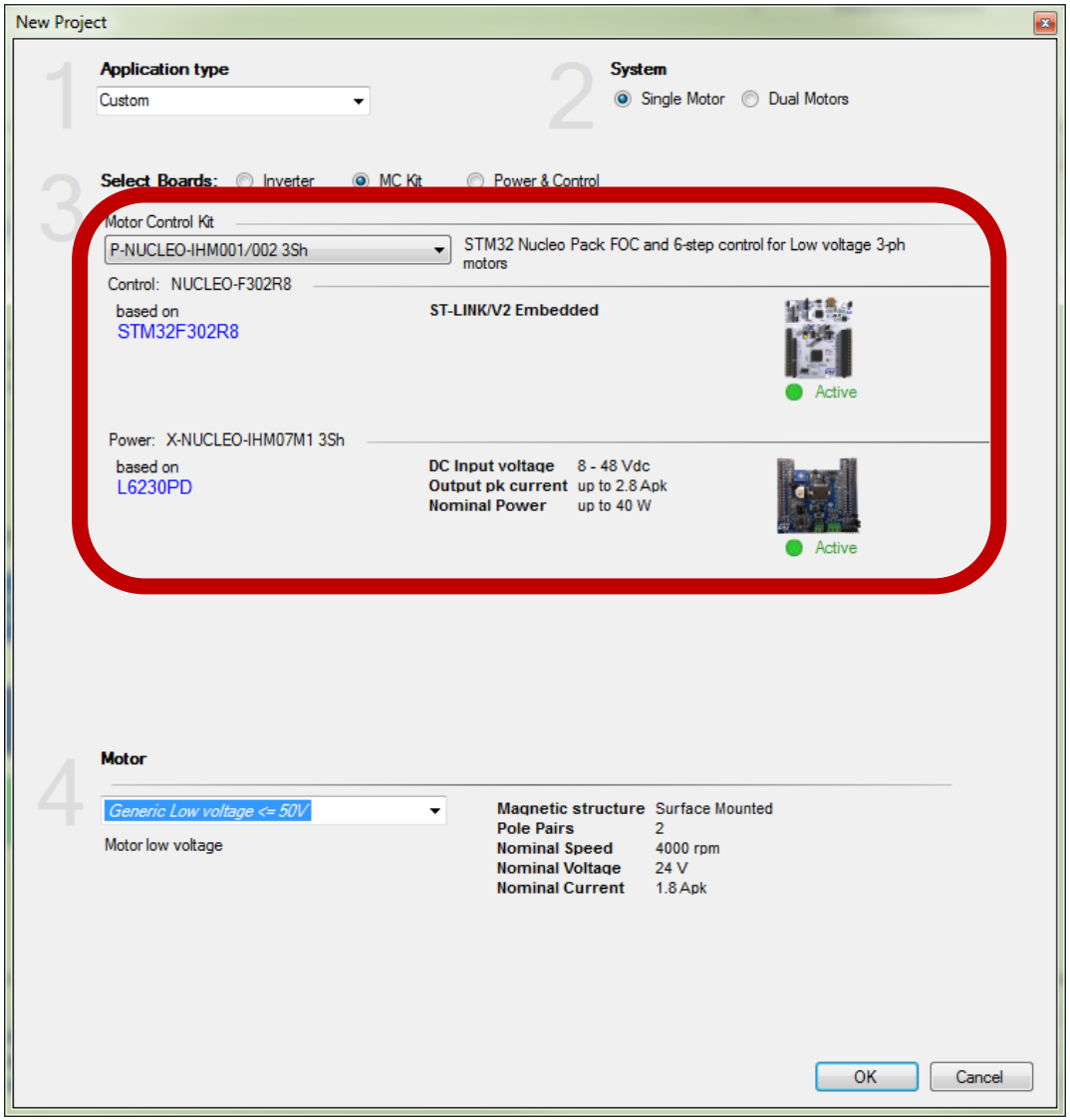
- 1 – Select **“Custom”**
  Application type
- 3 – Select **“MC Kit”**
  Select boards check box



