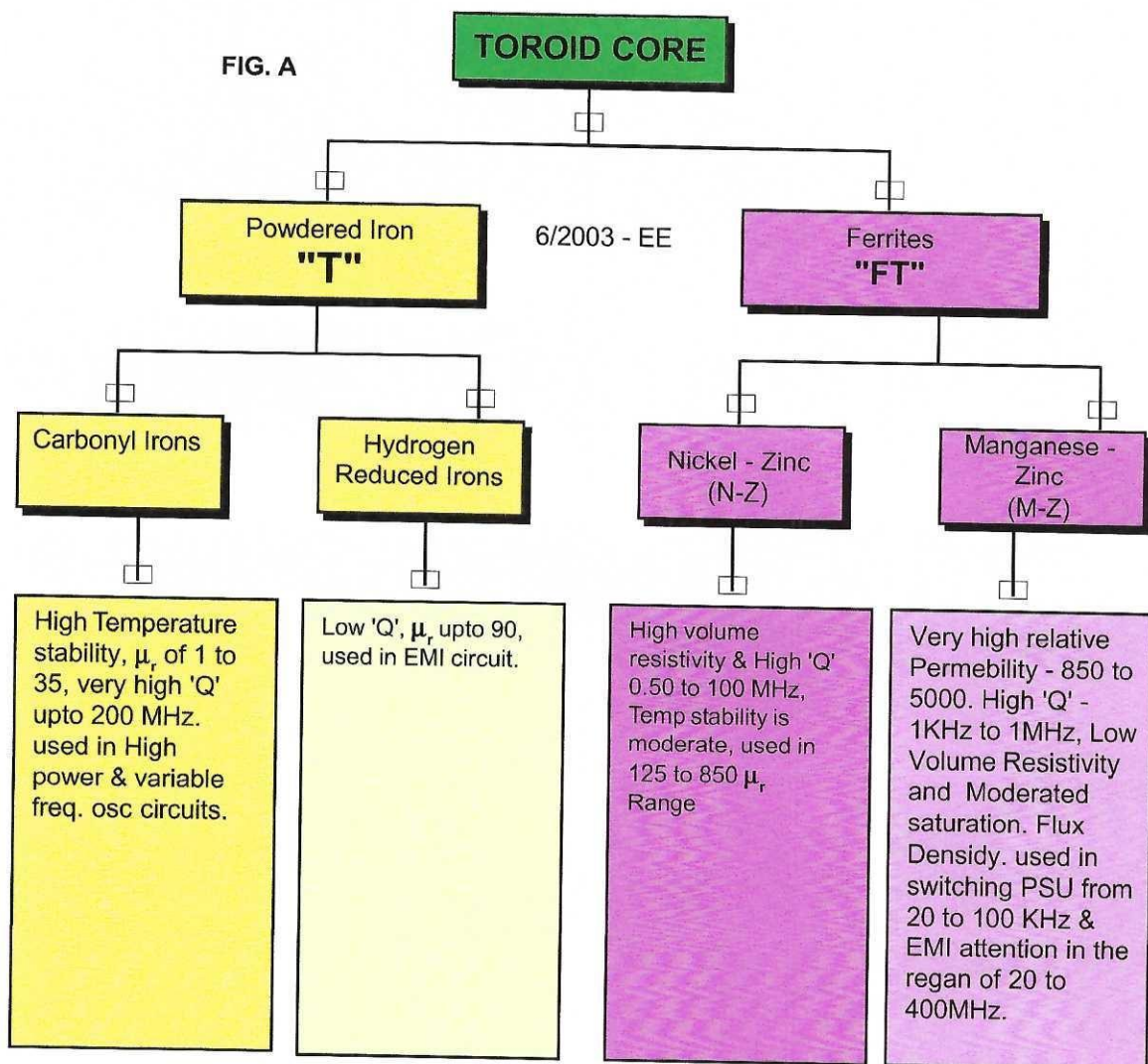


TOROID : FT,T & BALUN

By N.S. Harisankar - VU3NSH. Phone : (0491) 2576102

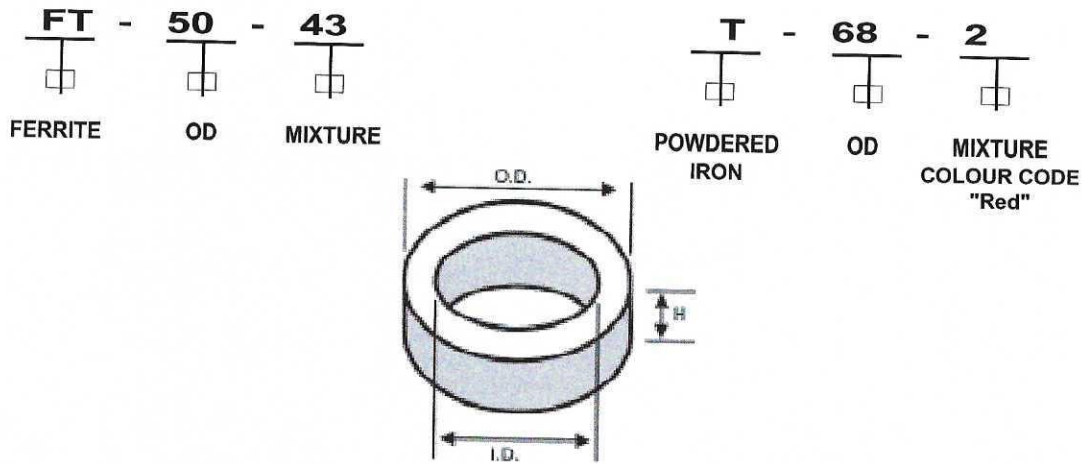
The Toroidal cores are grouped into two types. (a) powdered Iron and (b) Ferrites. The Ferrite materials are based on "Nickel-Zinc" and "Manganese-Zinc". Powdered Iron are based on "Carbonyl Irons" and "Hydrogen Reduced Irons". See fig.'A' general classes and its subdivisions. Powdered Iron Types are designated by "T" and Ferrite Types are designated by FT. The Type Number for this are like T - YY - XX or FT - YY - XX. So this are in three elements **1st classes of material** 2nd (YY) **Approximation of the outside diameter (OD)** 3rd it indicates the **Type of Mixture of Material**. Eg : FT50-61. ie., FT for "Ferrite", "50" for OD-0.50 inch (12.7mm) and The "61" for mixture No.2. Ref fig."B"



μ_r = Relative permeability

A_L = Value which relates Inductance per 100 or 1000 turns of wire

FIG-B



POWDERED IRON CORE DATA
 (Carbonyl Irons & Hydrogen Reduced Irons)

(1) Table : 1a - Powdered Iron Core "T-YY-XX"

Material	μ_r	Comments
0	1	Used up to 200 MHz. Inductance varies with method of winding.
1	20	Made of Carbonyl C. Similar to Mixture No. 3 but is more stable, and has a higher volume resistivity
2	10	Made of Carbonyl E, High Q and good volume resistivity over range of 1 to 30 MHz.
3	35	Made of Carbonyl HP, Very good stability and good Q over range of 50 kHz to 500 kHz.
6	8	Made of Carbonyl SF, is similar to mixture no.2, but has higher Q over range 20 to 50 MHz.
10	6	Type W powdered iron. Good Q and high stability from 40 to 100 MHz.
12	3	Made of synthetic oxide material. Good Q but only moderate stability over the range 50 to 100 MHz.
15	25	Made of Carbonyl GS6. Excellent stability and good Q over range 0.1 to 2 MHz. Recommended for AM BCB and VLF applications.
17	3	Carbonyl material similar to mixture no. 12, but has greater temperature stability but lower Q than no. 12.
26	75	Made of Hydrogen Reduced Iron. Has very high permeability. Used in EMI filters and DC chokes.



