



Macro Powertech

WORLDWIDE POWER SOLUTIONS



Macro Powertech India Pvt. Ltd.

AN ISO 9001:2008 COMPANY

Vision

To be a growth oriented and a leading manufacturer of Power, Furnace and Rectifier Transformers to consolidate our National and International presence, with a firm commitment of caring for quality & environment.

Mission

Our mission is to increase current capacities and its downstream operation to achieve economies of scale and to establish ourselves as a producer quality product through continual improvement in performance, meeting with the customer's expectation and strive for developing value added option from side stream by products, and To emerge as a preferred solution provider for quality Transformers with a team of dedicated professionals and channel partners who are ethical, value driven and create excellent customer relationships.

Our Strength



Macro Powertech is Manufacturing & Exporting. **Macro** Brand Automatic voltage Stabilizers, Transformers with Built in Stabilizers, Rectifier Equipments & Special Purpose Transformers.

The Voltage fluctuation causes constant worries and Costly Downtime and reduces productivity of machines, resulting in serious damage to precision equipment.

Industry today frequently needs a power supply of constant voltage or a supply that can be varied smoothly on load to control a process. **Macro Powertech** meets these needs through voltage regulating transformers.

Macro Powertech cover a wide range of Automatic Voltage Stabilizers of the capacity from 30 KVA to 5000 KVA for different input voltage ranges both LT & HT (400 V & 11/ 33KV). Transformers with BUILT IN Stabilizers are covered upto capacity of 5000 KVA.

Rectifier Equipment converts AC into DC supply and is widely used in electro-chemical processes and are available in capacity from 25 amp to 20000 amps.

The Company also manufactures Isolation, Furnace, Balancing & other Special Purpose Transformers, Variable Supply.

Distribution & Power Transformer

For efficient power supply, well engineered and reliable transformers are essential.

Macro Powertech with its three decades expertise in transformers has established state-of-the-art facilities for distribution and power facility.

Distribution Transformers

Single phase Distribution Transformers upto 25 KVA designed with protection circuit.

Three phase Distribution Transformers upto 2000 KVA, 11/22/ 33/66 KV Class.

Power Transformer

At **Macro Powertech** we manufacture power transformers upto 20 MVA capacity with 11/22/33/66 KV class.

Transformer cores are build with CRGO, low loss silicon steel laminations. Use of Hi-B grade and laser scribed laminations for the core significantly reduces no load losses and noise levels as committed.

Power Transformer windings are made of electrolytic grade copper with continuously transposed conductors as per the designs requirement. The winding has axial nad radial cooling ducts to ensure effective heat dissipation in to the oil and eliminating the hot spots. For high voltage windings, disc coils with excellent mechanical strength are used to take the stresses due to voltage level. A special interleaved or shielded construction offers most uniform voltage distribution despite system transients.



Power Transformers, core-coil assembly are rigidly supported by a common pressure ring of densified wood at the top and bottom, for precise alignment. Well profiled angled rings are placed between HV and LV windings to reduce voltage stress levels. The ends and tapping leads to all the windings are connected by special extra flexible, insulated copper cables, which are rigidly braced in position.

The core-coil assembly is put into the tank with proper locating arrangements. The tank is then filled with hot oil, filtrated by High Vacuum Oil Filtration Plant.

Power Transformers, Tanks are built with mild steel plates to withstand full vacuum, conforming to the International Standards. Lugs for Jacking, lifting and hauling are routinely tested for dye penetration. Tanks have welded or bolted top cover. Tanks are shot blasted to get a surface finish to have double coat of Epoxy paint after double coat of Epoxy primer. The transformer is made ready for final inspection after assembly of bushings, conservator, radiators etc.



L.T. Automatic Voltage Stabilizer

L.T. Automatic Voltage Stabilizers holds its potential for units having either L.T. Supply or Low capacity H.T. Connections. The same can be manufactured for Balanced Supply and unbalanced Loads or Unbalanced Supply for Unbalanced Loads.

The range of input supply which the stabilizer is designed for depends upon the voltage conditions at the supply point. However some standard ranges for L.T. Stabilizers are as under :

Input Voltage	360-450 V	350-460 V	340-460 V	320-460 V	300-460 V
Efficiency (as calculated)	99.60%	99.50%	99.35%	99.00%	98.70%
Output Voltage	400 V \pm 1%, 3 Phase, 50 Hz				
Cooling	Naturally Oil Cooled.				
Type	Indoor.				
Temperature Rise (Max.)	35°C above ambient.				
Mounting	On Uni-directional Wheel				
Wave form distortion	Nil				
Duty Cycle	100% Continuous				



Comparison between MACRO make & Conventional make Automatic Voltage Controller

MACRO MAKE ROLLER TYPE REGULATOR

- Power consumption is 0.5 to 1.5% depending upon the model and input voltage variation.
- Suitable for continuous 100% duty cycle.
- The carbon (graphite) Roller, while moving on the coil track, so contact Point of the roller goes on changing which prolongs the life of the rollers.
- Life at full load is 15-20 years.
- Negligible losses in full Buck/ Boost Condition.
- Five years Unconditional guarantee in India

CONVENTIONAL MAKE WITH CARBON BRUSH REGULATOR

- Power consumption is 2 to 7% depending upon the model and input voltage variation.
- Suitable for only 30% to 40% duty cycle.
- Since the contact is by brush having flat surface, wear & tear of the brush is more and requires frequent replacement.
- Maximum life is 2-3 years at full load.
- Max. Losses in full Buck/ Boost condition.
- Normal warrantee for one year.

