Raw Materials Used

Critical Material Used : Description : CRGO Lamination			
Material Used by CG	BIS approved prime CRGO coils, imported from Japan, Korea, Russia, France	Alternate Material Used by Competitors	Scrap / leftover CRGO
Advantages	Consistant thickness, insulation resitivity and losses throughout coils. Step-lap design. CNC cut lamination.	Disadvantages as compared to Material used by Unit	Manual cutting, non-step-lap design
Effect on Quality and Relaibaility	Minimum building factor upto 18%. Minimum burr level < 10 micron. Lowest core NLL.	Adverse Effect on Quality and Relaibaility	Higher core NLL High Humming noise.
Impact on Customer	1) Higher Power Cost through out life. 2) High probability of Break-down.		

Critical Material Used : Description : Copper			
Material Used by CG	ETP grade Copper conforming to ASTM B49, IEC-60317	Alternate Material Used by Competitors	Copper rod drawn from copper scrap, in an un-controlled process
Advantages	Copper purity of 99.9% Conductivity 100% IACS (min)	Disadvantages as compared to Material used by Unit	Purity is not consistant
Effect on Quality and Relaibaility	Lowest resistance and thus load losses. Controlled process with tight tollerances on dimensions, mechanical properties	Adverse Effect on Quality and Relaibaility	Higher load losses and heat generation
Impact on Customer	1) Higher Power Cost through out life. 2) High probability of Break-down.		

Raw Materials Used

Critical Material Used : Description : Insulation			
Material Used by CG	Confirming to IEC 60641. Made from 100% Sulphate wood pulp with high Chemical purity	Alternate Material Used by Competitors	Second grade material made out of used or scrap insulation pulp.
Advantages	Uniform Insulation Stress. Free from cracks. Slow Cellulosic Decomposition for longer life.	Disadvantages as compared to Material used by Unit	Premature failure due to stress concentration. Higher rate of deterioration and sludge in oil.
Effect on Quality and Relaibaility	Consistent performance with low maintenance requirement.	Adverse Effect on Quality and Relaibaility	Unreliable equipment with frequent filteration and repairs.
Impact on Customer	1) Unsafe Product. 2) High Risk of Fire and Failure. 3) High Frequency of Maintenance Cycles.		

Critical Material Used : Description : Oil			
Material Used by CG	Oil conforming to IS335 - 2018	Alternate Material Used by Competitors	Small Players uses oil of old transformers after filteration
Advantages	Oil used having : BDV > 70 kV. Water content < 15 ppm. Tan delta @ 90 degree 0.002 (max). Loose oil in epoxy coated steel barrels to avoid contamination during storage.	Disadvantages as compared to Material used by Unit	BDV / PPM are deteriorated
Effect on Quality and Relaibaility	Longer life of transformer. No generation of gases from oil. No sludge formation.	Adverse Effect on Quality and Relaibaility	Lower transformer life
Impact on Customer	1) Premature Failure 2) Added Cost of Oil filteration / replacement.		

Transformer Manufacturing Process

	Parameters	CG Offer	Technical Benefits	Benefits for End User
MATERIAL CONTROL	CORE	CRGO with Insulation Resistance 10Ω cm²	1) Low Eddy current,	1) Reliability
		(IS 10Ωcm²),	2) Low core temp.	2) Quick Payback period
		Burr Level 10 um (IS25um) &	3) Low noise/Humming from core	3) Transformer life increases
		Insulation Coating C5 upon C2 (IS C2)		4) Less maintenance of oil
				5) Life span of oil increases
				6) Low humming noise & suitable for noise pollution free areas.
	Foil	LV Winding with FOIL.	1) Low eddy current.	1) No re-tightening of Core Coil Assembly in servicing.
			2) Low Temp of winding	2) Transformer is robust against frequent overloads.
	Insulation	Insulation as per international standard.	1) Increase Voltage withstanding capacity.	1) Good performance under frequent Over voltage.
	(PCB, PB, PW, Paper)	Electric Strength 35kv, Moisture 6% of wt & Mechanical Strength 100 mpa	2) Higher Force transfer ability.	2) Less chances of insulation deterioration hence Longer life of Transformer.
	Oil	BDV 75kv,	This will ensure enhancement of voltage withstanding capacity and strength against failure.	1) Low maintenance cost
		Flash point 140˚c & water content 15mg/kg		2) Use of new oil only
	Ester Oil	Offer BDV >70kV		1) Low maintenance cost.
		Fire point >300˚C & Moisture Content less than 55ppm.		2) Environmental friendly.

PROCESS CONTROL	Winding	By Automatic control Foil Winding Machine	Tightness of winding is ensured and maintained hence will not allow deformation during high currents. Joint of foil is automatic hence no change in resistance in that area.	No Looseness of Winding during service hence less maintenance
	Jointing/ Connection	Crimping, Brazing & Bolting	Resistance at joints as per original conductor hence no loose current, no chattering and PD problem later on.	Less Maintenance of Transformer & Transformer Oil
	Drying	Ovening in Vacuum chambers	Ensure full drying and moisture removal from CCA Insulation items This will enhance oil BDV & IR	Maintain the BDV of oil during service for long time hence less maintenance of Oil
	Oil filling	Under Vacuum Chamber	Ensure moisture removal. This is followed to enhance oil BDV & IR.	Less Maintenance of Oil after first filling

Photos provided by Pexels

Raw Materials Used

IN-PROCESS CONTROL	Paint Type & DFT External	PU with 200-240 microns for C4 Class environment	Painting life will be more hence no corrosion.	No rusting, hence long paint life. Repainting frequency at long intervals.
	Paint Type & DFT Internal	Oil resistant paint 40 microns	No corrosion and leakages over a period of time, No contamination of oil	No rusting, hence no contamination of oil
	Surface Preparation	SA 2 1/2 as per ISO:8501-1-2	Painting life will be more hence no corrosion and No Seepage over a period of time	No rusting, hence long paint life. Low repainting frequency, Better Aesthetics
	Gasket Material	Use of NITRILE at Oil wet Joint & SRBC for Dry/Air Joint	No leakages from oil gasket joints	No oil leakage during service hence low maintenance cost
	In-house Routine, Type & Special tests	Testing in NABL accredit test LAB	Accurate testing Results.	All tests within factory, Cost benefit to customer.

Guarantee

Time

3-Years comprehensive guarantee

Service

- All service including Oil-Filtration every year for 3 years.
- Along with quarterly visit for 3 years.
- Any part will be replace free of cost for 3 years.

Replacement Guarantee

- During guarantee period if transformer stops functioning due to any reason or damage, will be replaced with new at no extra cost.

Testing

NABL Testing

- CG will test 1000KVA transformer manufactured by us at NABL Lab, in front of our customer to assure quality, loss confirmation and proper functioning of the transformer.

Raw Material Testing

- All the relevant test certificate obtained from the manufacturer of the materials will be provided.
- Also, if required you can depute your engineer for stage inspection of raw material.

Installation

- During installation, we will provide complete support on supervision of installation and commissioning process at your site.