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IRON POWDER TOROIDAL CORES (For Resonant Circuits)

MATERIAL 2		Permeability 10		Freq. Range 2 MHz - 30 MHz			Color - Red	
Core number	O.D. (inches)	I.D. (inches)	Hgt. (inches)	l_e (cm)	A_e (cm) ²	V_e (cm) ³	A_L Value μ h/100 turns	
T-12-2	.125	.062	.050	.74	.010	.007	20	
T-16-2	.160	.078	.060	.95	.016	.015	22	
T-20-2	.200	.088	.070	1.15	.025	.029	25	
T-25-2	.255	.120	.096	1.50	.042	.063	34	
T-30-2	.307	.151	.128	1.83	.065	.119	43	
T-37-2	.375	.205	.128	2.32	.070	.162	40	
T-44-2	.440	.229	.159	2.67	.107	.286	52	
T-50-2	.500	.303	.190	3.03	.121	.367	49	
T-68-2	.690	.370	.190	4.24	.196	.831	57	
T-80-2	.795	.495	.250	5.15	.242	1.246	55	
T-94-2	.942	.560	.312	6.00	.385	2.310	84	
T-106-2	1.060	.570	.437	6.50	.690	4.485	135	
T-130-2	1.300	.780	.437	8.29	.730	6.052	110	
T-157-2	1.570	.950	.570	10.05	1.140	11.457	140	
T-184-2	1.840	.950	.710	11.12	2.040	22.685	240	
T-200-2	2.000	1.250	.550	12.97	1.330	17.250	120	
T-200A-2	2.000	1.250	1.000	12.97	2.240	29.050	218	
T-225-2	2.250	1.405	.550	14.56	1.508	21.956	120	
T-225A-2	2.250	1.485	1.000	14.56	2.730	39.749	215	
T-300-2	3.058	1.925	.500	19.83	1.810	35.892	114	
T-300A-2	3.048	1.925	1.000	19.83	3.580	70.991	228	
T-400-2	4.000	2.250	.650	24.93	3.660	91.244	180	
T-400A-2	4.000	2.250	1.300	24.93	7.432	185.280	360	
T-520-2	5.200	3.080	.800	33.16	5.460	181.000	207	

MATERIAL 3		Permeability 35		Freq. Range 0.05 MHz - 0.5 MHz			Color - Gray	
Core number	O.D. (inches)	I.D. (inches)	Hgt. (inches)	l_e (cm)	A_e (cm) ²	V_e (cm) ³	A_L Value μ h/100 turns	
T-12-3	.125	.062	.050	.74	.010	.007	60	
T-16-3	.160	.078	.060	.95	.016	.015	61	
T-20-3	.200	.088	.070	1.15	.025	.029	76	
T-25-3	.255	.120	.096	1.50	.042	.063	100	
T-30-3	.307	.151	.128	1.83	.065	.119	140	
T-37-3	.375	.205	.128	2.32	.070	.162	120	
T-44-3	.440	.229	.159	2.67	.107	.286	180	
T-50-3	.500	.303	.190	3.03	.121	.367	175	
T-68-3	.690	.370	.190	4.24	.196	.831	195	
T-80-3	.795	.495	.250	5.15	.242	1.246	180	
T-94-3	.942	.560	.312	6.00	.385	2.310	248	
T-106-3	1.060	.570	.437	6.50	.690	4.485	450	
T-130-3	1.300	.780	.437	8.29	.730	6.052	350	
T-157-3	1.570	.950	.570	10.05	1.140	11.457	420	
T-184-3	1.840	.950	.710	11.12	2.040	22.685	720	
T-200-3	2.000	1.250	.550	12.97	1.330	17.250	425	
T-200A-3	2.000	1.250	1.000	12.97	2.240	29.050	460	
T-225-3	2.250	1.405	.550	14.56	1.508	21.956	425	

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