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**nanocryst**  
transcore pvt. ltd.  
(A Unit of Vilas Transcore Limited)

House of Speciality Cores





# COMPANY PROFILE

Affiliated with Nanocryst Transcore Pvt Ltd., Nanocrystalline metal division specialized in the industrialization and Development of Amorphous and Nanocrystalline materials and Products, the company was established in the year 2011.

The major products of Nanocryst Transcore Pvt Ltd, Nanocrystalline metal division are Amorphous & Nano crystalline materials. Cores and magnetic components which are widely applied in power distribution, electric and electricity, industrial power supply, renewable energy, consumer electronics, aerospace, transportation etc. We devote to offer advanced energy-saving materials and solutions for customers.

With technical expertise of Mr. Manoj Yadav of Nanocryst Transcore Pvt Ltd and has been strongly supported by Vilas Transcore Ltd which was established in the year 1996 and part of NJ Group running under the guidance of Mr. Nilesh Patel. NJ Group is engaged into manufacturing of products viz, Transformer Lamination, Toroidal Cores, Slit Coils & allied products.

## Location :

Our factory is located on Delhi-Jaipur N.H. no.8 which is about 25 kms away from Delhi city.

The total area of factory is 6,000 Sq. Ft. with complete infrastructure for producing Amorphous / Nanocrystalline Cores & composite cores up to 420/800KV metering C.Ts. energy meters.

## VISION

To be among top Nanocrystalline Core producers through efficient, low-cost and environment-friendly operations, by being:

- a reliable, competitive and responsive supplier;
- a transparent and sustainable wealth creator to stakeholders;
- a fair employer providing an exciting work place

## MISSION

- To be the foremost manufacturer of Metallic Materials and Products in the country.
- To gain more and knowledge and trade the path forward and still be seated at the top so as to serve a extreme large section of users across the globe.
- To understand clients needs and requirements Vilas Transcore assist them with the most prompt and apt solutions.

## QUALITY POLICY

At Nanocryst Transcore Pvt Ltd, we believe that to maintain our market leadership, we need to :

- Constantly meet requirements of product specifications, on-time delivery and appropriate service to optimize customers' benefit
- Upgrade technology and business process to meet changing needs of customers
- Continuously improve employee skills
- Be an environment friendly organization



# CURRENT TRANSFORMER CORES

Application fields: Measuring current transformers used in power system and transformers applied to precision measuring instruments (such as kilowatt-hour meters).

Different soft magnetic materials can be selected as core material according to the demand of measurement accuracy rate of transformers. The higher core permeability, the smaller measuring error and the higher accuracy rate. At present the largest amount of core materials is cold-rolled silicon steel sheet, followed by the permalloy and nanocrystalline alloys. The demand of transformers with high accuracy class (for example 0.2 class, 0.2S class) increases rapidly. However, when small ratio and low ampere turns is demanded, or in the situation of limited core dimension because of volume request, cold rolling silicon steel sheet sometimes can't be able to achieve the desired measuring accuracy. Although permalloy cores with high permeability can meet the requirement of accuracy, it's too expensive. Nanocrystalline alloy cores can not only achieve the accuracy request, but also be cheaper than permalloys. Therefore the domestic demand amounts of nanocrystalline alloys used for measuring current transformer cores increase rapidly.

Performance characteristics: Made of Fe-based nanocrystalline ribbons, with intermediate saturation flux density, high permeability and low loss, cores can effectively reduce the current error and phasic error of transformers.

The saturation flux density (Bs) of nanocrystalline alloys is between ferrite and permalloys. And the lower Bs value, the more beneficial to reduce the instrument safety factor. When there is breakdown in the system, big current passes the current transformer, and cores is easier to be saturated, the secondary current is no longer rise in proportion, thus the secondary instruments is protected. The permeability of nanocrystalline alloys is close to permalloy, and an order of magnitude higher than silicon steel, therefore suitable for being used as transformer cores with high accuracy. The density and stack coefficient of nanocrystalline alloys is lower than permalloys, and when both cores are in the condition of same dimension and similar performance, the mass of the former is lighter more than a quarter, and the manufacturing cost is a third lower or so. In addition, the nanocrystalline alloys with a much more wider liner range than permalloys, can work a long time between -55 130°C, and have good temperature stability.