# Use motor in MC Workbench



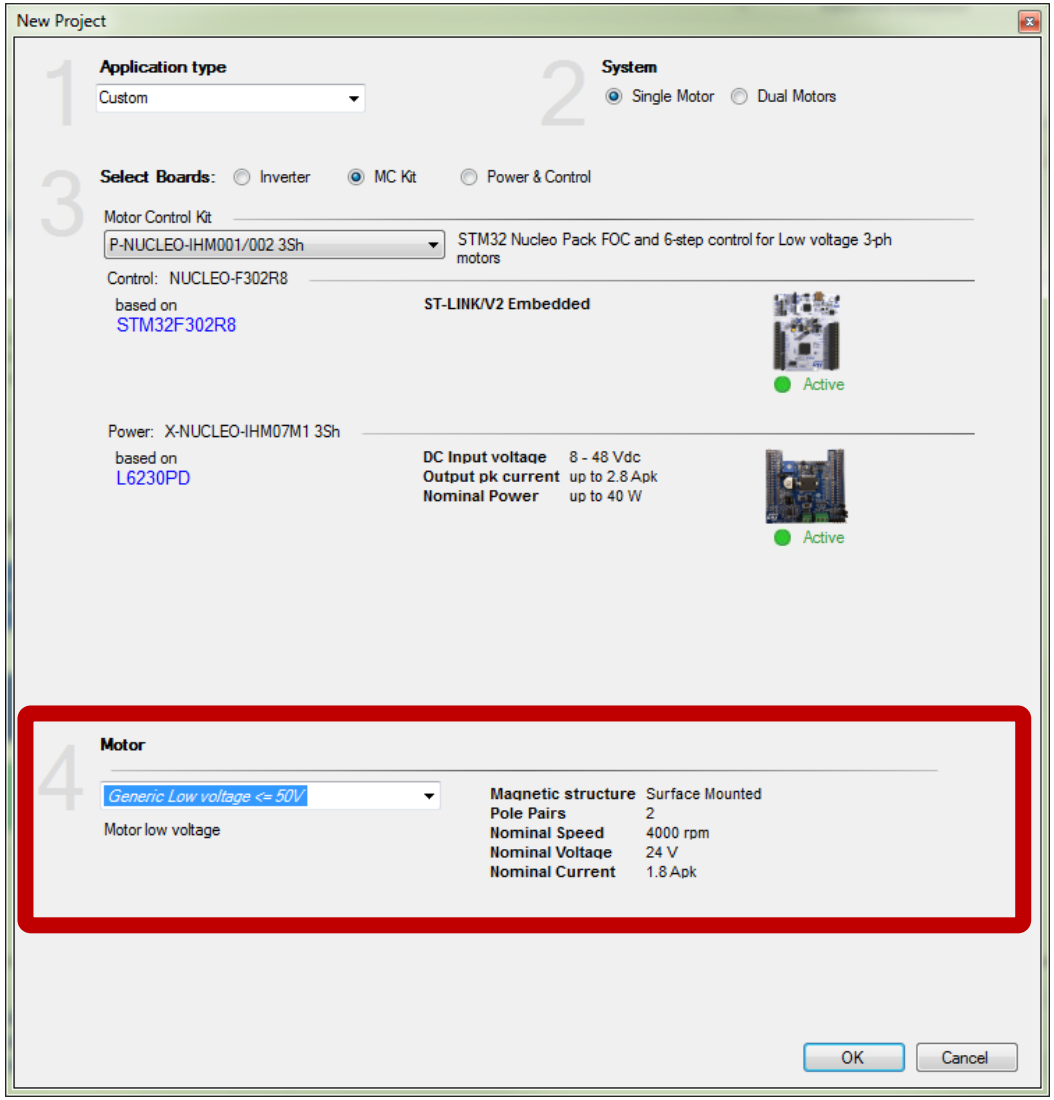
- Select **“P-NUCLEO-IHM001/002 3Sh”** in **MC Kit** part



# Select the motor



- Select Generic Low voltage <=50V at the bottom of the window New Project.

