Magnetic Properties of Ferrite Materials

Property	Unit	Symbol	68	67	61	51*	44
Initial Permeability @ B <10 gauss		μ_i	20	40	125	350	500
Flux Density	gauss mT	B	2700 270	2300 230	2350 235	3200 320	3000 300
@ Field Strength	oersted A/m	H	40 3200	20 1600	15 1200	10 800	10 800
Residual Flux Density	gauss mT	B_r	1000 100	800 80	1200 120	1200 120	1100 110
Coercive Force	oersted A/m	H_c	7.0 560	3.5 280	1.8 144	0.60 48	0.45 36
Loss Factor @ Frequency	10^{-6} MHz	$\tan \delta/\mu_i$	500 100	150 50	30 1.0	40 1.0	125 1.0
Temperature Coefficient of Initial Permeability (20-70 °C)	%/°C		0.10	0.05	0.10	0.8	0.75
Curie Temperature	°C	T_c	>500	>475	>350	>170	>160
Resistivity	Ω cm	ρ	$1x10^7$	$1x10^7$	$1x10^8$	$1x10^9$	$1x10^9$
Power Loss Density 25kHz - 2000 G - 100°C 100kHz - 1000 G - 100°C	mW/cm³	P	– –	– –	– –	– –	– –
Recommended Frequency Range	MHz						
Application Areas: Low flux density devices.			<400	<300	<100	–	–
Application Areas: EMI suppression.			–	–	>200	<1000	20-250
Application Areas: Power magnetics.			–	–	–	–	–
Application Areas: Special square loop ferrite.			–	–	–	–	–
See this page for additional material data			6	7	8	9	10

42 Material, specifically developed for absorber applications in anechoic chambers, is listed on page 126.

** New Fair-Rite material, added in this edition of the catalog.*

Additional ferrite mechanical and thermal characteristics are tabulated on page 159.

Magnetic Properties of Ferrite Materials

33	43	85	31*	77	78	73	75	76
600	850	900	1500	2000	2300	2500	5000	10000
2800 280 5 400	2900 290 10 800	4200 420 10 800	3400 340 5 400	4900 490 5 400	4800 480 5 400	3900 390 5 400	4300 430 5 400	4000 400 5 400
1200 120	1300 130	3700 370	2500 250	1800 180	1500 150	1500 150	1400 140	1800 180
0.60 48	0.45 36	0.50 40	0.35 28	0.30 24	0.20 16	0.24 19.2	0.16 13	0.12 9.6
25 0.2	250 1.0	30 0.1	20 0.1	15 0.1	4.5 0.1	10 0.1	15 0.1	15 0.025
0.10	1.25	–	1.6	0.7	1.0	0.65	0.6	0.5
>150	>130	>200	>130	>200	>200	>160	>140	>120
$1x10^2$	$1x10^5$	$2x10^2$	$3x10^3$	$1x10^2$	$2x10^2$	$1x10^2$	$3x10^2$	50
– –	– –	– –	– –	200 –	<115 <130	– –	140 –	– –
<3 – – –	<10 20-250 – –	– – – <0.15	– <500 – –	<3 – <0.1 –	<2.5 – <0.5 –	– <30 – –	<0.75 – <0.1 –	<0.5 – – –
11	12	13	14	16	18	20	21	22

Round Cable EMI Suppression Cores

Listed in ascending order of "B" dimension.

Dimensions (**Bold numbers are in millimeters**, light numbers are nominal in inches.)

Part Number**	A	B	C*	Wt (g)	H (Oe)	Typical Impedance(Ω)[1] 10 MHz	25 MHz	100 MHz	250 MHz
2661540002	**14.3±0.45** .562	**6.35±0.25** .250	**28.6±0.75** 1.125	14	.43	–	–	250	310
2643540302	**14.3±0.45** .562	**7.1±0.25** .280	**15.25±0.4** .600	7.5	.41	–	75	118	–
2643800302	**12.7±0.25** .500	**7.15±0.2** .282	**4.9 - 0.25** .188	1.7	.43	–	26	42	–
2643540402	**14.3±0.45** .562	**7.25±0.15** .286	**28.6±0.75** 1.125	14	.40	–	143	215	–
2643801102	**12.7±0.25** .500	**7.9±0.2** .312	**6.35±0.2** .250	2.1	.40	–	26	41	–
2643801902	**12.7±0.25** .500	**7.9±0.2** .312	**12.7±0.4** .500	4.3	.40	–	44	73	–
2631625002	**16.25 - 0.75** .625	**7.9±0.25** .312	**14.3±0.35** .562	8.7	.36	53	75	130	–
2643625002	**16.25 - 0.75** .625	**7.9±0.25** .312	**14.3±0.35** .562	8.7	.36	–	70	113	–
2631625102	**16.25 - 0.75** .625	**7.9±0.25** .312	**28.6±0.75** 1.125	17	.36	103	156	260	–
2643625102	**16.25 - 0.75** .625	**7.9±0.25** .312	**28.6±0.75** 1.125	17	.36	–	130	213	–
2643625202	**16.25 - 0.75** .625	**7.9±0.25** .312	**50.8±1.0** 2.000	31	.36	–	235	384	–
2643665902	**17.45±0.4** .687	**9.5±0.25** .375	**6.35±0.25** .250	4.5	.32	–	26	44	–
2643665802	**17.45±0.4** .687	**9.5±0.25** .375	**12.7±0.5** .500	9.0	.32	–	55	88	–
2631665702	**17.45±0.4** .687	**9.5±0.25** .375	**28.6±0.75** 1.125	20	.32	89	138	225	–
2643665702	**17.45±0.4** .687	**9.5±0.25** .375	**28.6±0.75** 1.125	20	.32	–	125	200	–
2661665702	**17.45±0.4** .687	**9.5±0.25** .375	**28.6±0.75** 1.125	20	.32	–	–	156	260
2631626302	**19.0 - 0.65** .735	**10.15±0.25** .400	**14.65 - 0.75** .562	12	.29	44	69	115	–
2643626302	**19.0 - 0.65** .735	**10.15±0.25** .400	**14.65 - 0.75** .562	12	.29	–	63	96	–
2631626402	**19.0 - 0.65** .735	**10.15±0.25** .400	**28.6±0.75** 1.125	23	.29	89	138	225	–
2643626402	**19.0 - 0.65** .735	**10.15±0.25** .400	**28.6±0.75** 1.125	23	.29	–	128	196	–
2643626502	**19.0 - 0.65** .735	**10.15±0.25** .400	**50.8±1.0** 2.000	41	.29	–	225	348	–
2643801502	**25.4±0.65** 1.000	**12.7±0.35** .500	**6.35±0.25** .250	9.9	.23	–	34	53	–

