



November 2008

MH&W INTERNATIONAL CORP

TDK – CSC – TDG – MAGNETEC – CM TECHNOLOGY

TDK CORPORATION

- ✖ Movement to China – TDK is in the process of moving the finishing operations of the Narita factory to Xiamen China
- ✖ PC90 – PC95 – These new materials were designed to be used in planar magnetics. The materials are now being offered in many of the standard ferrite shapes
- ✖ PC47 – This material is characterized by the lowest core losses of any material at 100 °C. The Xiamen factory is in the process of moving many of the core shapes from PC40/PC44 over to PC47. Eventually, PC47 will be the dominant power material being produced at the Xiamen factory. And it will become the “standard” power material.
- ✖ PC95 is becoming the material of choice for operating in the 400KHz to 700KHz range.
- ✖ PC50 is being phased out as it's losses increase as the operating flux approaches 100mT.



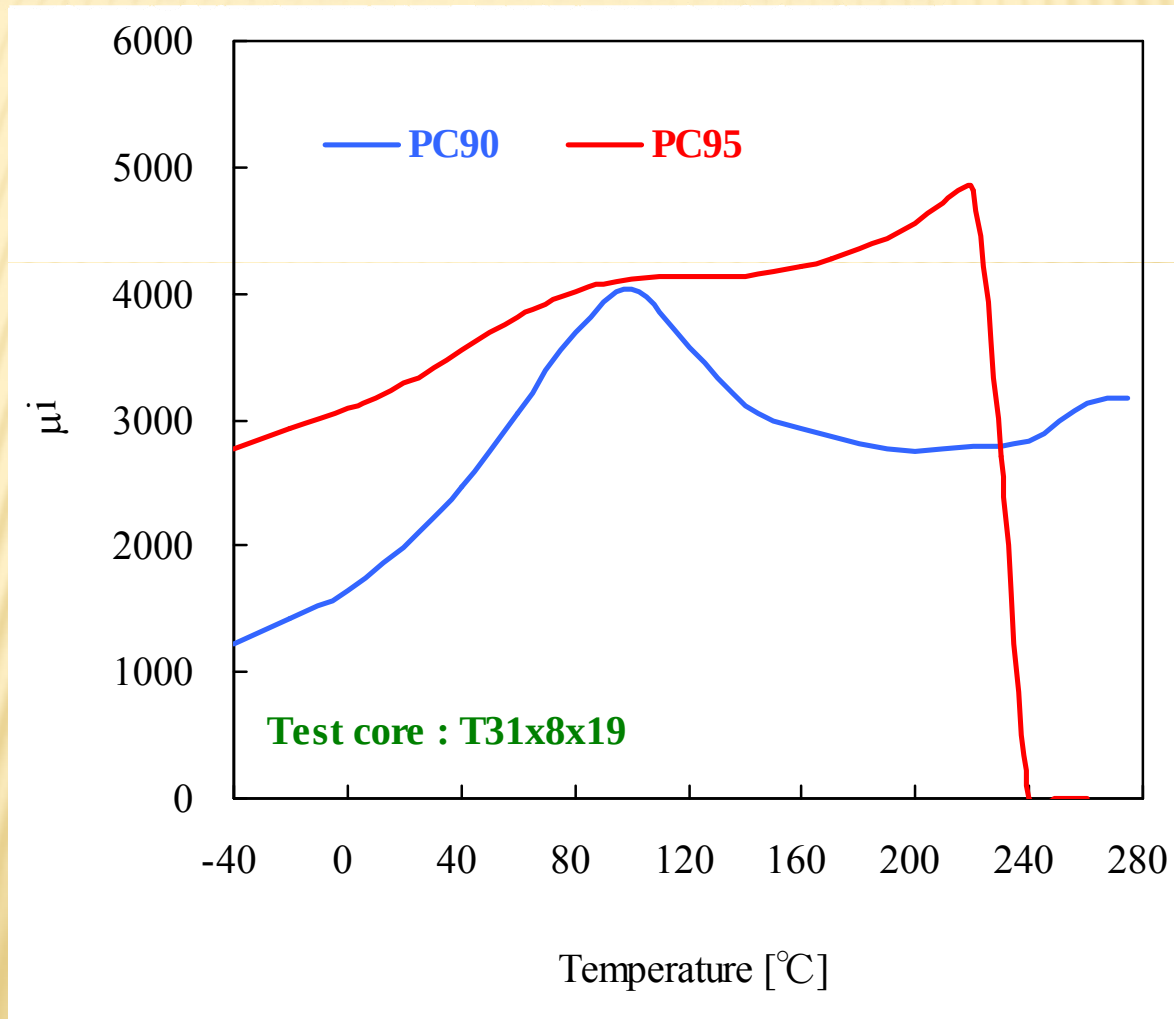
TDK New Power Material **PC95** and **PC90** Standard TDK Cores

Material			PC95	PC90	PC47	PC44	PC40
Initial permeability	μ_i	25 °C	3300±25 %	2200±25 %	2400±25 %	2400±25 %	2300±25 %
Core loss volume density		25 °C	350.0	680	600	600	600
at 100kHz, 200mT		60 °C	290.0	470	400	400	450
Typical Values	$P_{cv}(\text{kW/m}^3)$	80 °C	280.0	380	300	320	400
		100 °C	290.0	320	270	300	410
		120 °C	350.0	400	360	380	500
Saturation magnetic flux density	$\beta_s(\text{mT})$	25 °C	530.0	540	530	510	510
at 1000A/m		60 °C	480.0	510	480	450	450
Typical Values		100 °C	410.0	450	420	390	390
		120 °C	380.0	420	390	350	350
Remanent flux density	$\beta_r(\text{mT})$	25 °C	85.0	170	180	110	95
Typical Values		60 °C	70.0		100	70	65
		100 °C	60.0	60	60	60	55
		120 °C	55.0		60	55	50
Curie temperature	$T_c(^{\circ}\text{C})$	min.	215	250	230	215	215
Density	$\rho_b(\text{kg/m}^3)$		4.9X10 ³	4.9X10 ³	4.9X10 ³	4.8X10 ³	4.8X10 ³

Unless otherwise specify the tolerance, the values are shown as a typical.