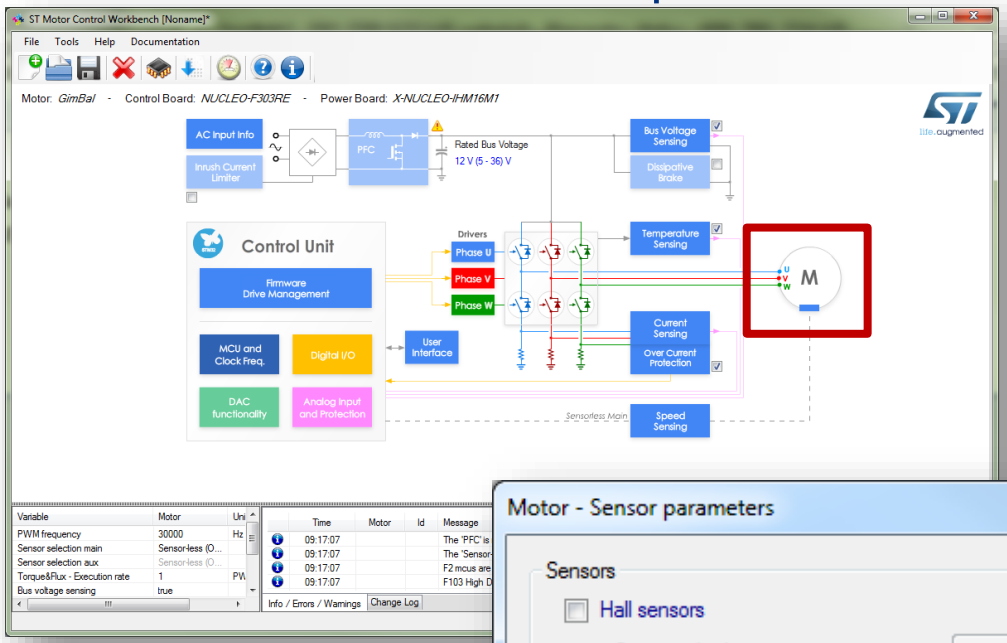


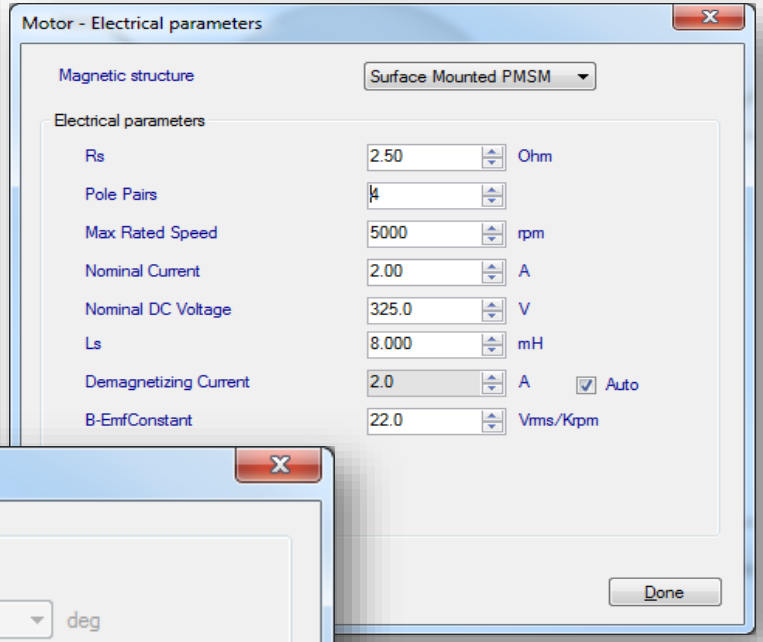
# PMSM - motor parameters

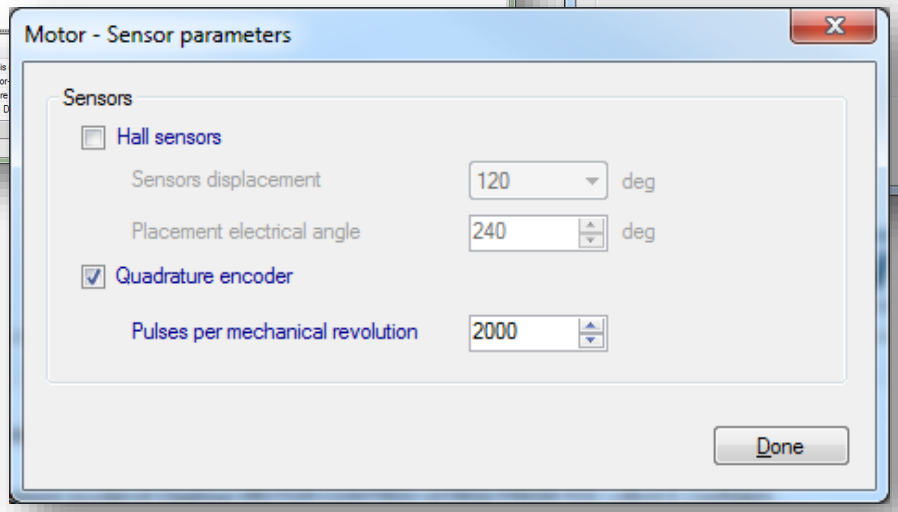
Hands-On section

## STMCWB – Motor section contains:

- Electrical motor parameters
- Motor sensor parameters

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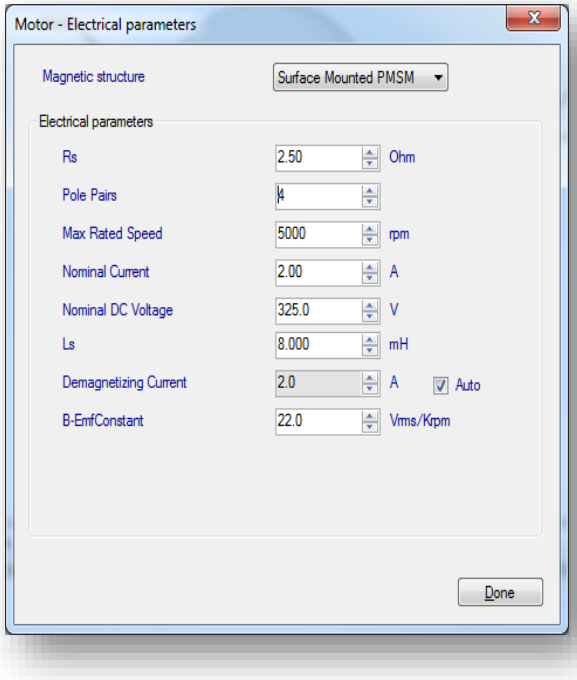
# PMSM - Electrical motor parameters



- **Select either Internal PMSM or Surface Mounted PMSM according to the magnetic structure of your motor**
- **If you don’t have this information you need to measure both Ld and Lq inductance for verifying it**
- **IF** **2*(Lq-Ld)/(Ld+Lq) <15%** → **SM-PMSM**
- **See next slides for learning how to measure motor inductances**



# Thanks