## Core Performance :

Basic parameters	Nanocrystalline cores	Permalloy cores	Silicon steel cores
Saturation flux density (Bs)	1.25T	0.75T	2.03T
Initial permeability	4 8x10 <sup>4</sup>	5 8x10 <sup>4</sup>	10x3
Maximum permeability	60x10 <sup>4</sup>	60x10 <sup>4</sup>	4x10 <sup>4</sup>
Curie temperature	570	400	740
Density (g/cm <sup>3</sup> )	7.2	8.75	7.65
Stacking factor	0.72	0.9	0.95
Thickness (mm)	0.03	0.15	0.3





## RECTANGULAR CORES:

Core dimension (mm)	Case dimension (mm)	Turns ratio N1=N2	Field current (mA)	Field voltage (mV)
70*90/100*200x30	65*85/105*125x36	1:1	500	50
75*95/105*125x25	70*90/110*130x30	1:1	175	8
80*95/120*135x25	75*90/125*140x30	1:1	600	41
90*90/160*160x30	85*85/165*165x36	1:1	1000	140
135*136/260*260x10	130*130/265*265x16	1:1	500	32
82*602/138*658x45	75*95/145*665x55	1:1	1000	45

Note : Other specifications of cores can be provided according to the needs of users



## RING CORES:

Core dimension (mm)	Case dimension (mm)	Turns ratio N1=N2	Field current (mA)	Field voltage (mV)
1105*1165x15	1095*1175x25	1:1	1200	2.36
415*520x15	409*526x23	1:1	250	3
305*490x15	299*496x23	1:1	900	20
198*248x30	192*254x37	1:1	200	6
155*200x30	150*205x36	1:1	190	38
140*180x30	135*185x36	1:1	80	2.9
130*190x30	125*195x36	1:1	80	3.8
100*140x30	95*145x35	1:1	120	6.8
90*130x30	85*135x35	1:1	120	6
90*125x25	85*130x30	1:1	500	70
80*120x30	75*125x35	1:1	500	65
85*125x20	80*130x26	1:1	120	5.5

Note :  $\rho = 7.2\text{g/cm}^3$ , stacking factor 0.72

Case materials: Cast aluminium, stretch aluminium, welding m/aluminium, stainless steel, and resin.

Case dimension: 5-8mm of inside diameter, outside diameter and height differs from core dimension

Other specifications of cores can be provided according to the needs of users (outside diameter no more than 1200mm)





Nanocrystalline CT Core B&H Data Sheet:

H(mA/cm)	B(Gs)	H(mA/cm)	B(Gs)	H(mA/cm)	B(Gs)	H(mA/cm)	B(Gs)	H(mA/cm)	B(Gs)	H(mA/cm)	B(Gs)
0.26	30	4.77	950	6.87	1950	8.18	2900	9.10	3850	9.95	4800
0.63	50	4.95	1000	7.10	2000	8.23	2950	9.13	3900	9.97	4850
0.99	100	5.05	1050	7.15	2050	8.35	3000	9.21	3950	9.99	4900
1.17	150	5.10	1100	7.19	2100	8.41	3050	9.35	4000	10.10	4950
1.38	200	5.15	1150	7.24	2150	8.48	3100	9.39	4050	10.50	5000
1.87	250	5.35	1200	7.38	2200	8.51	3150	9.42	4100	10.70	5050
2.11	300	5.61	1250	7.41	2250	8.62	3200	9.47	4150	10.90	5100
2.35	380	5.74	1300	7.52	2300	8.71	3250	9.51	4200	11.01	5150
2.56	400	5.81	1350	7.63	2350	8.74	3300	9.56	4250	11.05	5200
2.87	450	5.87	1400	7.67	2400	8.79	3350	9.61	4300	11.21	5250
3.31	500	5.91	1450	7.73	2450	8.81	3400	9.63	4350	11.45	5300
3.41	550	5.95	1500	7.77	2500	8.86	3450	9.68	4400	11.63	5350
3.56	600	5.98	1550	7.81	2550	8.89	3500	9.72	4450	11.69	5400
3.98	650	6.01	1600	7.87	2600	8.91	3550	9.76	4500	11.73	5450
4.11	700	6.11	1650	7.91	2650	8.94	3600	9.79	4550	11.78	5500
4.26	750	6.18	1750	7.98	2700	8.98	3650	9.82	4600	11.83	5550
4.56	800	6.24	1800	8.04	2750	9.00	3700	9.85	4650	11.87	5600
4.61	850	6.30	1850	8.09	2800	9.04	3750	9.88	4700	11.91	5650
4.70	900	6.55	1900	8.14	2850	9.07	3800	9.91	4750	11.95	5700