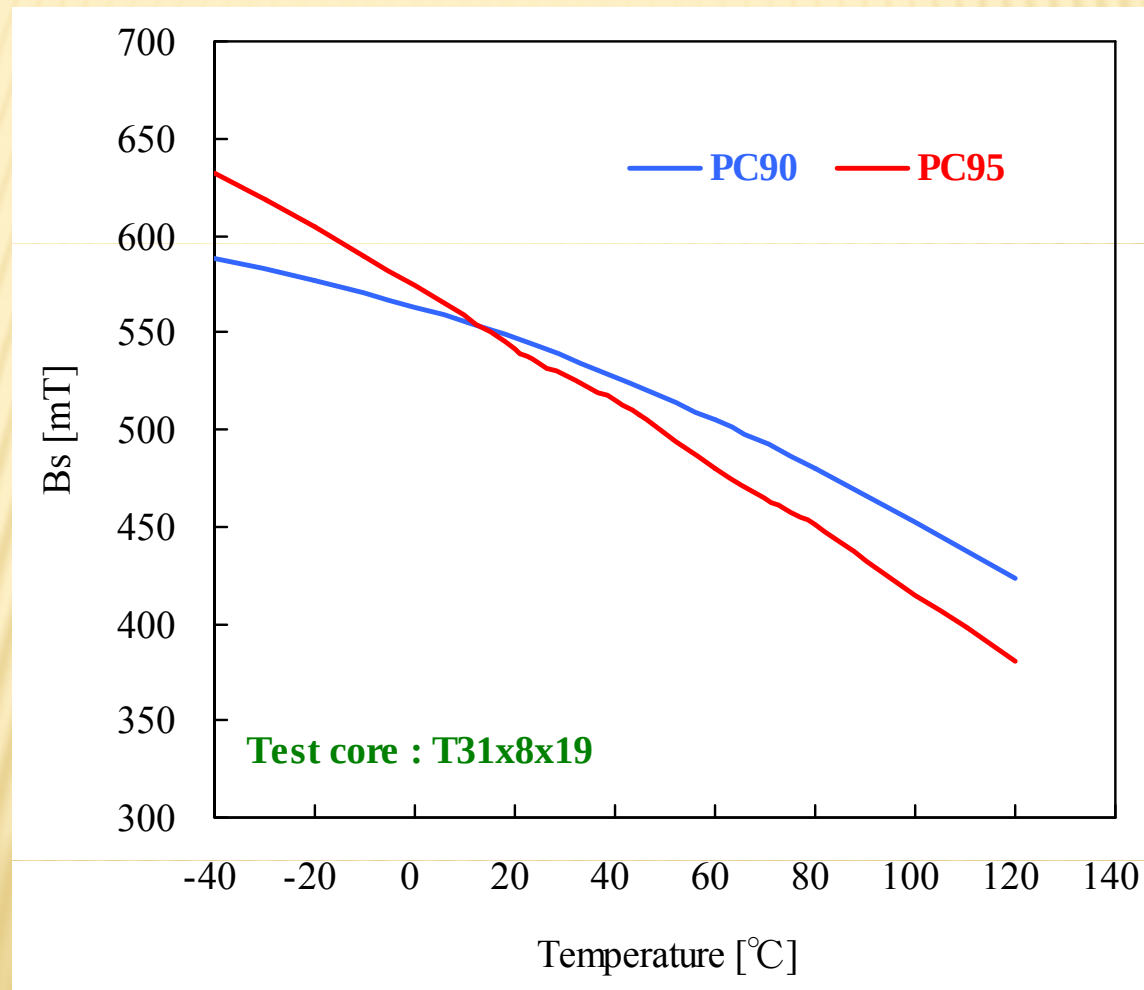
PC90 – PC95

INITIAL PERM VERSSES TEMPERATURE



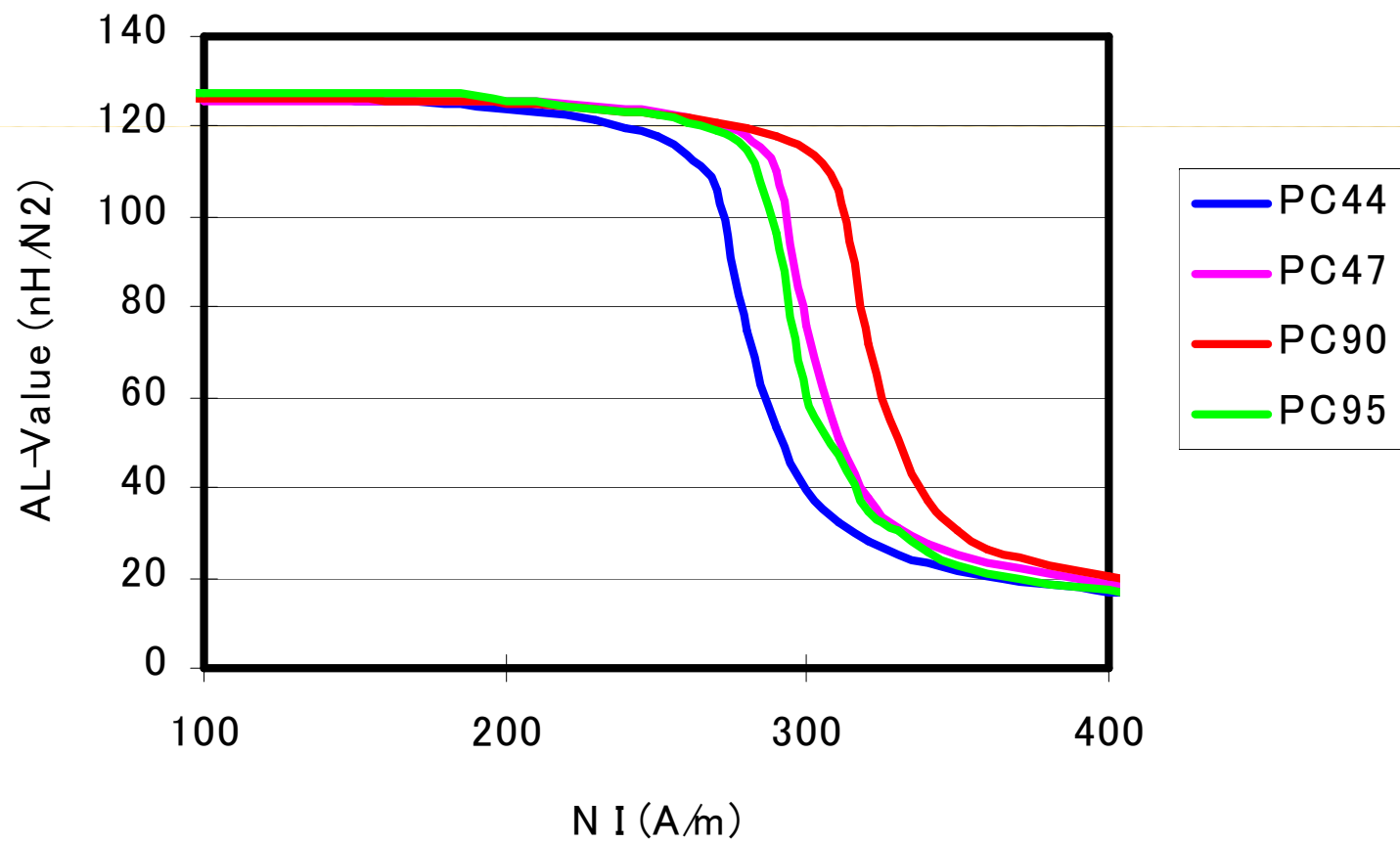
PC90 – PC95

SATURATION FLUX VERSES TEMPERATURE



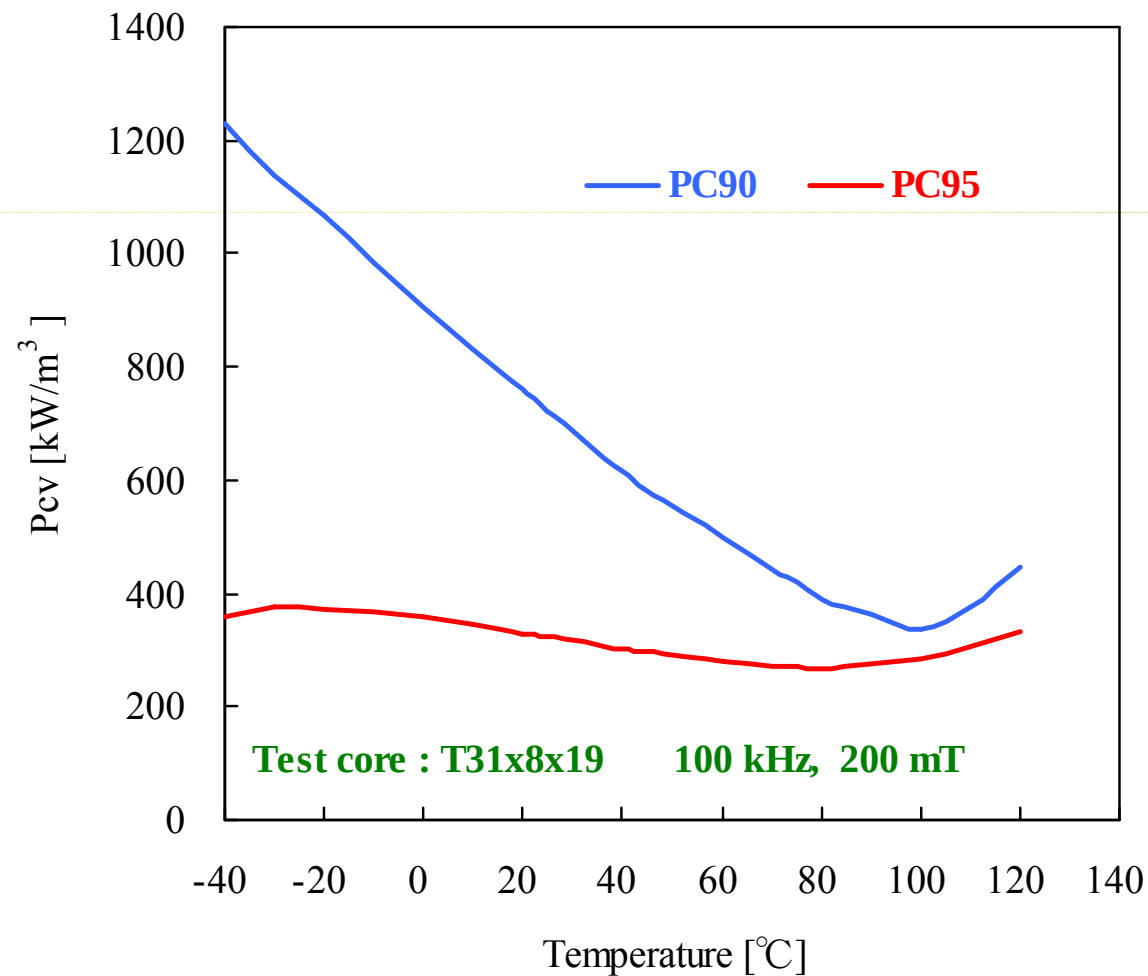
DC Bias vs. AL-Value on EER35-AL127

@ 100 C



