

Non-oriented fully processed electrical steel  
M210-35A

Typical values

POLARISATION $J_{peak}$ T	SPECIFIC TOTAL LOSS									
	at 50 Hz		at 60 Hz		at 400 Hz		at 700 Hz		at 1000 Hz	
	W/kg	W/lb	W/kg	W/lb	W/kg	W/lb	W/kg	W/lb	W/kg	W/lb
0.1	0.02	0.01	0.03	0.01	0.19	0.09	0.52	0.24	0.96	0.44
0.2	0.05	0.02	0.06	0.03	0.87	0.39	1.99	0.90	3.59	1.63
0.3	0.10	0.05	0.12	0.05	1.85	0.84	4.23	1.92	7.53	3.42
0.4	0.19	0.09	0.23	0.10	3.09	1.40	7.11	3.23	12.5	5.67
0.5	0.27	0.12	0.33	0.15	4.58	2.08	10.6	4.81	18.8	8.53
0.6	0.36	0.16	0.45	0.20	6.33	2.87	14.8	6.71	26.3	11.9
0.7	0.46	0.21	0.58	0.26	8.35	3.79	19.7	8.94	35.3	16.0
0.8	0.57	0.26	0.72	0.33	10.6	4.81	25.4	11.5	45.8	20.8
0.9	0.69	0.31	0.87	0.39	13.2	5.99	32.0	14.5	58.0	26.3
1.0	0.83	0.38	1.05	0.48	16.2	7.35	39.6	18.0	72.1	32.7
1.1	0.98	0.44	1.24	0.56	19.5	8.85	48.3	21.9	88.5	40.1
1.2	1.16	0.53	1.46	0.66	23.3	10.6	58.3	26.4	107	48.5
1.3	1.40	0.64	1.76	0.80	27.8	12.6	70.1	31.8	129	58.5
1.4	1.70	0.77	2.14	0.97	33.6	15.2	85.1	38.6		
1.5	2.00	0.91	2.52	1.14	41.0	18.6	105	47.6		
1.6	2.26	1.03	2.86	1.30	50.3	22.8				
1.7	2.46	1.12	3.12	1.42						
1.8	2.66	1.21	3.37	1.53						

	GUARANTEED VALUES		TYPICAL VALUES	
Loss at 1.0 T & 50 Hz	-	-	0.83 W/kg	0.38 W/lb
Loss at 1.0 T & 60 Hz	-	-	1.05 W/kg	0.48 W/lb
Loss at 1.5 T & 50 Hz	2.10 W/kg	0.95 W/lb	2.00 W/kg	0.91 W/lb
Loss at 1.5 T & 60 Hz	2.65 W/kg	1.20 W/lb	2.52 W/kg	1.14 W/lb
Loss at 1.5 T & 50 Hz in rolling direction	-	-	1.78 W/kg	0.81 W/lb
Loss at 1.5 T & 60 Hz in rolling direction	-	-	2.24 W/kg	1.02 W/lb
Anisotropy of loss	± 17 %		+ 12 %	
Magnetic polarisation at 2500 A/m & 50 Hz	1.49 T		1.55 T	
Magnetic polarisation at 5000 A/m & 50 Hz	1.60 T		1.65 T	
Magnetic polarisation at 10000 A/m & 50 Hz	1.70 T		1.77 T	
Relative permeability at 1.5 T & 50 Hz	-		820	
Relative permeability at 1.6 T & 50 Hz	-		365	
Nominal thickness	-	-	0.35 mm	0.0138 inch
Density (assumed)	-	-	7.60 kg/dm <sup>3</sup>	0.275 lb/inch <sup>3</sup>
Resistivity	-		59 μΩ cm	
Yield strength	-	-	445 MPa	64 500 psi
Tensile strength	-	-	550 MPa	79 800 psi
Young's modulus, rolling direction	-	-	185 000 MPa	2.68·10 <sup>7</sup> psi
Young's modulus, transverse direction	-	-	200 000 MPa	2.90·10 <sup>7</sup> psi
Hardness HV5	-		210	

Values for the yield strength (0.2% proof strength) and tensile strength are given for the rolling direction. Corresponding values for the transverse direction are approximately 5 % higher.

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	at 50 Hz A/m	at 60 Hz A/m	at 400 Hz A/m	at 700 Hz A/m	at 1000 Hz A/m
0.1	22.1	22.5	28.2	31.1	34.9
0.2	29.1	29.7	36.8	44.2	54.2
0.3	34.0	34.7	48.8	58.4	70.8
0.4	38.5	39.3	57.6	70.8	85.2
0.5	43.0	43.9	66.0	82.7	100
0.6	48.1	49.1	74.8	95.5	117
0.7	54.1	55.2	84.3	110	136
0.8	61.3	62.5	95.1	125	157
0.9	70.6	71.3	107	142	179
1.0	83.0	83.8	121	160	203
1.1	102	103	139	181	230
1.2	134	135	175	204	259
1.3	214	214	261	270	305
1.4	490	490	536	545	
1.5	1450	1450	1450	1450	
1.6	3450	3450	3450		
1.7	6650	6650			
1.8	11700	11700			

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