Nanocrystalline CT Core B&H Data Sheet:

H(mA/cm)	B(Gs)	H(mA/cm)	B(Gs)	H(mA/cm)	B(Gs)	H(mA/cm)	B(Gs)	H(mA/cm)	B(Gs)	H(mA/cm)	B(Gs)
11.97	5750	12.85	6700	14.25	7650	17.43	8600	22.62	9550	43.62	10500
11.99	5800	12.91	6750	14.29	7700	17.68	8650	22.82	9600	46.53	10550
12.01	5850	12.98	6800	14.39	7750	17.9	8700	23.09	9650	49.82	10600
12.04	5900	13.08	6850	14.47	7800	18.15	8750	23.44	9700	53.34	10650
12.07	5950	13.29	6900	14.61	7850	18.33	8800	23.72	9750	57.23	10700
12.15	6000	13.41	6950	14.72	7900	18.58	8850	24.21	9800	61.14	10750
12.19	6050	13.65	7000	14.95	7950	18.83	8900	24.52	9850	66.22	10800
12.21	6100	13.69	7050	15.12	8000	19.06	8950	25.23	9900	72.23	10850
12.26	6150	13.71	7100	15.27	8050	19.36	9000	26.21	9950	79.22	10900
12.29	6200	13.74	7150	15.42	8100	19.61	9050	27.42	10000	99.22	11000
12.32	6250	13.79	7200	15.62	8150	19.88	9100	28.61	10050	111	12500
12.42	6300	13.82	7250	15.82	8200	20.16	9150	29.73	10100		
12.49	6350	13.86	7300	15.95	8250	20.46	9200	31.4	10150		
12.52	6400	13.89	7350	16.22	8300	20.76	9250	32.63	10200		
12.59	6450	13.91	7400	16.38	8350	21.06	9300	33.82	10250		
12.63	6500	13.95	7450	16.55	8400	21.39	9350	34.93	10300		
12.68	6550	13.99	7500	16.73	8450	21.59	9400	36.92	10350		
12.72	6600	14.10	7550	16.93	8500	21.99	9450	38.13	10400		
12.79	6650	14.19	7600	17.18	8550	22.29	9500	40.62	10450		





# CORES FOR LEAKAGE PROTECTION SWITCH TRANSFORMERS

## APPLICATION AREA:

Substitute for permalloy, Fe-based nanocrystalline cores are applied to electronic or electromagnetic leakage protection switch transformers.

## PERFORMANCE CHARACTERISTICS:

High permeability and low loss are helpful to diminish the action current of leakage switch and improve accuracy. Excellent capacity of anti-overload is able to guarantee the stability of long term work.

Under 10-80°C, out rate of change is  $\pm 10\%$



## Material Performance :

Sr. No	Core size (mm)
1	21*16*10
2	20*14*10
3	21*14*10
4	30*20*8
5	19*14*8
6	19*13*10
7	22*15*6
8	18*11.5*20
9	24*12*24

# DC CT TRANSFORMERS CORE

## APPLICATION AREA:

Being applied in the field of DC-CT transformers. DC-CT combination cores can reach low remanence without opening and own high saturation flux density and permeability, which are able to meet the double needs of instrument to DC-AC mixed signal test and instruments accuracy further more this core has substituted for CO-based amorphous core with single structure and high cost.