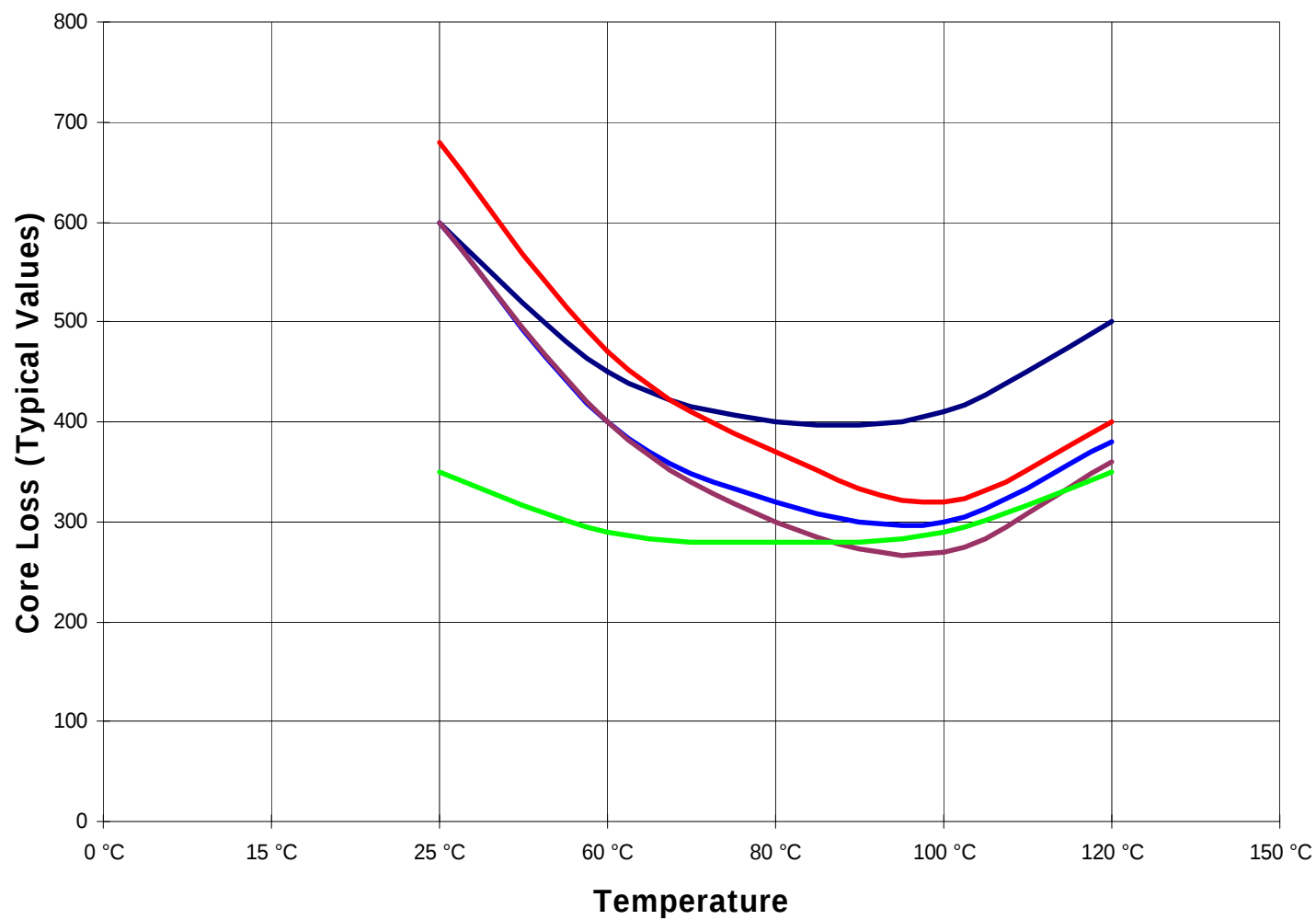
PC90 – PC95

CORE LOSS VERSES TEMPERATURE



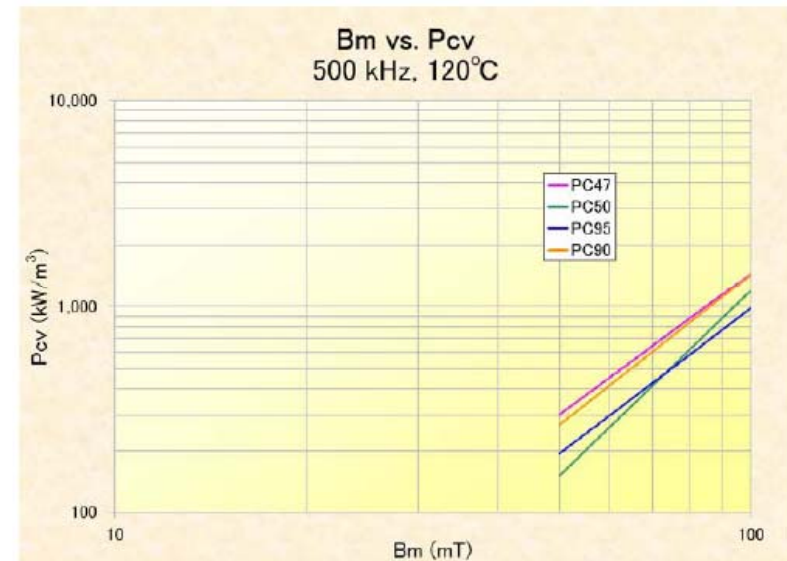
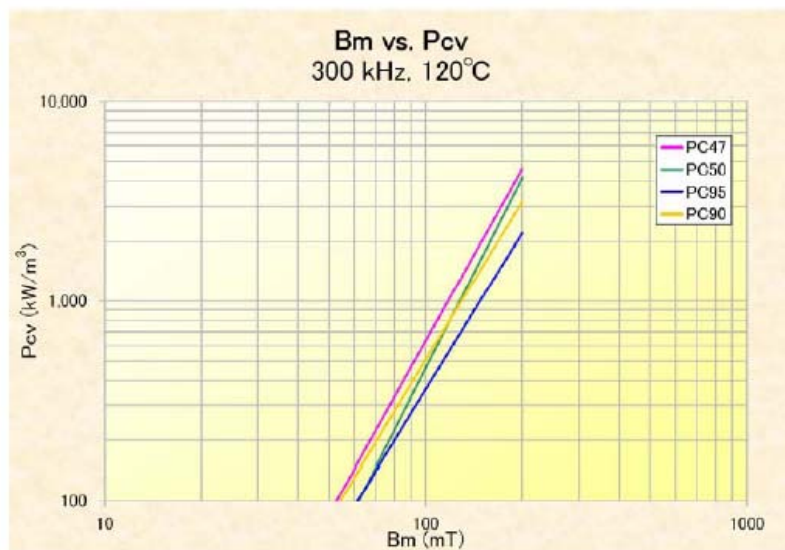
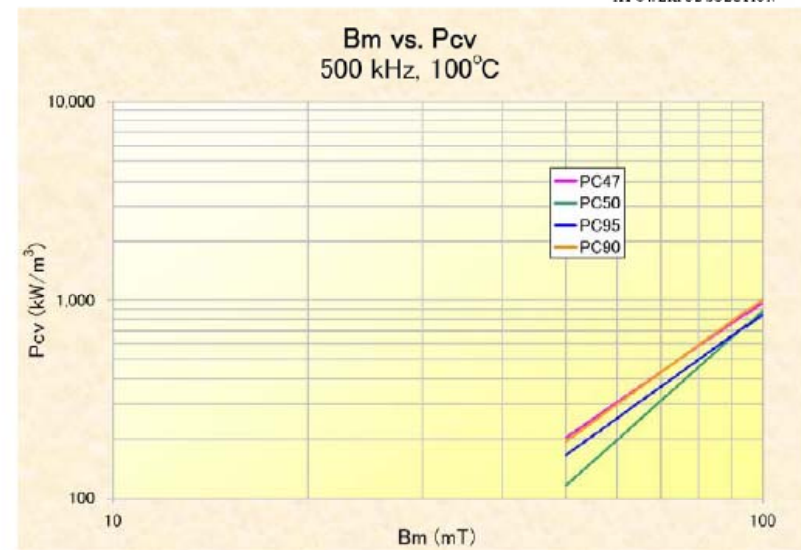
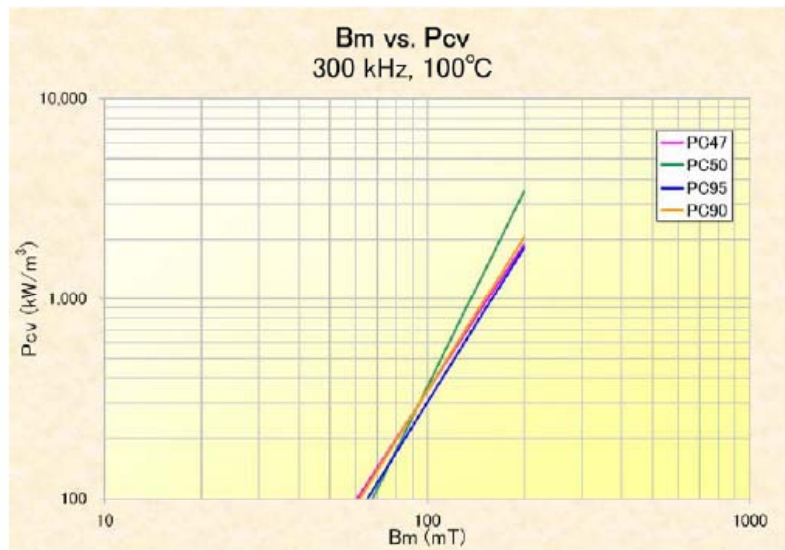
Core Loss Verses Temperature

