



QUALITY CHECK

Quality is a paramount focus at "Vilas Transcore," positioning us as a leading manufacturer of superior products. Our unwavering commitment to product excellence and production processes has been instrumental in propelling our rapid advancement. We rigorously implement a series of quality checks and audits spanning from material procurement to final packaging.

Our pledge to customer satisfaction remains steadfast, adapting to evolving market dynamics and consistently delivering products of unwavering quality within stipulated timelines.

This commitment is upheld through the following initiatives:

1. Continual enhancement of the effectiveness of our Quality Management Systems.
2. Prudent allocation of resources to ensure controlled costs.
3. Pioneering process innovations to elevate quality standards.
4. Regular motivation of our workforce through diverse channels.
5. Offering comprehensive support to clients for the seamless execution of their projects within specified timelines.

Raw Material

The quality of final output depends upon quality of input. At Vilas Transcore, we undertake significant and relevant quality check of raw material. The raw material is brought in for the manufacturing process only if it successfully passes through all the rigorous Quality Tests.

Lamination

Lamination Quality control checks are carried out frequently right through the manufacturing process on every machine and the record is maintained separately. These covers check of Edge, Width, Burr, Camber, Thickness, Watt Losses, Stack factor, wave factor etc.

Toroidal Cores / Wound Core

Quality Check includes Magnetic Properties on given flux density and dimensional measurement i.e., Overall – Inside Dia Meter & Height.

Technical details of CRGO

CRGO or Cold Rolled Grain Oriented Steel is available in various grades (generally called M3, M4, M5 & M6, Major international standards such as Japanese (JIS), American (ASTM), German (DIN) and British Standards which specify CRGO grade).



Conventional CRGO grades generally M3, M4, M5, and M6 are used regularly for Lamination cores in Transformers. However recently due to environmental protection, energy savings are becoming a must. Nippon Steel Corporation and other CRGO producing mills has come out with low loss Hi-B materials, which guarantee low Watt Losses at 1.7 Tesla flux density. Such materials are called Hi-B materials.

Below given table indicates magnetic properties of Hi-B material.

Popular CRGO Hi-B grades are 23 MOH & 27 MOH ZDKH, ZDMH/HPDR.

Manufacturing mills of CRGO Steel guarantee the core loss figure at flux density of 1.5 Tesla in case of CRGO conventional grain-oriented steel and at 1.7 Tesla in case of CRGO Hi-B Steel and CRGO Hi-B-LS Steel.

Flux Density V/s Losses

These results were measured in Vilas Transcore Limited Testing Laboratory
These values are for reference only. All values are in Watts/kg @ 50 Hz

Flux Density (Tesla)	23PHD85	27ZDKH90	27ZDKH95	23 MOH	27 MOH	30 MOH	M3	M4	M5	M6
1.30	0.46	0.51	0.48	0.53	0.57	0.57	0.49	0.64	0.68	0.73
1.35	0.49	0.55	0.51	0.57	0.60	0.62	0.53	0.68	0.74	0.79
1.40	0.53	0.59	0.57	0.61	0.66	0.65	0.58	0.74	0.80	0.86
1.45	0.57	0.63	0.61	0.66	0.70	0.70	0.64	0.78	0.87	0.94
1.46	0.58	0.64	0.62	0.67	0.71	0.71	0.65	0.80	0.88	0.97
1.48	0.60	0.66	0.64	0.66	0.73	0.74	0.67	0.82	0.91	1.03
1.50	0.61	0.67	0.66	0.70	0.74	0.76	0.70	0.84	0.94	1.11
1.52	0.63	0.69	0.68	0.72	0.76	0.78	0.72	0.88	0.97	1.14
1.54	0.65	0.71	0.70	0.74	0.79	0.80	0.75	0.90	1.01	1.18
1.56	0.67	0.73	0.72	0.76	0.81	0.83	0.78	0.93	1.04	1.22
1.58	0.69	0.75	0.74	0.78	0.83	0.85	0.81	0.96	1.08	1.26
1.60	0.71	0.77	0.76	0.80	0.85	0.87	0.85	1.00	1.12	1.30
1.62	0.73	0.79	0.79	0.83	0.89	0.90	0.89	1.03	1.16	1.35
1.64	0.75	0.81	0.83	0.85	0.91	0.93	0.93	1.07	1.20	1.40
1.66	0.78	0.84	0.87	0.88	0.94	0.96	0.98	1.10	1.25	1.45



Vilas Transcore Limited
The Core People

(An ISO 9001 : 2008 certified company)

1.68	0.81	0.87	0.91	0.93	0.96	1.00	1.03	1.15	1.30	1.51
1.70	0.84	0.90	0.95	0.95	1.00	1.05	1.09	1.20	1.36	1.57
1.72	0.86	0.93	1.01	0.98	1.02	1.07	1.15	1.24	1.42	1.64

Important physical properties of CRGO

Density gm/c3	7.65
Silicon content%	3.10
Resistivity micro Ohm-centimetre	48.00
Ultimate tensile Strength 00 to Rolling Direction Kg/mm2	32.60
Ultimate tensile Strength 900 to Rolling Direction Kg/mm2	38.20
Stacking factor % M4 (.27mm)	96.00
Stacking factor % M5 (.30mm)	96.50
Stacking factor % M6 (.35mm)	97.00
CRGO materials come either in the form of coils or sheets. Given below the details of CRGO dimensions and tolerances as per JIS C 3553.	



Standard Tolerance - Cut to Size Lamination

Sr.No	Characteristics	Acceptance Limit/ Criteria
1	Width (mm)	0 to 100 (± 0.15)
		100 to 130 (± 0.20)
		230 to 380 (± 0.25)
		380 to 580 (± 0.40)
		580 to Above (± 0.50)
2	Thickness (mm)	± 0.03 mm
3	Edge Burrs (Micron)	
	Thickness (mm)	
	Up to 0.23	15
	Up to 0.23	15
	0.35	20
4	Length (mm)	Up to 350 (+0.00 / -0.30)
		350 to 1000 (+0.00 / -0.60)
		1000 to 2000 (+0.00 / -1.00)
		2000 and Above (+0.00 / -2.00)
5	Edge Chamber	For the material with a width greater than 150 mm, edge chamber shall not exceed 0.8 mm for a length 1.5 meter
6	Wave Factor (i.e., Deviation from Flatness)	For a material of width greater than 150 mm the deviation from flatness expressed as a percentage shall not exceed 1.5%
7	Angel	± 5 Minutes
8	Stack Thickness of individual stack except centre step unclamped	+1 -0 mm

Testing Parameter for Toroidal Core

Reluctance - Toroidal Core				
Grade of Material	AT 0.5 Tesla AT/CM	AT 1.0 Tesla AT/CM	AT 1.5 Tesla AT/CM	AT 1.7 Tesla AT/CM
0.23 ZDMH/HPDR	0.06	0.10	0.20	0.30
0.23 ZdKH	0.07	0.12	0.22	0.32
0.23 MoH	0.08	0.15	0.26	0.35
0.23 M3	0.09	0.18	0.30	0.45
M4	0.12	0.22	0.32	-
M5	0.15	0.28	0.40	-