Loss Comparison of MACRO make Regulator and Conventional make Regulator

Capacity	MACRO make Roller type regulator losses	Conventional make Carbon brush type regulator losses
60 A	575 W	1050 W
75 A	730 W	2055 W
100 A	900 W	3105 W

Regulator Coil Assembly



Carbon Roller Assembly



ADVANTAGES

- Reduction in breakdown of electrical equipments
- Improvement in power factor (only in case of high voltage)
- Power saving (reduction in power bills)
- Depreciation as per income tax act. in India)
- Uniform quality of end products
- Better efficiency in plant
- Reduction in MDI



Inner View
of Stabilizer
(Balanced Type)



H.T. Automatic Voltage Stabilizer

H.T. Automatic Voltage Stabilizers are used to get stable input voltage for individual distribution Transformer, irrespective of High / Low Voltage being received from Electricity Authority. These are installed on the input side of the Transformers. It also prevents the Transformer from getting overloaded.

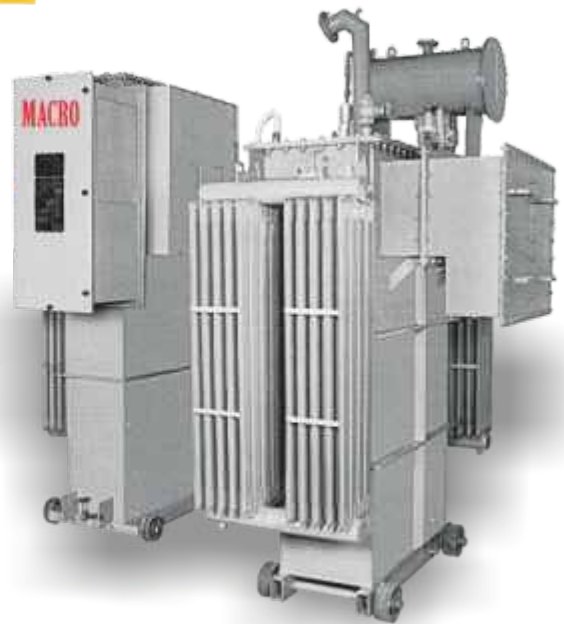
Macro Powertech's H.T. Automatic Voltage Stabilizer takes care of wide voltage variation ranges, steplessly and in ON LOAD condition, leading to full load utilization of the Transformer, installed.

Macro Powertech H.T. Stabilizer Comprises of :

1. Step Down Unit, double wound.
2. Buck Boost Unit, double wound.
3. Stabilizer Unit, auto wound delta connected with rolling contacts capable of moving on the winding through Automatic/ Motorized / Manual mechanism for regulation of the voltage at the output side.
4. Control Unit.

Features :

- ROLLING CONTACT TYPE • ONLOAD • STEPLESS



H.T. Transformer with BUILT IN Automatic Voltage Stabilizer

Macro Powertech make transformers with Built-in AUTOMATIC VOLTAGE REGULATOR is a unique product. The incoming supply from the 'GRID' sometimes fluctuates widely and after the installation of Standard Distribution Transformer the customer faces low/ high voltage problem on the L.T. side affecting the rated voltage of the machines and thereby damages Motor & other sophisticated equipments.

The standard Off-Circuit tappings of the Transformers can correct limited voltage variations and can not regulate the voltage while in 'on load' condition. **Macro Powertech** has developed Transformers with built-in H.T. Automatic Voltage Regulators and operate on load steplessly and can also be installed either Indoor or Outdoor.

The equipments are basically combination of Standard Distribution Transformer and H.T. Automatic Voltage Regulator. The incoming fluctuation H.T. supply is initially stabilized then fed to Transformer and thereby the L.T. Output is maintained within $\pm 1\%$ accuracy. The design is robust and needs no regular maintenance.

Advantages of Built-in Automatic Voltage Regulator

- Reduced Installation cost
- Space saving
- Better efficiency
- Reduction in Electricity bill
- Protection of Motors etc.



Dry Type Transformer

Dry type transformer are non-explosive fire resistant, air insulated, and are cooled by natural circulation of air through ducts provide in the windings. High temperature and high dielectric insulating materials like Glass Fibre reinforced, Nomex insulating tapes are used in such a way that the entire assembly is capable of withstanding high electrical and mechanical stresses with good dissipation of heat causing low temperature rise within the prescribed limit of insulation class.

Standard

The transformer in general conforms to IS 11171-1985 for Dry Type Transformers.

Description

The winding are made up of Electrolytic Grade, Soft and bright annealed copper conductors covered with nomex insulating tapes. The wound coils are preheating and impregnated with silicon varnish under vacuum pressure and undergo a curing cycle. The low voltage coils are wound over glass fibre reinforced cylinder having high mechanical strength. The high voltage coils are supported over yoke on glazed porcelain or resin insulators, The core is made of CRGO silicon steel laminations duly annealed after shearing and assembled in mitred construction for low "no-load" loss.

The yoke frame has adjustable pressure plates to clamp & secure the coils adequately. Lifting arrangements is provide on the top yoke frame so that the core and coil assembly is lifted. OFF-CIRCUIT TAMPING if required are provided on HV windings and terminated on Fibre Glass Terminal Board for changing the Transformer ratio in "off ckt" position.

Rating

Voltage Grade- upto 24KV, Capacity upto 5000 KVA

Salient Features of Dry Type Transformers

- Maintenance free
- No trapped mechanical forces, improving the thermal operation
- Maximum heat dissipation
- Higher resistance to Short circuit forces using Disc wound coils having self-locking property
- No Partial Discharge, as max voltage appearing at any part of the winding is limited to the turn to turn
- Maximum creepage available in coils
- Better monitoring of hot spot temperature
- Least amount of combustibile materials
- Does not emit toxic and blinding smoke in the event of a fire





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