@100KHz



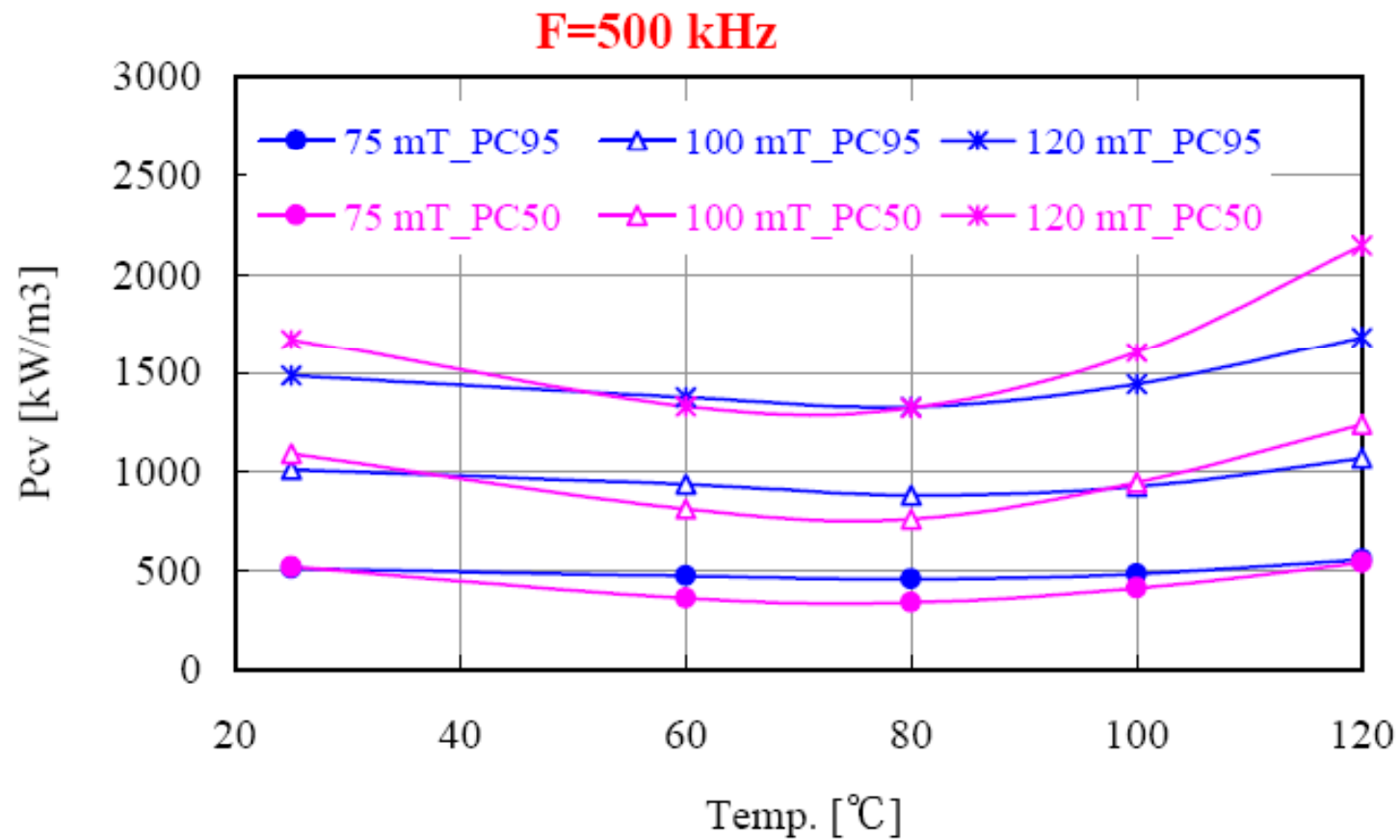


Core Loss vs β_m Graphs of PC47 - PC50 - PC90 - PC95



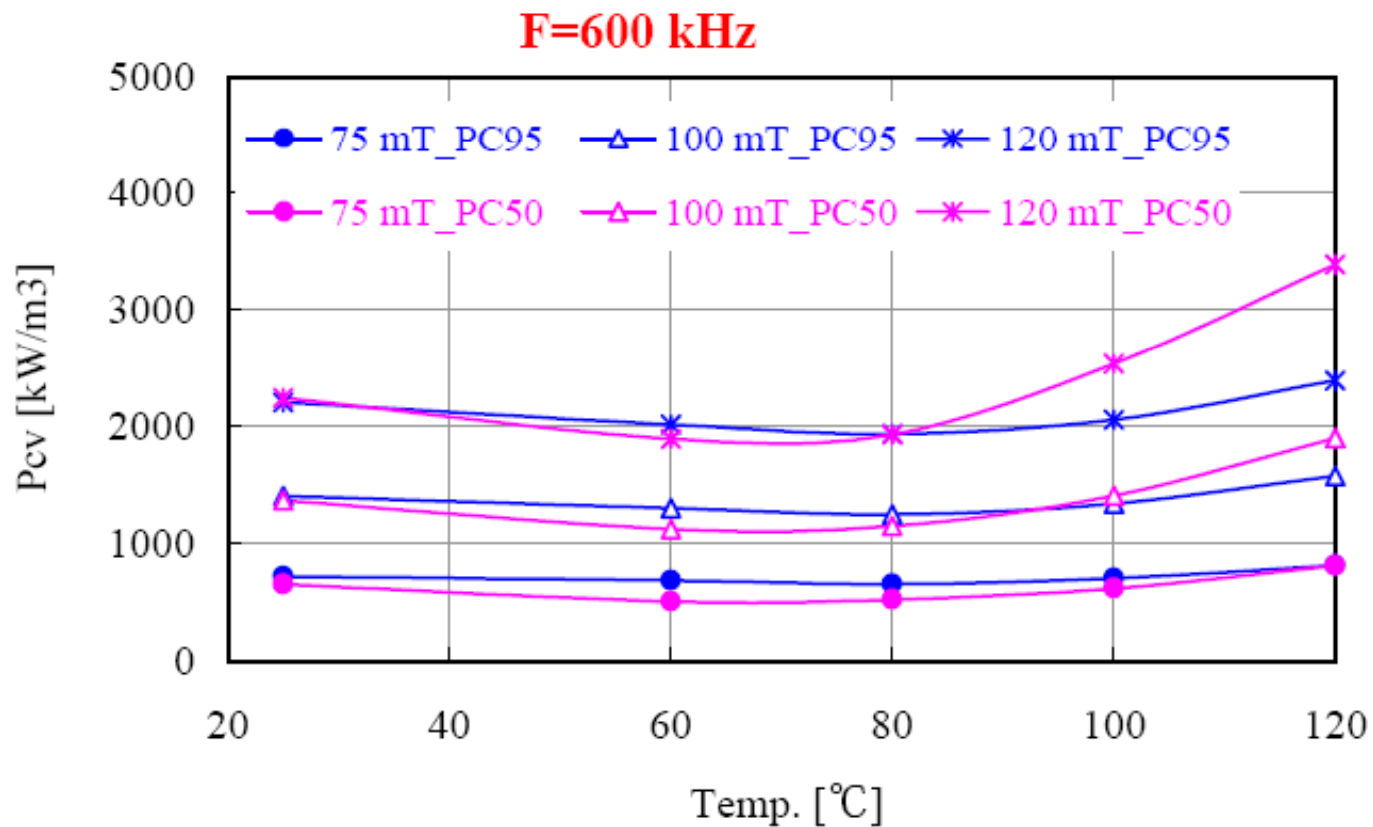
TDK PC95 VERSES PC50

HIGH FREQUENCY - HIGH FLUX LEVELS



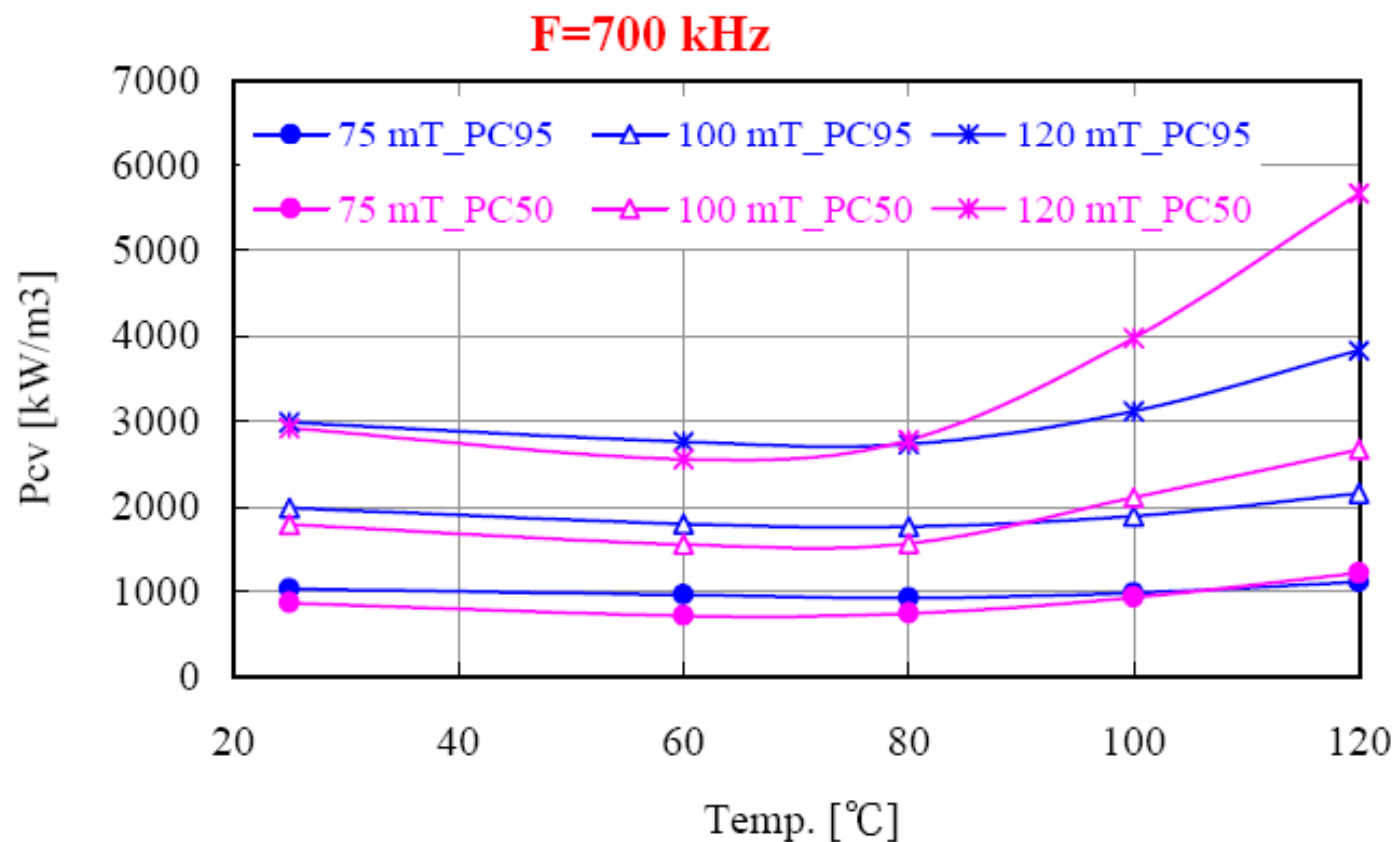
TDK PC95 VERSES PC50

HIGH FREQUENCY - HIGH FLUX LEVELS



TDK PC95 VERSES PC50

HIGH FREQUENCY - HIGH FLUX LEVELS



PC90 PC95 AVAILABILITY

- ✖ Standard Core Shapes
- ✖ Planar Core Shapes
- ✖ Blocks for machining
 - + Custom Planar Designs Prior to Tooling
 - + PC90W33x27x16
 - + PC95W66x51x15

Available Core Sizes

Data as of October 8 2008

	A _e (mm ²)	A _{cw} (mm ²)	ℓ _e (mm)	PC95 ± 25 %	PC90 ± 25 %	PC47 ± 25 %	PC40/PC44 ± 25 %
EER Series							
EER25.5	44.8	79.4	48.2	2700	1650	2200	1920
EER28	82.1	114.0	64.0	4000	2800	3200	2870
EER28L	81.4	148.0	75.5	3500	2600	2800	2520
EER35	107	218.0	90.8	4000	2900	3100	2770
EER40	149	249.0	98.0	5200	3500	4100	3620
PQ Series							
PQ20/16	62	47.4	37.4	4480	3100	3880	3880
PQ20/20	62	65.8	45.4	4000	2700	3150	3150
PQ26/20	119	60.4	46.3	7470	5550	6170	6170
PQ26/25	118	84.5	55.5	6520	4500	5250	5250
PQ32/20	170	80.8	55.5	9120	6400	7310	7310
PQ32/30	161	149.6	74.6	7000	4900	5140	5140
PQ35/35	196	220.6	87.9	7320	4700	4860	4860
PQ40/40*	201	326.0	101.9	6400	4300	4300	4300
PQ50/50*	328	433.0	113.0	9700	6250	6720	6720
Low Profile Series							
LP23/8	31.3	59.2	44.1	1900	1400	N/A	1600
LP22/13	67.9	84.2	49.0	3760	2700	N/A	3310
LP32/13	70.3	125.3	64.0	3240	2200	N/A	2630
RM Series							
RM4	14	15.6	22.7	1300	1000	N/A	680 min
RM5	23.7	18.2	22.4	2200	1700	N/A	1250 min
RM6	36.6	26.0	28.6	3040	2100	N/A	2450
RM8	64	48.9	38.0	5000	3000	N/A	1950 min
RM10	98	69.5	44.0	6300	4200	N/A	4850
RM12	140	110.0	56.9	6500	5050	N/A	4150 min
RM14	178	155.0	69.0	9300	6100	N/A	4600 min

* Large cores require alternate manufacturing procedures

Available Core Sizes

Data as of October 8 2008

	A_e (mm ²)	A_{cw} (mm ²)	l_e (mm)	PC95 ± 25 %	PC90 ± 25 %	PC47 ± 25 %	PC40/PC44 ± 25 %
EPC Series							
EPC10	9.39	7.7	17.8	1040	900	N/A	1000
EPC13	12.5	23.0	30.6	1060	800	N/A	870
EPC17	22.8	18.7	40.2	1500	1100	N/A	1150