***Bold part numbers designate preferred parts.*

**This dimension may be modified to suit specific applications.*

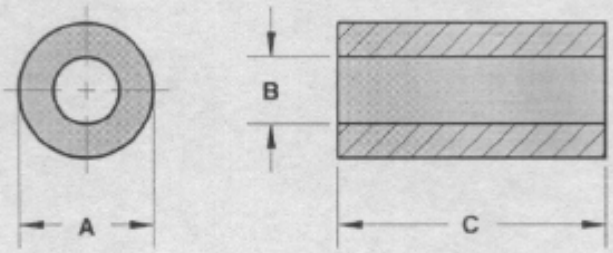
[1] Guaranteed Z Min is Z Typ -20%

Round Cable EMI Suppression Cores

Listed in ascending order of "B" dimension.

Fair-Rite offers a broad selection of round cable EMI suppression cores with guaranteed impedance specifications over a wide frequency range.

- *The "H" column gives for each core size the calculated dc bias field in oersted for 1 turn and 1 ampere direct current. The actual dc H field in the application is this value of H times the actual NI (ampere - turn) product. For the effect of the dc bias on the impedance of the core material, see the graphs on pages 179-180, Figures 16-20.*
- *For typical impedance vs. frequency curves, see Figures 1-5.*



- *Round cable EMI suppression cores are controlled for impedance limits only. They are tested for impedance with a single turn, using the Hewlett Packard HP 4193A Vector Impedance Meter for beads in 31 and 43 material and the HP 4191A RF Impedance Analyzer for 61 material beads.*
- *For smaller size cores, please refer to our EMI Suppression Beads section found on page 24 of this catalog.*
- *For any round cable EMI suppression core requirement not listed in the catalog, please contact our customer service group for availability and pricing.*
- *The Expanded Cable and Connector EMI Suppression Kit (part number 0199000005) contains a selection of these suppression cores. (See page 92).*

Dimensions (**Bold numbers are in millimeters**, light numbers are nominal in inches.)

Part Number**	A	B	C*	Wt (g)	H (Oe)	Typical Impedance(Ω) [1] 10 MHz	25 MHz	100 MHz	250 MHz
2631480102	**12.3±0.4** .485	**4.95+0.25** .200	**12.7±0.4** .500	4.8	.52	58	88	140	-
2643480102	**12.3±0.4** .485	**4.95+0.25** .200	**12.7±0.4** .500	4.8	.52	-	84	121	-
2631480002	**12.3±0.4** .485	**4.95+0.25** .200	**25.4±0.75** 1.000	9.5	.52	115	175	295	-
2643480002	**12.3±0.4** .485	**4.95+0.25** .200	**25.4±0.75** 1.000	9.5	.52	-	165	236	-
2643540702	**14.3±0.45** .562	**6.35±0.25** .250	**5.3 - 0.45** .200	2.6	.43	-	30	50	-
2643540102	**14.3±0.45** .562	**6.35±0.25** .250	**10.15±0.4** .400	5.1	.43	-	61	89	-
2631540202	**14.3±0.45** .562	**6.35±0.25** .250	**13.8 - 0.7** .530	6.8	.43	58	88	140	-
2643540202	**14.3±0.45** .562	**6.35±0.25** .250	**13.8 - 0.7** .530	6.8	.43	-	78	118	-
2661540202	**14.3±0.45** .562	**6.35±0.25** .250	**13.8 - 0.7** .530	6.8	.43	-	-	125	180
2631540002	**14.3±0.45** .562	**6.35±0.25** .250	**28.6±0.75** 1.125	14	.43	119	181	300	-
2643540002	**14.3±0.45** .562	**6.35±0.25** .250	**28.6±0.75** 1.125	14	.43	-	171	250	-

