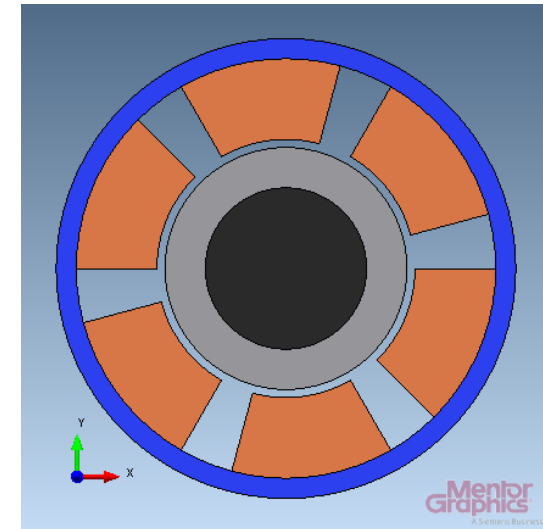


Three-phase induction motor startup

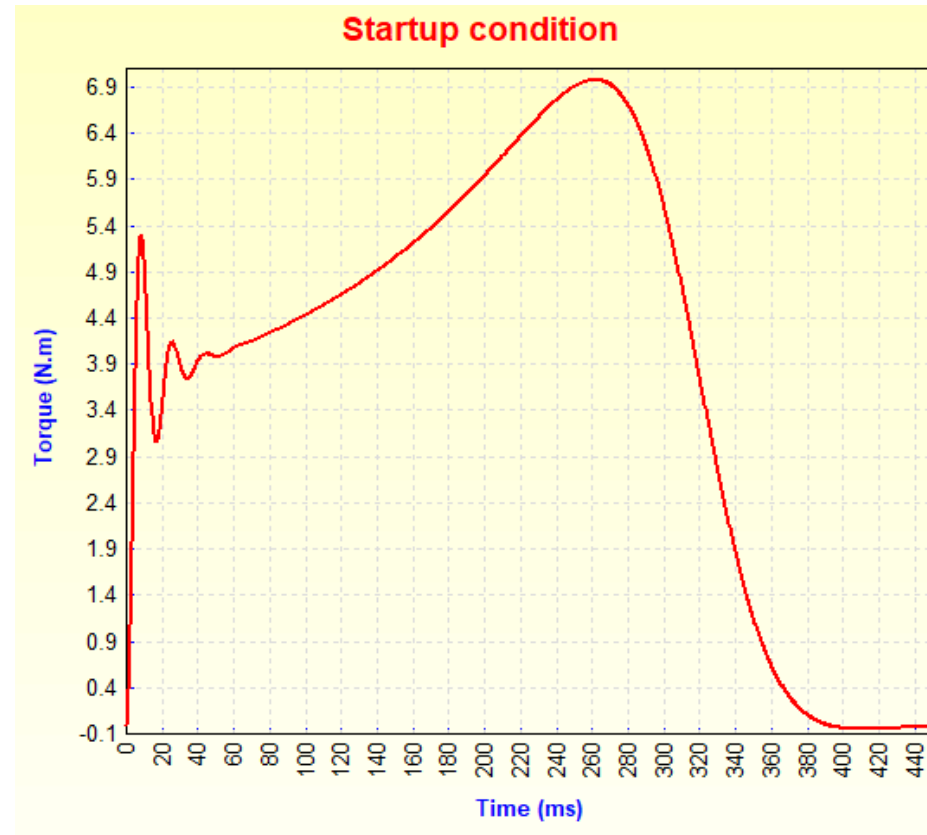
Three-phase induction motor startup (T.E.A.M. Problem 30A)

This is an example of a three-phase induction motor. In Simcenter MAGNET, this IM is simulated and analyzed using the Transient 2D with Motion solver. The method and results presented here display the characteristics of the machine during startup. In this analysis, no load or friction is specified.

The following is based on the Testing Electromagnetic Analysis Methods (T.E.A.M.) problem #30A: Induction Motor Analyses. The benchmark can be found on the International Compumag Society's website.