EPC19	22.7	54.4	46.1	1400	940	N/A	940
EPC25	46.4	85.5	59.2	2200	1400	N/A	1560
EPC25B	33.3	62.1	46.2	2200	1400	N/A	1560
EPC27	54.6	108.0	73.1	2200	1400	N/A	1540
EPC30	61	60.4	55.9	2300	1700	N/A	1570
EE Series							
EE10/11	12.1	23.3	261.0	1040	700	N/A	850
EE13	17.1	34.3	302.0	1350	1050	N/A	1130
EE16	19.2	40.3	34.6	1450	1050	N/A	1140
EE19	23	55.5	39.6	1550	1050	N/A	1250
EE25/19	40	79.0	48.7	2200	1500	N/A	2000
EE30	109	75.6	58.0	6300	3900	N/A	4690
EE40	128	160.5	77.0	5700	3500	N/A	4150
EI Series							
EI12.5	14.4		21.3	1400	950	N/A	1200
EI19	24		39.6	1550	1250	N/A	1400
EI28	86		48.2	5100	3800	N/A	4300
EI33/29/13	119		67.5	5600	3800	N/A	4400
EI50	230		94.0	8300	5700	N/A	6110
EP Series							
EP7	10.3		15.7	1500	N/a	N/A	830 min
EP10	11.3		19.2	1380	N/a	N/A	800 min
EP13	19.5		24.2	2100	N/a	N/A	1170 min
EP17	33.9		28.5	2900	N/a	N/A	1840 min

PC90 PC95 PLANAR CORES

PC44-PC47 OBSOLETE FOR PLANAR CORES

- ✗ EL 11/4 → EL 25/9.6
- ✗ ELT 11/3 → ELT 25/9.6
- ✗ PQI 16/7.8 → PQI 26/11.5
- ✗ EIR 14/4.5/9 → EIR 22/5.5/15
- ✗ ER 14/4.5/9 → ER 25/5.5/18
- ✗ EI 14/5/5 → EI 22/8/16
- ✗ RMI4 – RMI5 – RMI6 – RMI7 – RMI8
- ✗ EQ13 – EQ20 – EQ25
- ✗ EER25.5 – EER28
- ✗ Custom Planar Configurations

XIAMEN

PC40 → PC44 → PC47

TDK EE CORES	TDK EI CORES	TDK EER CORES
PC44 EE 8	PC44 EI 12.5	PC44 EER 25.5
PC44 EE 10/11	PC44 EI 16	PC44 EER 28
PC44 EE 12.6	PC44 EI 19	PC44 EER 28L
PC44 EE 13	PC44 EI 22/19/6	PC44 EER 35
PC44 EE 16	PC44 EI 25	PC44 EER 40
PC44 EE 19	PC44 EI 28	PC44 EER 42
PC44 EE 19/16 (E187)	PC44 EI 30	PC40 EER 42/42/15
PC44 EF 20	PC44 EI 33/29/13	PC40 EER 42/42/20
PC44 EE 25/19 (E24/25)	PC44 EI 35	PC40 EER 49
PC44 EF 25	PC44 EI 40	PC40 EER 49L
PC44 EE 30	PC40 EI 50	TDK PQ CORES
PC44 EE 30/30/7 (M30)	PC40 EI 60	PC44 PQ 20/16
PC44 EF 32	TDK ETD CORES	PC44 PQ 20/20
PC44 EE 35/28B (E375)	PC44 ETD 24	PC44 PQ 26/20
PC40 EE 40	PC44 ETD 29	PC44 PQ 26/25
PC40 EE 41/33C (E21)	PC44 ETD 34	PC44 PQ 32/20
PC40 EE 42/42/15 (M42/15)	PC44 ETD 39	PC44 PQ 32/30
PC40 EE 42/42/20 (M42/20)	PC40 ETD 44	PC44 PQ 35/35
PC40 EE 50	PC40 ETD 49	PC44 PQ 40/40
PC40 EE 55/55/21 (M55)	----	----