***Bold part numbers designate preferred parts.*

**This dimension may be modified to suit specific applications.*

[1]Guaranteed Z Min is Z Typ -20%

Round Cable EMI Suppression Cores

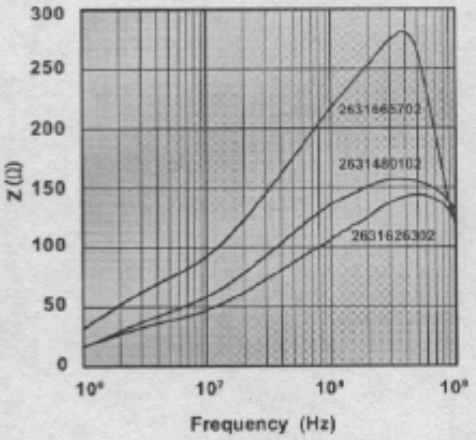


Figure 1 Impedance vs. Frequency for 31 material round cable EMI suppression cores.

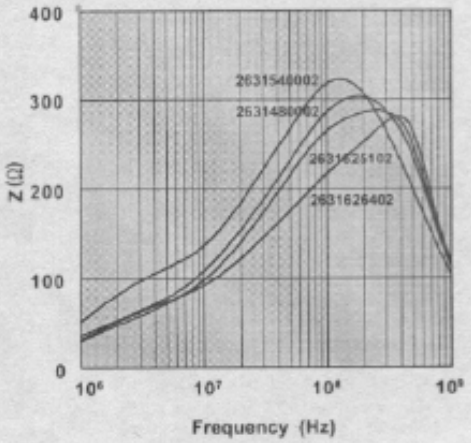


Figure 2 Impedance vs. Frequency for 31 material round cable EMI suppression cores.

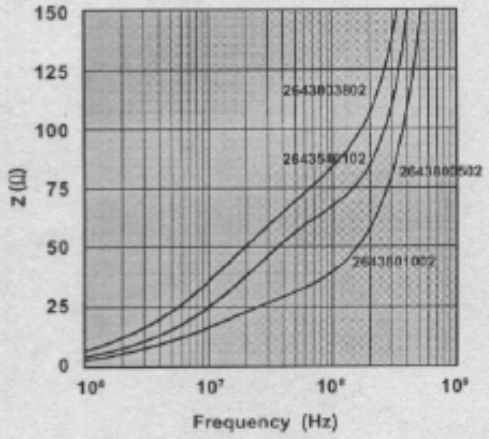


Figure 3 Impedance vs. Frequency for 43 material round cable EMI suppression cores.

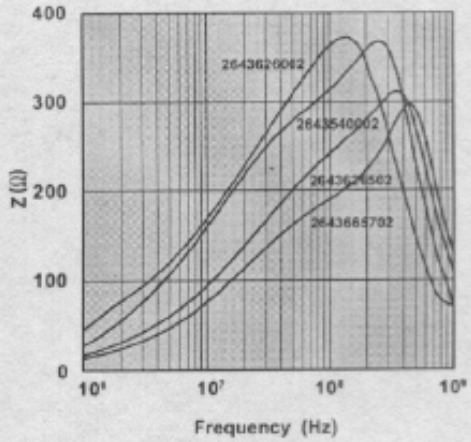


Figure 4 Impedance vs. Frequency for 43 material round cable EMI suppression cores.

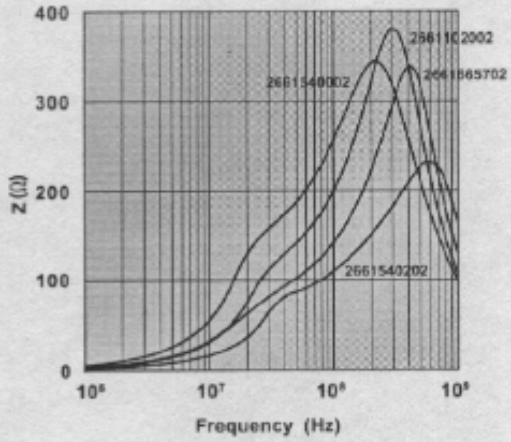
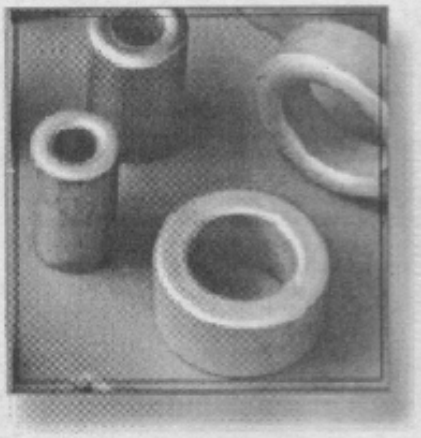


Figure 5 Impedance vs. Frequency for 61 material round cable EMI suppression cores.



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