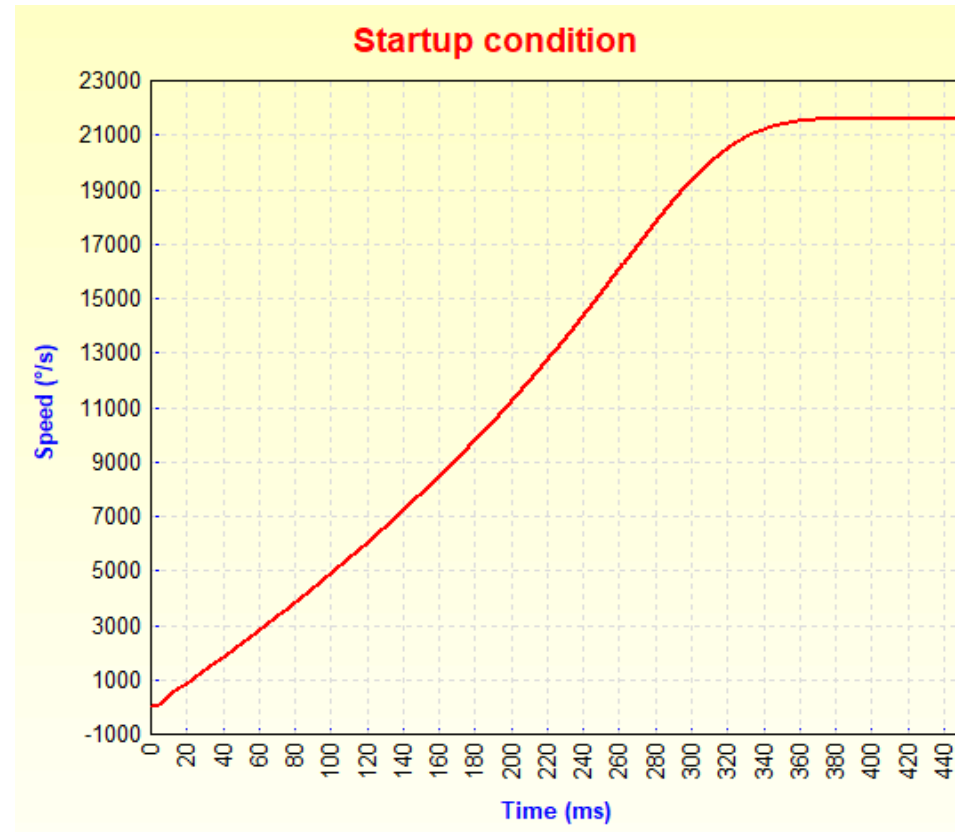


DISPLAYING THE TORQUE AT STARTUP



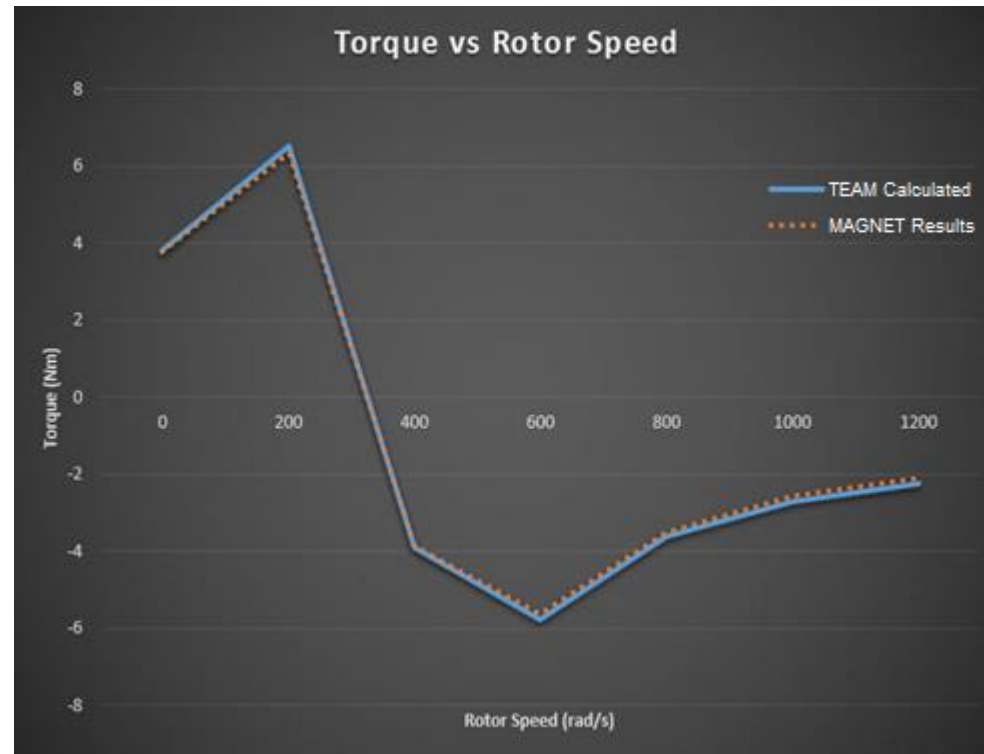
The torque versus time graph shows the initial transient that takes place and the way the torque changes as the rotor speeds up. The torque reaches a maximum before dropping to zero at synchronous speed.