CHANG SUNG CORP

New Factory in Waihai, China

Change of process change for Sendust Material

Old process – Spray Dry of powder to obtain grain size

New process – Dry bulk powder and grind in dry ball mill process to obtain grain size

New Lower Losses

SENDUST CORE LOSS

Core Loss (mW/cc)		26 u	60u	75u	90u	125u
Core Loss Before New Process	Min	300	290	282	296	274
	Ave	350	306	298	306	295
	Max	400	322	314	316	315
Core Loss After New Process	Min	150	236	229	256	257
	Ave	200	268	265	271	277
	Max	250	300	301	285	296
Mag Inc	Samples	225	235 ~ 260	258 ~ 323	228 ~ 239	239 ~ 369
Arnold	Samples	350	323	260 ~ 295		250 ~ 371

TDG CORPORATION

- ✕ Largest Manufacturer of Ferrites in the World
- ✕ MnZn and NiZn Ferrite
- ✕ Largest selection of Cores
- ✕ New Materials

TDG CORPORATION

FERRITE CORE MATERIALS

	Initial Perm	Equivalent To	Comments	
TP4A	2,400	PC44/3F3		
TP4D	2,500	PC47	Lowest Losses @ 100°C	
TP4W	3,000	PC95/N95/3C95	Wide Band Temp Response	
TP4F	1,800	none	High Temp – 140°C Opn	
TP5B	1,200	none	1 – 2 MHz Opn	
TLD5	5,000	none	Temp Range -40°C to +65°C	
TS10	10,000	H5C2	EMI Filter	
TS10A	10,000	T72	EMI Filter	

TDG CORPORATION

EMI FERRITE SAMPLE KIT

TDG Sample Kit For EMI Filters	Dimensions			Al Value	A _e
	O.D.	I.D	TH	nH/Tn ²	mm ²
TS10 T31/20/15E	31.0 ± 0.6	20.0 ± 0.6	15.0 ± 0.4	12940 min	81.2
TS10 T22.1/13.7/6.5E	22.1 ± 0.6	13.7 ± 0.6	6.5 ± 0.2	4400 min	26.8
TS10 T12.7/7.9/6.35E	12.7 ± 0.4	7.6 min	6.35 ± 0.3	5500 min	15.8
TS10 T9/5/3E	9.0 ± 0.3	4.7 min	3.0 ± 0.3	3760 min	5.8
TS5 T22.1/13.7/12.7E	22.1 ± 0.6	13.7 ± 0.6	12.7 ± 0.4	5690 ± 30%	52.2
TS5 T22.1/13.7/6.5E	22.1 ± 0.6	13.7 ± 0.6	6.5 ± 0.2	3050 ± 30%	26.8
TS5 T12.7/7.9/6.35E	12.7 ± 0.4	7.6 min	6.35 ± 0.3	2350 ± 30%	15.8
TS5 T9/5/3E	9.0 ± 0.3	4.7 min	3.0 ± 0.3	1192 min	5.8
TP4A T31/19/8E	31.0 ± 0.6	19.0 ± 0.6	8.0 ± 0.3	1750 ± 25%	47.1
TP4A T9/5/3E	9.0 ± 0.3	4.7 min	3.0 ± 0.3	790 ± 25%	5.8

MAGNETEC GMBH

- ✘ Manufacturer of Iron based Nanocrystalline cores. They have developed their own processes to manufacture these cores to achieve very specific characteristics to specific industries.
- ✘ Cool Blue – Cool Blue cores are used in Inverter – motor drive systems. By using the Cool Blue cores in a common mode choke configuration, the parasitic voltages that cause pitting and failure on the motor bearings are reduced or eliminated. As a result the life of the bearings in the motor is extended 2x – 4x the normal wear and tear.
- ✘ EMI Filters – The use of Magnetec Nanocrystalline cores reduces the size of the filter while maintaining like performance.

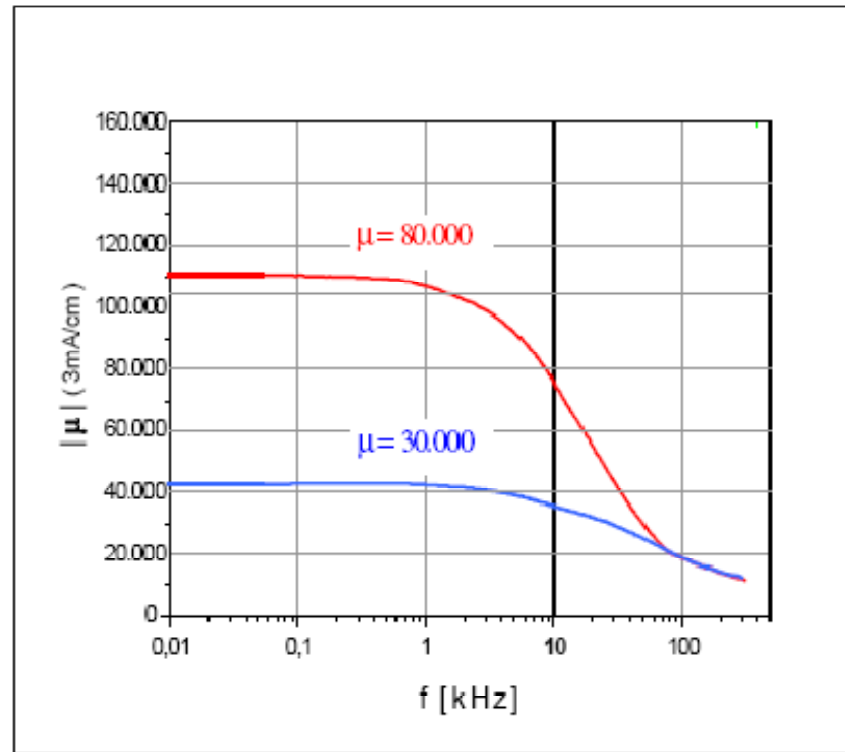
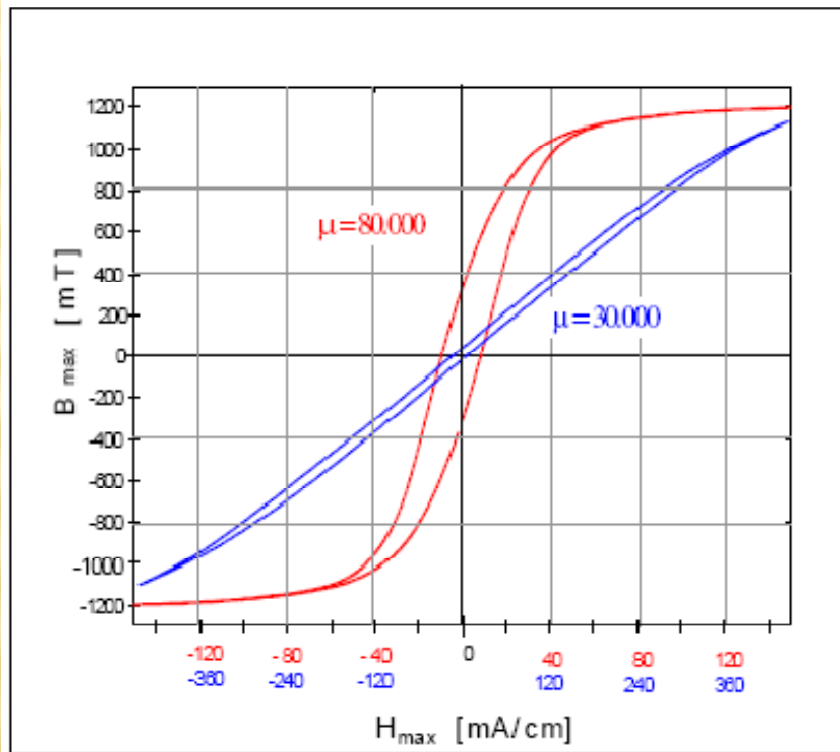
MAGNETEC GMBH

NANOCRYSTALLINE

Saturation Flux Density	1,200 mT
Permeability	25,000—90,000 @ 10KHz
Saturation Magnetostriction	< 0.5 ppm
Spec. Electrical Resistivity	115 $\mu\Omega\text{cm}$
Density	7.35 g/cm ³
Curie Temperature	600°C
Max. Operating Temperature	120°C
Core Losses (100KHz, 300mT, sine wave)	> 110 W/kg
Alloy Composition	Fe _{73.5} Cu ₁ Nb ₃ Si _{15.5} B ₇

MAGNETEC GMBH

NANOCRYSTALLINE



Graphs demonstrating the variable range of Hysteresis Loops and Permeability Levels