## Core Performance :

Anti-DC value (A)	Core size (mm)
60	24*17*8
60	22*17*10
60	21*16*10
100	29*21*10
100	28*29*12
40	20*14*10
100	30*20*8
120	28*18*10
40	21*15*10





# COMMON-MODE INDUCTIVE CORES

## APPLICATION FIELDS:

- Solar inverters
- Switch mode power supplies
- Frequency converter
- EMC Filters
- Welding equipment
- Uninterrupted Power Supply

## PERFORMANCE CHARACTERISTICS:

High saturation flux density (1.25 T), permeability and inductance (10 times more than ferrite), low core loss, small volume, light weight, excellent ability of anti-electromagnetic interference, fine frequency characteristics and good stability of temperature.

## Material Performance :

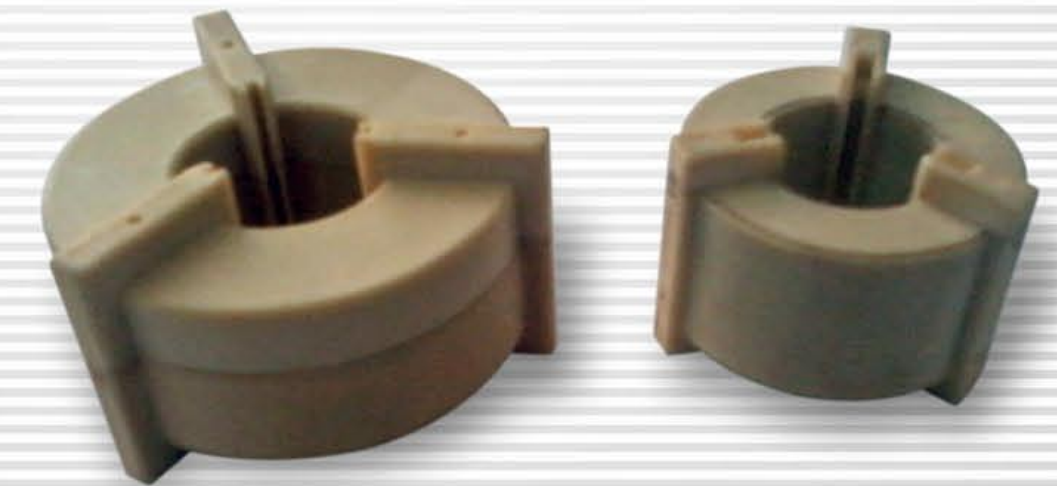
Basic Magnetic	Fe-based Nanocrystalline cores	Co-based amorphous cores
Saturation flux density (T)	1.25	0.6-0.8
Saturation magnetostriction coefficient	<2	1
Resistivity	130	130
Cure temperature	320	570
Remanence (T)	0.5-0.8	0.3-0.5
Initial permeability	>80,000	>10000
Maximum permeability	>600000	>200000
Corecivity (A/m)	<2	<2
Core loss (20KHz, 0.5T) (W/Kg)	<25	<25
Core loss (100KHz, 0.2T) (W/Kg)	<70	<60
Change rate of core loss	15%	

## Core Performance :

Core size (mm)	Single turn inductance $\mu$ H
30*20*15	> 70
32*20*10	> 35
26*16*10	> 50
20*12*10	> 40
20*12*8	> 35
59*40*10	> 80
50*32*10	> 70
40*25*15	> 90
40*25*10	> 60

## Product Details:

Sr. No	Core Size	Case size			S (cm <sup>2</sup> )	L (cm)
		D	d	H		
1	50*32*20	55.3	29.6	21.8	1.17	12.9
2	50*32*15	55.3	29.6	16.8	0.88	12.9
3	50*32*10	55.3	29.6	11.8	0.58	12.9
4	30*20*15	36.7	18	18.6	0.52	7.85
5	26*16*10	30.6	14	13.6	0.62	6.66
6	20*12*10	24.8	10.4	13.5	0.26	5.03
7	20*12*5	24.8	10.4	8.6	0.14	5.03
8	26*16*5	30.6	14.2	9.9	0.16	6.6





