

WMM Testbench for MCBXF Series Production

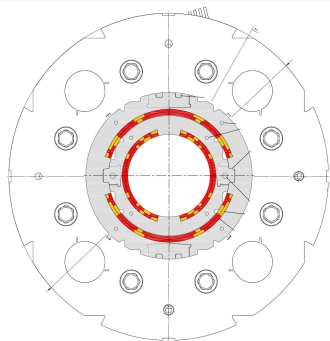


Ó. Durán¹, L. González¹, C. Martins¹, F. Toral¹
L. Fiscarelli², J.C. Pérez², P. Rogacki²

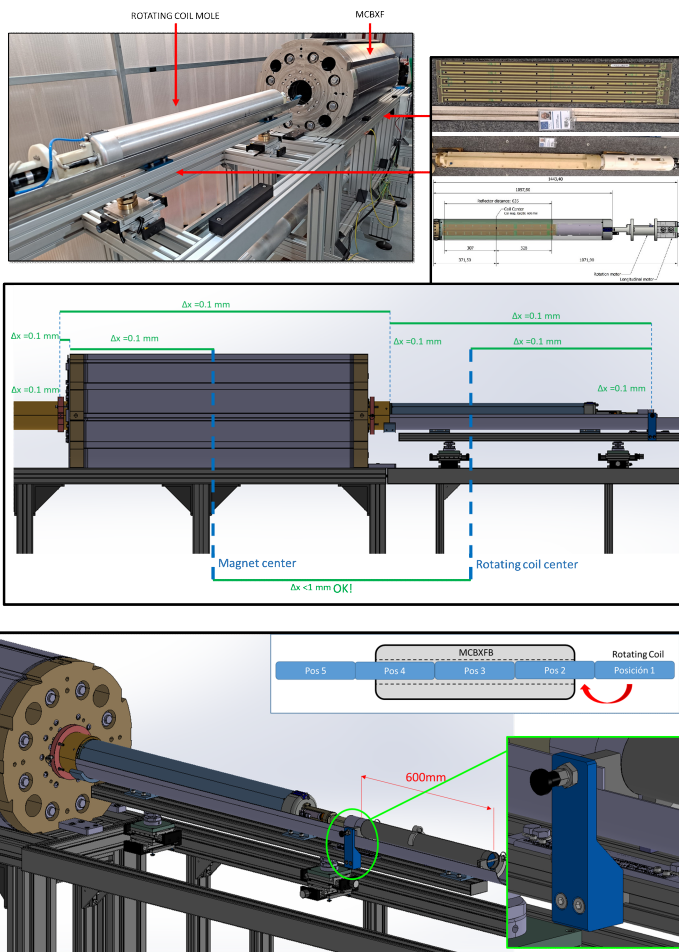


MCBXF

Horizontal Field	2.1 T
Vertical Field	2.1 T
Integrated field	2.5 T·m (MCBXFB)
	4.5 T·m (MCBXFA)
Nominal current (Inner)	1400 A
Nominal Current (Outer)	1700 A
Aperture	150 mm
Radiation resistance	35 MGy (MCBXFB)
	44 MGy (MCBXFB)
Working Temperature	1.9 K
Torque	1.2E5Nm/m
Field Quality	
b3 / a3	< 10 units
b5 / a5	< 7 units
Higher order multipoles	< 5 units

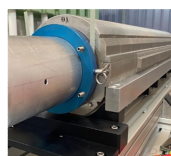


The testbench

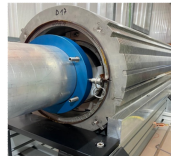


First results on MCBXFB02

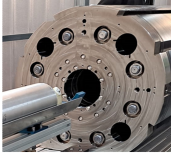
Inner Collared



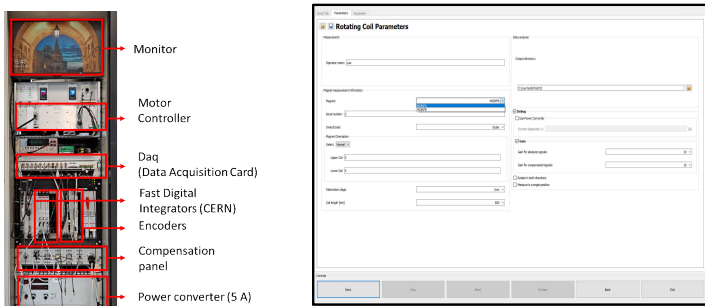
Outer Collared



Completed

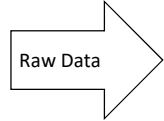


Controls

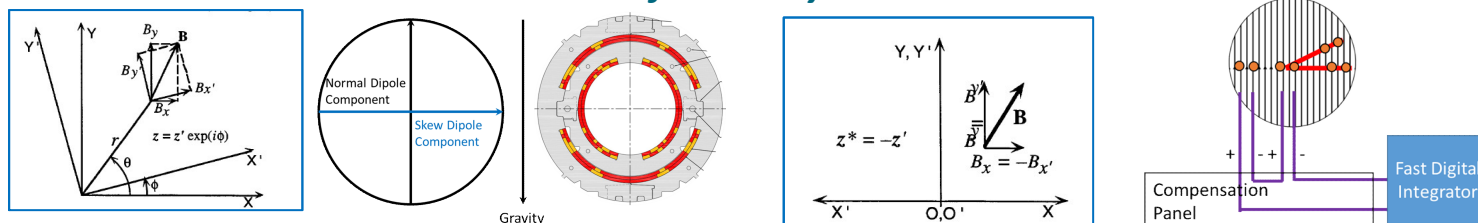


GUI Control
Data acquisition
C++
Fast Framework for Magnetic Measurements **FFMM** (CERN)

Post processing
Python
CIEMAT



Reference systems



Summary

- Series production of MCBXF orbit corrector magnet for HL-LHC has started at Elytt
- A dedicated Testbench has been designed and manufactured to carry out the WMM after each fabrication stage
- The testbench has been designed to be robust and with limited operation flexibility in order to optimize its performance at the industry premises
- Special care was taken regarding reference system transformations
- Measuring campaign on MCBXFB02 was successfully performed