MAGNETEC GMBH

EMI CORES

$\mu \sim 80,000$ (@ 10 KHz)							
Type	Dimensions Nominal OD x ID x TH (mm)	Dimensions Physical OD x ID x TH (mm)	Mass (gm)	Path Length l_e (cm)	Core Area A_e (cm ²)	Al Value (μ H)	Finish C=Case E=Epoxy
M-017	16 x 10 x 6	17.8 x 8.2 x 8.0	4.3	4.0	0.14	30.0 -60.0	C
M-059	20 x 12.5 x 8	22.3 x 10.3 x 10.0	9.0	5.1	0.24	33.0 -67.0	C
M-053	25 x 20 x 10	27.6 x 17.8 x 12.5	10.5	7.1	0.20	21.2 -41.3	C
M-003	25 x 16 x 10	28.0 x 13.2 x 12.4	17	6.4	0.36	45.0 -89.0	C
M-102	30 x 20 x 10	32.7 x 17.8 x 12.6	23.1	7.8	0.40	40.0 -80.0	C
$\mu \sim 25,000 - 30,000$ (@ 10 KHz)							
M-036	16 x 10 x 6	17.8 x 8.0 x 8.0	4.3	4.0	0.14	8.0 -18.0	E
M-042	20 x 12.5 x 8	21.5 x 10.5 x 10.1	9.0	5.0	0.24	12.6 -25.3	E
M-033	25 x 16 x 10	26.6 x 13.7 x 12.3	17.1	6.3	0.36	12.6 -28.0	E
M-030	30 x 20 x 15	32.3 x 17.5 x 17.3	33	7.9	0.57	17.4 -39.0	E
M-014	40 x 32 x 15	42.3 x 29.1 x 17.3	40	11.3	0.48	10.7 -21.4	E
M-011	50 x 40 x 20	52.3 x 37.1 x 22.3	83	14.1	0.80	12.6 -28.4	E
M-012	60 x 40 x 15	62.3 x 37.1 x 17.3	138	15.5	1.20	17.4 -39.0	E
M-018	63 x 50 x 20	65.5 x 46.6 x 22.8	129	17.8	1.00	13.2 -29.7	E
M-022	80 x 63 x 20	83.0 x 59.5 x 22.8	213	22.5	1.24	13.8 -31.0	E
M-226	100 x 80 x 20	104 x 75.0 x 23.0	333	28.3	1.60	12.6 -28.3	E
M-028	130 x 100 x 25	134.5 x 95.0 x 28.5	757	36.0	2.85	18.6 -42.0	E
M-190	160 x 110 x 25	165 x 105 x 28.5		41.99	4.61	24.0—50.0	E

MAGNETEC GMBH

LOW COST CORES

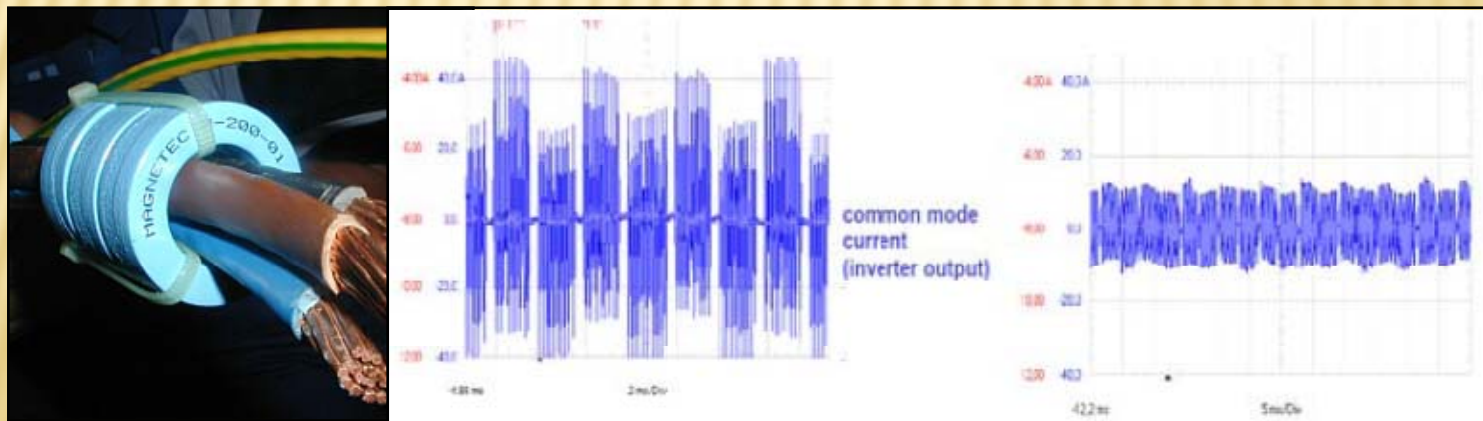
NANOPERM® Low Cost Cores for Small EMI Filter Chokes							
M-306	16 x 11 x 5	18.4 x 8.6 x 7.0		4.2	0.1	5.9 –11.8	C
M-307	20 x 15 x 5	22.4 x 12.6 x 7.5		5.5	0.1	4.5 –9.1	C
M-308	25 x 20 x 5	27.7 x 17.1 x 7.5		7.0	0.1	3.5 –7.0	C
M-309	30 x 25 x 5	32.7 x 22.0 x 7.5		8.6	0.1	2.8 –5.7	C
M-310	40 x 35 x 5	42.5 x 31.8 x 7.5		11.8	0.1	2.1 –4.2	C
M-333	50 x 45 x 5	52.2 x 41.8 x 7.5		14.9	0.1	1.6 –3.3	C
M-334	60 x 55 x 5	62.0 x 51.6 x 7.5		18.1	0.1	1.3 –2,8	C
M-335	70 x 65 x 5	72.0 x 61.4 x 7.5		21.2	0.1	1.1 –2.3	C

MAGNETEC GMBH COOL BLUE CORES

Cool Blue® toroids made from the nanocrystalline material NANOPERM are being used increasingly to reduce damaging motor bearing currents in modern high power inverter systems operating at high switching frequencies. As a result of these unwanted currents, the bearings corrugate, leading to electrical breakdown in the lubrication and finally to a standstill of the entire motor.

The use of Cool Blue® cores not only significantly reduces the over voltage peaks at the motor terminals, but also suppresses the asymmetrical EMI currents which are generated by the parasitic currents of the motor itself together with the motor cable. In order to achieve an efficient reduction in these destructive effects, one or more Cool Blue® of suitable geometry have to be placed together over the connector cables in the DC-link as well as at the inverter output. In this configuration, the cores operate as a common-mode choke.

This method significantly increases the service life of the motor bearings and thus reduces maintenance costs and standstill periods.



MAGNETEC GMBH

COOL BLUE CORES

TYPE	Core Nominal OD x ID x TH (mm)	Physical OD (max) x ID (min) x TH (max) (mm)	Mass (gm)	Path Length (l_e) (cm)	Core Area (A_e) (cm ²)	AL Value @ 10KHz (μ H)	Current I _{cm} (A)
M-112	63 x 50 x 30	68.0 x 43.0 x 36.0	204	17.7	1.44	23.3—46.6	4
M-113	80 x 63 x 30	86.0 x 55.0 x 36.0	338	22.4	2.04	24.1—48.2	6
M-283	80 x 63 x 30	OVAL	338	22.4	2.04	24.1—48.2	6
M-114	100 x 80 x 30	108 x 70.0 x 36.0	500	28.2	2.40	22.5—45.0	8
M-284	100 x 80 x 30	OVAL	500	28.2	2.40	22.5—45.0	8
M-115	130 x 100 x 30	135 x 92.0 x 36.0	958	35.9	3.60	26.4—52.9	9
M-142	130 x 100 x 30	OVAL	604	36.7	2.22	16.0—32.0	8
M-116	160 x 130 x 30	165 x 123 x 34.0	1,208	45.4	3.60	20.9 x 41.9	12
M-302	160 x 130 x 30	OVAL	1,208	45.4	3.60	20.9 x 41.9	12
M-117	200 x 175 x 30	208 x 166 x 37.0	1,302	58.82	2.78	12.3—24.6	16
M-111	240 x 200 x 30	OVAL	2,219	69.9	4.32	16.4—32.8	20
M-248	300 x 254 x 30	OVAL	3,242	86.7	5.04	15.3—30.5	22
M-205	300 x 250 x 30	304 x 246 x 34.0	3,722	86.2	5.85	18.0 x 36.0	23
M-503	500 x 450 x 30	504 x 446 x 36.0	6,430	149.1	5.85	10.3—20.7	40

CM TECHNOLOGY

CHINA MANUFACTURING TECHNOLOGY

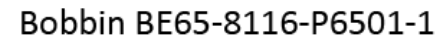
- ✘ Company founded and developed to be a manufacturers agent and marketing/advertising company to promote China manufacturers
- ✘ Operates as a sourcing company for China goods and services
- ✘ Has key contacts with magnetic industries in mainland China
- ✘ MH&W Int'l is the authorized North American Agent for CM Technologies products and services

CM TECHNOLOGY

NORTH AMERICAN FERRITE INDUSTRY

- ✕ Large Ferrites
- ✕ EMI Ferrites
- ✕ Coil Formers

COIL FORMERS



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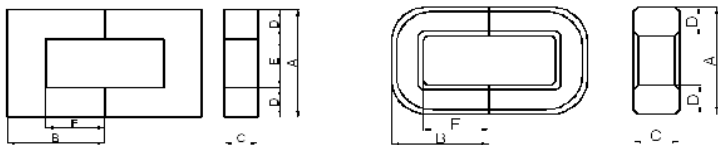


