

Engineering
Intelligent
Solutions

- Servo Voltage Stabilizers
- Transformers
- Rectifier Equipments



Introduction

Dynamic Energy Solutions is an ISO 9001:2015 certified, young and emerging company in the field of Electrical Equipments manufacturing HT & LT Rolling Contact Type Servo Voltage Stabilizers, Distribution Transformers, Transformers with built in HT Servo Voltage Stabilizer & Rectifier Equipments.

Company's main emphasis is on customer satisfaction through quality products backed by effective after sales service.

Within a short span of time, company has made itself as a popular brand in & around NCR. Company also provides technical knowhow for energy efficient solutions.

We boast of a highly experienced team with an average experience of minimum 15-20 years in this particular field.

Company has well laid out manufacturing & quality assurance process resulting in highly efficient products resulting in saving of energy & thus paying lesser Electricity Bills in today's ever increasing tariff.

What We Do :

Designing (specific to customer's requirement), manufacturing ,testing and supplying of :

Distribution Transformers with OCTC as well as with OLTC

Rectifier equipments for Electroplating, Anodizing, ED Coating and other Electro chemical processes

Servo Voltage Stabilizers - LT (400V/415V) & HT (11KV/22KV/33KV)

Transformers with Built in HT Servo stabilizer

Continuously variable Rolling Contact Type Auto Transformers

Furnace Transformers

Isolation Transformers

Balancing Transformers

Other Special Purpose Transformers

Why Dynamic make Equipment only :

Expertise in catering to special technical requirement of customers

Always looking for challenging jobs

Robust Designs

Well laid out manufacturing process and bought out items of international brand

Consistent product quality which comes through comprehensive quality checks at all the stages

All products are highly efficient

Prompt after sales service and quick remedial action on the basis of feedback from the client

Total Customer Satisfaction

Our every satisfied customer is our mktg/sales person. Majority of our orders are repeated or recommended by our esteemed clients.

After Sales Service :

All our equipment are backed by prompt sales service. Service Engineers are well trained to guide customers for proper commissioning and handling of complaints. We also provide routine check ups of supplied equipments as and when required at nominal cost.

Our Strength :

A professionally managed company and a fully equipped design wing headed by a COMPETENT DESIGN ENGINEER HAVING EXPERIENCE OF OVER 20 YEARS and therefore able to provide cost effective solution to individual customer's specific requirement.

Transparency, Accountability and social responsibility are integral parts of our business philosophy.

THE SECRET OF OUR SUDDEN RISE IN THE MARKET IN A SHORT PERIOD LIES IN MAINTAINING HIGHEST STANDARDS OF QUALITY.

DYNAMIC'S OIL COOLED DISTRIBUTION TRANSFORMERS

Dynamic covers a wide range of oil cooled distribution transformers with Off Circuit tap changer as well as with On load Tap changer (upto 5000 KVA capacity in 11KV, 22Kv & 33Kv class).

Magnetic Circuit of the Transformer is made by assembling high grade Cold Rolled Grain Oriented Silicon laminations having high permeability and low hysteresis loss.

HV and LV windings are made in shape of coils, perfectly circular, with electrolytic grade Copper / Aluminum conductor (as per client's demand). These coils are dried and pressed to pre-determined stack heights, assembled concentrically on the core and magnetically balanced with respect to each other, thus minimizing mechanical stresses.

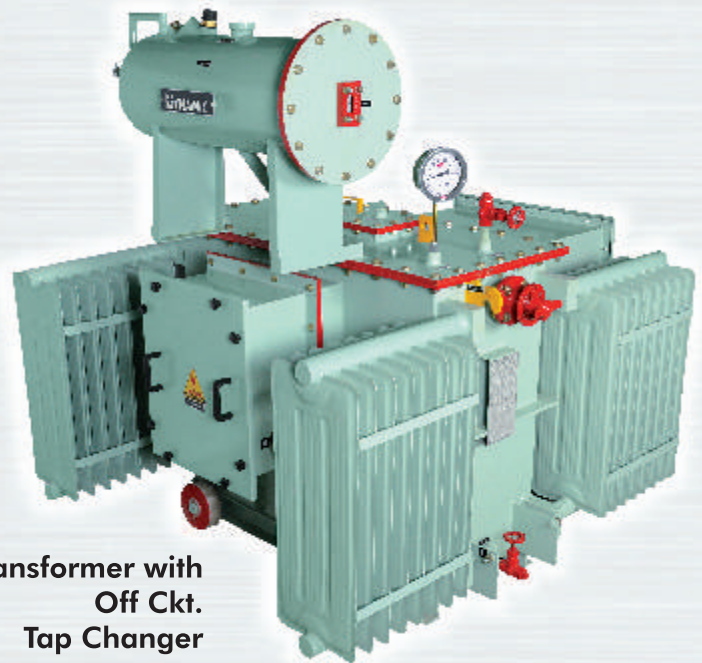
Core & Coil Assembly is clamped by clamping structure and is dried for a specified heating cycle, under controlled temperature to drive away any moisture. After drying, the assembly is put inside the prefabricated tank, clamped and filled with filtered, dehydrated Transformer oil. All electrical connections are made and complete set of fillits and required accessories are fitted. The Transformer after painting becomes ready for testing.

