M-5 Mill-Anneal

CRGO performance data

Query summary

Grade	M-5 Mill-Anneal
Mill and thickness	Cleveland-Cliffs · 0.3 mm
Published frequency	50 Hz / 60 Hz
Published flux density range	0.1-1.9 T
Distinct flux density levels	19
Properties	Specific core loss · Specific exciting apparent power · Magnetic induction

50 Hz performance

Table 01 · ASTM A343 Epstein

B (T)	Specific core loss Guaranteed maximum · W/lb	Specific core loss Typical A · W/lb	Specific core loss Typical B · W/lb	Specific exciting apparent power Typical · VA/lb
0.1	-	0.00212	-	0.00346
0.2	-	0.00789	-	0.0115
0.3	-	0.0170	-	0.0233
0.4	-	0.0293	-	0.0383
0.5	-	0.0446	-	0.0562
0.6	-	0.0631	-	0.0770
0.7	-	0.0847	-	0.101
0.8	-	0.109	-	0.128
0.9	-	0.138	-	0.158
1	-	0.169	-	0.191
1.1	-	0.204	-	0.230
1.2	-	0.242	-	0.274
1.3	-	0.285	-	0.327
1.4	-	0.334	-	0.396
1.5	0.440	0.391	0.391	0.498
1.6	-	0.464	-	0.687
1.7	0.630	0.569	0.567	1.21
1.8	-	0.723	-	3.67
1.9	-	0.899	-	14.7

60 Hz performance

Table 02 · ASTM A343 Epstein

B (T)	Specific core loss Guaranteed maximum · W/lb	Specific core loss Typical A · W/lb	Specific core loss Typical B · W/lb	Specific exciting apparent power Typical · VA/lb
0.1	-	0.00281	-	0.00436
0.2	-	0.0105	-	0.0147
0.3	-	0.0228	-	0.0299
0.4	-	0.0391	-	0.0494
0.5	-	0.0596	-	0.0728
0.6	-	0.084	-	0.100
0.7	-	0.113	-	0.131
0.8	-	0.145	-	0.166
0.9	-	0.182	-	0.206
1	-	0.224	-	0.249
1.1	-	0.271	-	0.303
1.2	-	0.320	-	0.357
1.3	-	0.377	-	0.424
1.4	-	0.440	-	0.510
1.5	0.580	0.514	0.514	0.635
1.6	-	0.606	-	0.862
1.7	0.830	0.738	0.738	1.49
1.8	-	0.931	-	4.46
1.9	-	1.15	-	18.0

Other properties

Frequency not separately reported
Table 03 · ASTM A343 Epstein

Field strength (A/m)	Magnetic induction Guaranteed minimum · T	Magnetic induction Typical · T
795.775	1.78	1.82

A dash indicates a value that was not published.

Manufacturer sources and test conditions

Use table and row references to find the original test conditions.

Cleveland-Cliffs

LITE CARLITE® and Mill-Anneal Grain-Oriented Electrical Steels

Revision October 2023 (printed, back cover) Official document

PDF page 3 · Table 01,02
TABLE 1 – GUARANTEED CORE LOSS · ASTM A343 Epstein
Notes on test conditions Stress-relief-annealed Epstein samples in rolling direction per ASTM A343; nominal 7.65 g/cm³.

PDF page 12 · Table 01A,02A
Table 9 – Typical core loss · ASTM A343 Epstein
Notes on test conditions ASTM A343 Epstein specimens, as in the indicated table. Source induction in kG converted exactly to T; published original-frequency values are preserved.

PDF page 4 · Table 01B,02B
TABLE 2 – TYPICAL CORE LOSS · ASTM A343 Epstein
Notes on test conditions Stress-relief-annealed Epstein samples in rolling direction per ASTM A343; nominal 7.65 g/cm³.

PDF page 14 · Table 01,02
Table 11 – Typical RMS exciting power · ASTM A343 Epstein
Notes on test conditions ASTM A343 Epstein specimens, as in the indicated table. Source induction in kG converted exactly to T; published original-frequency values are preserved.

PDF page 3 · Table 03
TABLE 1 – GUARANTEED CORE LOSS · ASTM A343 Epstein
Notes on test conditions Stress-relief-annealed Epstein samples in rolling direction per ASTM A343; nominal 7.65 g/cm³. Source induction: 17.8 kG at 10 Oe (~795.775 A/m). Table 2 groups these values as typical.

PDF page 4 · Table 03
TABLE 2 – TYPICAL CORE LOSS · ASTM A343 Epstein
Notes on test conditions Stress-relief-annealed Epstein samples in rolling direction per ASTM A343; nominal 7.65 g/cm³. Source induction: 18.2 kG at 10 Oe (~795.775 A/m). Table 2 groups these values as typical.

Independent compilation

Compiled by Chenfan Electric from published mill data.
Mill specifications and written order terms govern acceptance. Typical and reference values are for assessment.
Strip data are for engineering reference. Finished-core loss requires separate validation.
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