CM TECHNOLOGY

LARGE FERRITES

健全 C M Technology

UU Core Series



Type	Fig	Dimensions (mm)					
		A	B	C	D	E	F
UU65/64/40	1	65.0±1.5	63.5±1.0	40.0±0.5	20.0±0.5	24.4min	43.0±0.7
UU66/55/40	1	66.0±1.5	55.0±1.0	39.6±0.6	19.5±0.5	25.0min	36.5±1.0
UU73/34/28	1	72.8±1.5	33.7±1.0	27.9±0.5	13.8±0.5	45.0min	19.7±0.7
UU80/65/30	2	80.0 ^{+2.0} _{-1.0}	65.0±0.5	30.0±0.5	21.5±0.5	37.0Ref	43.0±1.0
UU80/65/40	2	80.0 ^{+2.0} _{-1.0}	65.0±0.5	40.0±1.0	21.5±0.5	37.0Ref	43.0±1.0
UU80/85/40	1	80.0 ^{+3.0} _{-2.0}	85.0±1.0	40.0±1.0	20.0±0.5	40.0min	65.0±1.0
UU82/45/14	1	82.0 ^{+3.0} _{-2.0}	45.0±0.8	14.0±0.5		53.0min	31.0±0.8
UU93/76/30	1	93.0±2.0	76.0±0.5	30.0±0.5	28Ref	34.6min	48.0±0.9
UU93/79/28	1	93.0±2.0	79.0±1.0	28.0±1.0	28.0±0.5	34.6min	49.5±1.0
UU95/85/40	1	95.0 ^{+3.0} _{-2.0}	85.0±1.0	40.0±1.0	20.0Ref	54.5min	65.0±0.5
UU96/79/30	1	96.0±2.0	79.0±0.5	30.0±0.5	30.0±0.5	34.0min	49.0±0.5
UU100/57/25	1	101.6±2.0	57.1±0.4	25.4±0.8	25.4±0.8	50.8±1.0	31.7±0.75
UU100/75/30	1	100.0±3.0	75.5±1.0	30.0±1.0	30.0±1.0	37.5min	45.0±0.75
UU110/95/40	1	110.0±2.5	95.0±1.0	40.0±1.0	30.0±1.0	50.0±1.5	65.0±1.0
UU114/78/38	1	114.0±2.5	77.5±1.0	37.5±1.0	30.0±0.5	54.0±1.5	48.0±1.0
UU120/80/40	1	120.0±3.0	80.0±1.0	40.0±1.5	30.0±0.5	59.0min	50.5±1.0
UU120/100/40	1	120.0±3.0	100.0 ^{+1.0}	40.0±1.5	30.0±0.5	59.0min	70.2±1.5
UU120/118/40	1	120.0±3.0	117.5±1.0	40.0±1.5	30.0±0.5	59.0min	87.5±1.5
UU126/91/20	1	126.0±3.0	91.0±1.0	20.0±0.6	28.0Ref	70.0±2.0	63.0±2.0
UU140/95/39	1	140 ^{+6.0} _{-1.0}	95.0 ^{+2.0}	39.0±1.5	40.0±1.0	60.0min	56.5 ^{+1.0}
UU160/125/20	1	162.0±3.0	125.0±0.5	20.0±1.0	50.5±0.5	60.0min	75.0±1.5

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健全 C M Technology

PM Core Series

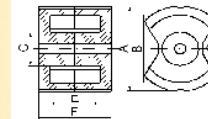


Fig 1

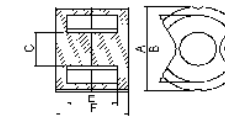


Fig 2



Type	Fig	Dimensions (mm)						
		A	B	C	D (hole)	E	F	G
PM50/39	1	50.0 _{-1.7}	39.0 ^{+1.3}	20.0 _{-0.6}	5.4 ^{+0.2}	26.4 ^{+0.8}	39.0 _{-0.4}	23.4min
PM62/49H	2	62.0 _{-2.0}	48.8 ^{+1.3}	25.5 _{-0.6}		33.4 ^{+0.8}	49.0 _{-0.4}	29.0min
PM62/49	1	62.0 _{-2.0}	48.8 ^{+1.3}	25.5 _{-0.6}	5.4 ^{+0.2}	33.4 ^{+0.8}	49.0 _{-0.4}	29.0min
PM74/59	1	74.0 _{-3.0}	57.5 ^{+1.8}	29.5 _{-1.0}	5.4 ^{+0.2}	40.7 ^{+0.8}	59.0 _{-0.6}	34.0min
PM87/70	1	87.0 ^{+2.0} _{-3.0}	67.1 ^{+2.1}	31.7 _{-1.0}	8.5 ^{+0.3}	48.0 ^{+0.8}	70.0 _{-0.6}	39.4min
PM114/93	1	114.0 _{-3.0}	88.0 ^{+3.7}	43.0 _{-1.4}	5.4 ^{+0.4}	63.0 ^{+1.6}	93.0 _{-1.0}	52.0min

Type	Core parameter				weight (g/prs)	AL(nH/N ²)	
	C1 (mm ⁻¹)	Le (mm)	Ae (mm ²)	Ve (mm ³)		LP3 (±25%)	LP3A (±25%)
PM50/39	0.227	84	370	31000	140	7700	7700
PM62/49H	0.190	109	570	62000	290	9700	9700
PM62/49	0.190	109	570	62000	280	9700	9700
PM74/59	0.162	128	790	101000	520	10000	10000
PM87/70	0.161	146	910	133000	820	13000	
PM114/93	0.116	200	1720	344000	1940	16000	

Note: AL measured @ 1kHz/0.5mA/100T's

Material Specification					
Material	U _i	Bsat 1190A/M 100° C	Power Loss 200mT 100KHz, 80° C	T _c	
LP3	2300 ± 25%	390 mT	480	450	>200
LP3A	2200 ± 25%	380 mT	400	350	>200

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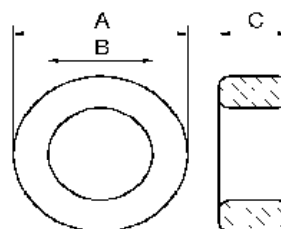


CM TECHNOLOGY

FERRITES FOR POWER & EMI

健全 C M Technology

Toroid Series T140 x 100 x 25



Dimension				
A	140.0	mm	±	3.0
	5.51	in	±	0.12
B	100	mm	±	2.0
	3.94	in	±	0.08
C	25.4	mm	±	1.5
	1.00	in	±	0.06

Mechanicals		
Weight	839	g/pr
C _s	0.747	mm ⁻¹
L _e	369	mm
	14.5	in
A _e	495	mm ²
	0.767	in ²
V _e	182777	mm ³
	11.15	in ³

Electricals				
Material	Application	Al Value		
HP1	Filter	6,700	±	25%
HP2	Filter	10,000	±	25%
HP3	Filter	14,300	±	25%
LP3	Power	3,080	±	25%
LP3A	Power	2,940	±	25%



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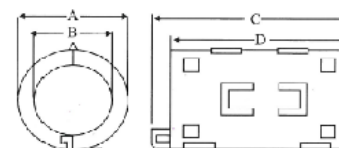
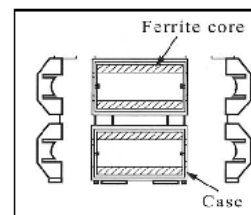
EMI FERRITES

CM Technology Part Number	TDK PART NO
BNF1130	ZCAT2132-1130
BNF1330	ZCAT3035-1330
BNF1525	ZCAT1325-0530
BNF1528	
BNF1730	ZCAT1730-0730
BNF12	
BNF14	
BNF18	
BNF27	
BNF0930	ZCAT2035-0930
BNF12H	ZCAT1518-0730
BNF1010	
BNF1512	
BNF0822	
BNF0917	ZCAT2017-0930
BNF0930A	ZCAT2032-0930

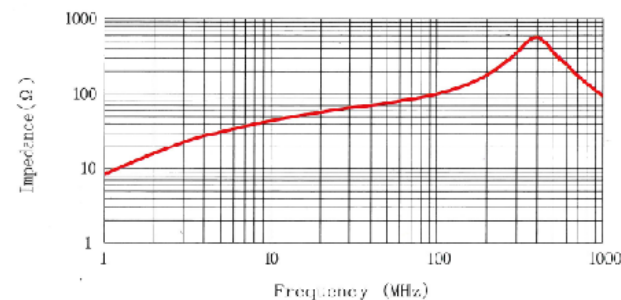
健全 C M Technology

BNF Series EMI Clamp-on Cable Filter

BNF-12H Cable Filter



A (max)	16.5	mm
	0.650	in
B (min)	6	mm
	0.236	in
C (max)	23	mm
	0.906	in
D (max)	19	mm
	0.748	in
E (min)	0.000	in
Cable Diameter (max)	6	mm
	0.236	in
10 MHz	25	Ω
25 MHz	45	Ω
100 MHz	65	Ω



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Thank You!

