

Nanocrystalline Cores For Current Transformers

DATA SHEET

Material Properties

Characteristic	Performance
Saturation Induction Bs(T)	1.25
Curie Temperature Tc (°C)	570
Crystalline Temperature T× (°C)	500
Hardness Hv	800
Initial Permeability (Ho)	>12x10 ⁴
Saturation Magnetostriction	2.0×10 ⁻⁶
Density (g/cm ³)	7.2
Resistance Ratio (M.cm)	130
Thickness (Hm)	28~35
Stacking factor	≥0.75



Magnetic Characteristics

H mA/cm	B (Gs)	μ (x10 ⁴)
0.39	50	10.20
0.77	100	10.34
1.39	200	11.45
1.85	300	12.90
2.27	400	14.02
2.62	500	15.19
2.87	600	16.64
3.16	700	17.63
3.38	800	18.84
3.61	900	19.84
3.81	1000	20.89
4.01	1100	21.83
4.38	1300	23.62
4.75	1500	25.13
5.06	1700	26.74
5.35	1900	28.26
5.57	2100	30.00
5.86	2300	31.23
6.11	2500	32.56
6.34	2700	33.89
6.57	2900	35.13

Product Specification

Part No	Core Dimension			Finished Dimension		
	OD	ID	HT	OD	ID	HT
NR-0004	19	14	6.5	22.2	12	9
NR-0007	21	16	10	23.8	14.5	12.5
NR-0008	20	14	10	23.5	12.5	12.5
NR-0012	26	19	10	29	16.5	12.5
NR-0014	40	30	10	43	27.5	12.5
NR-0017	40	30	15	43	27.5	17.5
NR-0019	83	38	40	88	34	45
NR-0020	71	39	33	76	35	38
NR-0021	70	42	30	75	38	35
NR-0022	68	45	30	73	41	35
NR-0023	68	45	25	73	41	30
NR-0024	78	60	25	83	56	30
NR-0025	80	60	30	85	56	35
NR-0026	82	63	30	87	59	35
NR-0027	70	40	25	75	36	30
NR-0028	82	45	50	87	41	55
NR-0029	82	45	30	87	41	35
NR-0030	85	45	60	90	40	65
NR-0031	85	50	30	90	46	35
NR-0032	80	50	35	85	46	40
NR-0033	86	60	40	91	56	45
NR-0034	78	60	35	83	56	40
NR-0038	115	85	20	120	81	25
NR-00119	78	60	30	83	56	35
NR-00120	88	50	40	93	46	45
NR-0121	120	95	20	125	91	25
NR-0122	83	30	50	88	26	55
NR-0123	80	50	30	85	46	35
NR-0125	80	50	25	85	46	30
NR-0126	90	73	30	95	69	35
NR-0128	90	43	40	95	39	45
NR-0129	88	60	35	93	56	40
NR-0130	110	90	45	115	86	50
NR-0131	100	75	20	105	71	25
NR-0137	115	85	25	120	81	20
NR-0138	120	95	15	125	91	20
NR-0139	120	85	20	125	81	25
NR-0078	265	210	10	271	203	17
NR-0079	220	180	20	227	172	25
NR-0080	220	180	30	227	172	35
NR-0086	560	470	12	572	458	18

Note: These cores are Circular. Rectangular, Racetrack, etc., can be made to customer specifications.
Support box made of PBT, PA66, DMC, aluminium, stainless steel, resin coated.

Nanocrystalline transformer core magnetisation curve data table (BH curve)

H (mA/cm)	B (Gs)	μ ($\times 10^4$)
0.39	50	10.20
0.77	100	10.33
1.39	200	11.45
1.85	300	12.90
2.27	400	14.02
2.62	500	15.19
2.87	600	16.64
3.16	700	17.63
3.38	800	18.83
3.61	900	19.84
3.81	1000	20.89
4.01	1100	21.83
4.38	1300	23.62
4.75	1500	25.13
5.06	1700	26.74
5.35	1900	28.26
5.57	2100	30.00
5.86	2300	31.23
6.11	2500	32.56
6.34	2700	33.89
6.57	2900	35.13
6.82	3100	36.17
7.05	3300	37.25
7.28	3500	38.26
7.56	3700	38.95
7.85	4000	40.55
8.22	4300	41.63
8.64	4600	42.37
9.04	4900	43.13
9.41	5200	43.97
9.84	5500	44.48
10.29	5800	44.85
10.74	6100	45.20
11.06	6300	45.33

H (mA/cm)	B (Gs)	μ ($\times 10^4$)
11.43	6500	45.25
11.97	6800	45.21
12.51	7100	45.16
12.85	7200	44.59
13.31	7400	44.24
13.79	7600	43.86
14.36	7800	43.22
14.98	8000	42.50
15.66	8200	41.67
16.43	8400	40.68
17.2	8600	39.79
18.31	8800	38.25
19.47	9000	36.78
20.15	9100	35.94
20.98	9200	34.90
21.8	9300	33.95
22.74	9400	32.89
23.68	9500	31.93
24.73	9600	30.89
25.95	9700	29.75
27.43	9800	28.43
29	9900	27.17
30.7	10000	25.92
32.63	10100	24.63
35.3	10200	22.99
38.17	10300	21.47
41.47	10400	19.96
45.36	10500	18.42
50.25	10600	16.79
53.67	10700	15.87
58.59	10800	14.67
62.5	10900	13.88
68	11000	12.87