FROM ZERO TO MAXIMUM ATTAINABLE SPEED



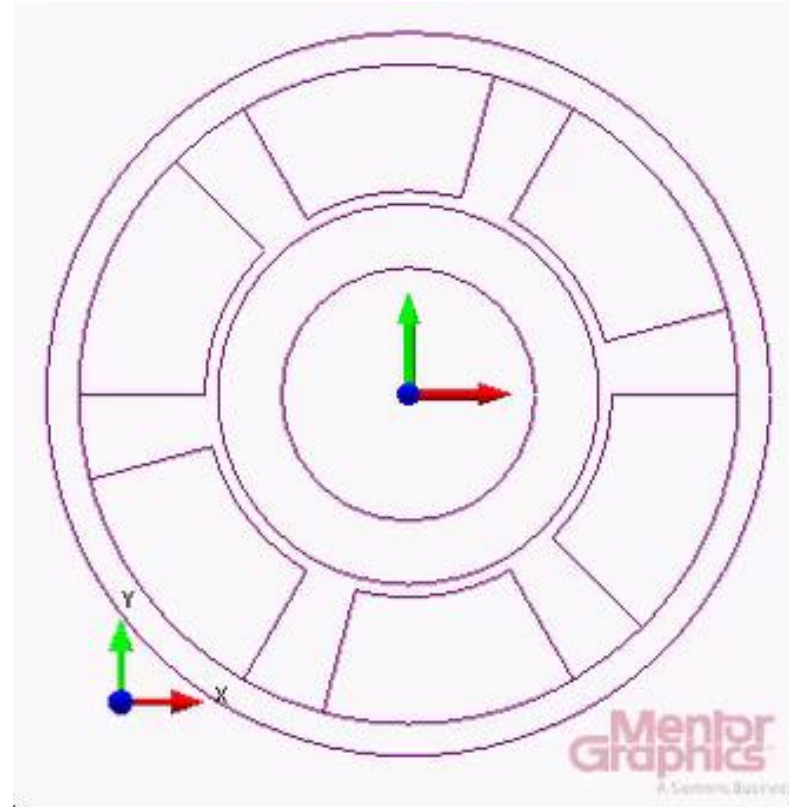
The speed versus time graph shows the speed of the rotor increasing from zero at start to the maximum attainable speed when the machine is running at synchronous speed.

COMPARING MEASURED & SIMULATED TORQUE VS. SPEED

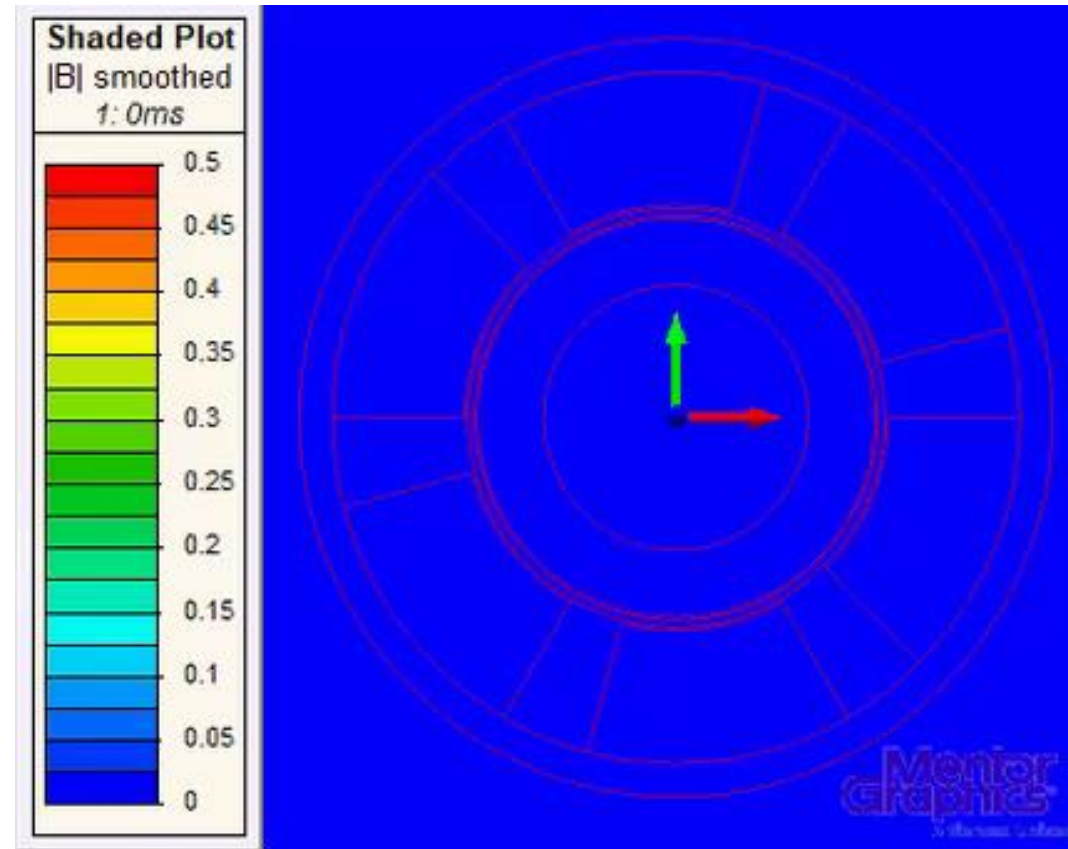


This graph compares the measured torque vs. rotor speed (from T.E.A.M. problem 30A) and Simcenter MAGNET 's simulation results.

CONTOUR PLOT ANIMATION OF THE FLUX FUNCTION



SHADED PLOT ANIMATION OF THE FLUX DENSITY FIELD



SHADED PLOT ANIMATION OF THE CURRENT DENSITY FIELD