# ACCURACY TRANSFORMER CORES IN INSTRUMENTS

Cores with different specifications and performances can be provided according to the special needs of customers

Sr. No	Core size (mm)	Field current (mA)	Field Voltage (mV)	Frequency (Hz)
1	21x15x10	50	4	50
2	19x14x6.5	50	3.5	50
3	19x40x10	50	4	50
4	21.5x13.2x10	50	6	50
5	19x13.2x10	50	4.5	50
6	20x12.5x10	50	5	50
7	17x11x8	30	2	50
8	50x40x10	100	4.5	50
9	60x50x10	100	3	50
10	44x36x10	100	3	50
11	25x19x10	30	0.9	50
12	24x17x10	10	0.2	50



# IRON BASED AMORPHOUS C TYPE CORE

With advantages of low loss and high saturation magnetization, C type cores are widely applied in power transformers, high-frequency inductors, reactors etc.

### PERFORMANCE CHARACTERISTICS:

- Facilitated assembly of coils, excellent ability of anti-DC bias;
- High permeability, low coercivity, component efficiency increased and size reduction
- Low loss, lowering temperature rise;
- Good temperature stability, long time work under -50-130°C





Product specifications and typical performances:

Sr. No	Product No.	a(mm)	b(mm)	c(mm)	d(mm)	e(mm)	f(mm)	lm(cm)	Ac(cm <sup>2</sup> )	Vol(cm <sup>3</sup> )	Wa(cm <sup>3</sup> )
1	NT01CC-6.3	10±0.5	11	33	20+0.5	31+1	53+2	13.1	1.59	20.9	3.6
2	NT01CC-8	11±0.5	13	30	20+0.5	35+1	52+2	13.2	1.79	23.7	3.9
3	NT01CC-10	11±0.5	13	40	20+0.5	35+1	62+2	15.4	1.81	27.9	5.2
4	NT01CC-16A	11±0.5	13	40	25+0.5	35+1	62+2	15.1	2.31	34.8	5.2
5	NT01CC-16B	11±0.5	13	50	25+0.5	35+1	72+2	16.9	2.31	38	6.5
6	NT01CC-20	11±0.5	13	50	30+0.5	35+1	72+2	17.5	2.71	47.4	6.5
7	NT01CC-25	13±0.5	15	56	25+0.5	41+1	82+2	19.6	2.7	52.9	8.4
8	NT01CC-32	13±0.5	15	56	30+0.5	41+1	82+2	20	3.2	64.1	8.4
9	NT01CC-40	13±0.5	15	56	35+0.5	41+1	82+2	19.9	3.71	73.8	8.4
10	NT01CC-50	16±1	20	70	25+0.5	52+1	102+3	24.9	3.3	82.2	14
11	NT01CC-63	16±1	20	70	30+0.5	52+1	102+3	25.3	3.91	98.9	14
12	NT01CC-80	16±1	20	70	40+1	52+1	102+3	25.4	5.21	132	14
13	NT01CC-100	16±1	20	70	45+1	52+1	102+3	25	5.91	148	14
14	NT01CC-125	19±1	25	83	35+1	63+1	121+3	30.2	5.4	163	20.8
15	NT01CC-160	19±1	25	83	40+1	63+1	121+3	28.5	6.5	185	20.8
16	NT01CC-200	19±1	25	83	50+1	63+1	121+3	29.8	7.81	233	20.8
17	NT01CC-250	19±1	25	90	60+1	63+1	128+3	31.4	9.31	292	22.5
18	NT01CC-320	22±1	35	85	50+1	79+1	129+4	32.5	9.3	302	29.8
19	NT01CC-400	22±1	35	85	65+1	79+1	129+4	33.6	11.7	393	29.8
20	NT01CC-500	25±1	40	85	55+1	90+1	135+4	35.6	11.3	404	34
21	NT01CC-630	25±1	40	85	70+1	90+1	135+4	35.6	14.4	511	34
22	NT01CC-800A	25±1	40	85	85±1.5	90+1	135+4	35.6	17.4	620	34
23	NT01CC-800B	30±1	40	95	85±1.5	100+1	155+4	39.3	21	826	38
24	NT01CC-1000	33±1	40	105	85±1.5	106+1	171+5	42.7	23	983	42
25	NT02CC-1	22±1	36	80	20±0.5	80+1	124+3	32	3.6	115	28.8
26	NT02CC-2	26±1	36	85	25±0.5	88+1	137+4	34.6	5.33	184	30.6
27	NT02CC-3	33±1	49	113	40±0.5	115+1	179+5	45.6	10.8	492.5	55.4

