

Results for running the 2D non linear test-nl example for a “generic” 1020 steel.

HcMag		MagSta_a_nl	MagSta_phi_nl	MagSta_a_pic	MagSta_phi_pic
500000	Iterations to Mean Error	72 @ 6e-7	7 @ 1e-8	46 @ 9e-7	100 @ 2e-3
	H center core	2,34E+2	2,29E+2	2,40E+2	2,41E+2
	B center core	4,88E-1	4,87E-1	4,65E-1	5,25E-1
	H core near mag	2,60E+2	2,70E+2	2,74E+2	2,73E+2
	B core near mag	5,81E-1	5,85E-1	5,82E-1	5,84E-1
920000	Iterations to Mean Error	7 @ 2e-9	15 @ 3e-8	No convergence	100 @ 1e-6 (1)
	H center core	4,49E+2	4,70E+2		4,74E+2
	B center core	9,01E-1	8,99E-1		8,98E-1
	H core near mag	6,58E+2	6,06E+2		6,14E+2
	B core near mag	1,07E+0	1,07E+0		1,07E+0
1500000	Iterations to Mean Error	15 @ 5e-9	100 @ 5e-5	No convergence	100 @ 4e-6 (2)
	H center core	1,63E+3	3,17E+4		1,07E+3
	B center core	1,43E+0	3,84E+2		1,44E+0
	H core near mag	4,79E+3	1,46E+6		3,63E+3
	B core near mag	1,70E+0	3,19E+1		1,72E+0
3000000	Iterations to Mean Error	22 @ 5e-8	68 @ 1e-8	No convergence	100 @ 6e-5
	H center core	7,99E+3	1,73E+6		8,96E+3
	B center core	1,84E+0	5,80E+1		2,15E+0
	H core near mag	4,99E+4	1,40E+6		5,90E+4
	B core near mag	2,23E+0	2,88E+1		3,08E+0

(1) 8 @ 5e-6

(2) 58 @ 6e-6

Notes:

- 1) 15 @ 5e-9 in the Iterations to mean error column means that after 15 iterations the mean error became 5e-6.
- 2) Iterative loop was bound to 100 iterations.
- 3) Convergence criteria was 1e-6 mean error. In some cases results were good even when this figure was not achieved.

“Generic” 1020 steel magnetization curve

Generic 1020 steel