# RING CORES FOR SWITCH POWER TRANSFORMERS

### APPLICATION:

With high permeability and low loss, nano-crystalline ring cores are perfect material for main transformer, magnetic amplifier, chokes, energy storage inductors, filter inductors, common mode chokes and peak suppressors applied to single-ended, push-pull or full-bridge high-frequency switch power.

### PERFORMANCE CHARACTERISTICS:

- High saturation flux density can availablely reduce the size of transformers.
- High permeability and low coercivity can improve the efficiency, decrease the exciter
- Low core loss and magnetostriction coefficient

### Performance of switch power transformer cores:

Material	T	Low		Medium		High	
		Br/Bs	Watts per Kg	Br/Bs	Watts per Kg	Br/Bs	Watts per Kg
Fe-based amorphous	1.56	≤ 0.2	10K ≤ 18	0.6	10K ≤ 20	≤ 0.9	10K ≤ 25
Fe-based Nanocrystalline	1.2	≤ 0.2	100K ≤ 120	0.6	100K ≤ 150	≤ 0.85	100K ≤ 200



### Core Performances:

Basic Magnetic	Fe-based Nanocrystalline cores	Co-based amorphous cores	Ferrite cores
Saturation flux density (T)	1.25	0.6-0.8	0.5
Saturation magnetostriction coefficient	<2	0	4
Resistivity	130	130	106
Cure temperature	320	570	<200
Remanence (T)	0.2-1.0	0.1-0.6	0.2
Initial permeability	>80,000	>10000	-
Maximum permeability	>600000	>200000	<20000
Corecivity (A/m)	<2	<2	6
Core loss (20KHz, 0.5T) (W/Kg)	<25	<25	N/A
Core loss (100KHz, 0.2T) (W/Kg)	<60	<60	N/A

### Product Details:

Sr. No	Core Size	Case size			S (cm <sup>2</sup> )	L (cm)
		D	d	H		
1	50*32*20	55.3	29.6	21.8	1.17	12.9
2	50*32*15	55.3	29.6	16.8	0.88	12.9
3	50*32*10	55.3	29.6	11.8	0.58	12.9
4	30*20*15	36.7	18	18.6	0.52	7.85
5	26*16*10	30.6	14	13.6	0.62	6.66
6	20*12*10	24.8	10.4	13.5	0.26	5.03
7	20*12*5	24.8	10.4	8.6	0.14	5.03
8	26*16*5	30.6	14.2	9.9	0.16	6.6

# CERTIFICATE



**Certificate of Registration**

This is to certify that the Quality Management System of

**NANOCRYST TRANSORE PRIVATE LIMITED**

at

Plot No : 288, Sector -7, IMT Manesar Gurgaon-122050

has been independently assessed and is compliant with the requirements of

**ISO 9001 : 2008**

For the following Scope of Activities :

Manufacturer of nano crustal core

Certificate Number : QM-2523

Validity of this certificate can be verified at [www.ukcert.co.uk](http://www.ukcert.co.uk)

Date of initial registration: 15th April 2014  
 Date of this certificate: 15th April 2014  
 Certificate expiry: 14th April 2017  
 Recertification due (subject to the company maintaining its system to the required standard): 14th April 2017

*David*  
 Authorised Signatory

This certificate is the property of UK Certification & Inspection Limited and shall be returned immediately on request. 1 Judd Street, Colindale, London, NW9 1AN, UK. Website: www.ukcert.co.uk