STANDARD FITTINGS

- RATING & DIAGRAM PLATE
- EARTHING TERMINALS
- LIFTING LUGS
- OIL LEVEL INDICATOR
- PRESSED STEEL RADIATORS
- DRAIN CUM BOTTOM FILTER VALVE
- OIL CONSERVATOR WITH DRAIN PLUG
- OIL FILLING HOLE WITH PLUG ON CONSERVATOR
- DOUBLE DIAPHRAGM EXPLOSION VENT
- PRESSURE RELIEF VALVE
- AIR RELEASE PLUG
- SILICA GEL BREATHER
- UNI/BI-DIRECTIONAL ROLLERS
- EXTERNALLY OPERATED OFF CIRCUIT TAP CHANGING SWITCH
- FIRST FILLING OIL

OPTIONAL FEATURES :

- OIL TEMPERATURE INDICATOR WITH ALARM & TRIP CONTACTS
- WINDING TEMPERATURE INDICATOR WITH ALARM & TRIP CONTACTS
- BUCHHOLZ RELAY WITH ALARM & TRIP CONTACTS
- LV AND /OR HV CABLE BOX
- PRESSURE RELIEF VALVE WITH TRIP CONTACT
- MAGNETIC OIL LEVEL GAUGE WITH ALARM CONTACT
- MARSHALLING BOX
- ON LOAD TAP CHANGER (OLTC)
- RTCC PANEL
- BUS DUCT CHAMBER ON LV SIDE
- DISCONNECTING CHAMBER ON HV SIDE
- JACKING PADS & PULLING EYES



**Transformer with
Off Ckt.
Tap Changer**



**Internal View of
Transformer**



Transformer with OLTC

NEED OF THE HOUR: DYNAMIC'S SERVO VOLTAGE STABILIZER

Demand of power in our country is continuously increasing day by day, the electricity boards and other power utilities are also increasing their transformers and distribution network. In spite of efforts by the power utilities, a gap between power generation and T & D has increased due to inadequate investment on T & D. As a result, T & D lines are not only

incapable of carrying additional power, but also forced to have high line losses through lengthy feeders causing heavy voltage fluctuations at consumer's end. This low voltage is applied to all electrical machines like Transformers, Motors, CNC Machines and other precision electrical gadgets causing damage to the equipment.

GENERAL TREND OF VOLTAGE ROUND THE CLOCK

360V-400V	400V - 420V	360V-400V	400V-440V	420V-460V	400V-440V
9AM to 1 PM	1 PM to 2 PM	2 PM to 6 PM	6PM to 11 PM	11 PM to 6 AM	6AM to 9 AM

NOTE: Give us a call, we can install Data Logger to monitor the voltage trend round the clock and during working days as well as on weekends at your site. Based on the data collected, best suited (technically as well as commercially) Servo Stabilizer is offered.

DISADVANTAGES OF FLUCTUATING VOLTAGE:

1. High Electricity Consumption
2. Low Power factor since capacitor banks installed by the consumers fail to compensate the reactive power at desired level. Therefore, consumers are penalized to pay penalties, even without utilizing the power.
3. Frequent breakdowns in manufacturing equipment like CNC machines, Motors etc due to high or low voltage.
4. Loss of production
5. Increase in rejection of finished products
6. Increase in diesel consumption as the consumer has to switch over to costlier DG Power Supply due to low/ high voltage or some breakdown in the machines
7. Reduces the life of equipment drastically.

PAY BACK PERIOD

Dynamic's Automatic Voltage Stabilizer, in addition to protecting your costly equipments from High/Low Voltage, also saves energy upto 30% (depending upon several factors). It also reduces the breakdowns in the plant resulting in continuity of production with uniform quality of end product.

Because of its high efficiency and other advantages, the payback period for the cost of Stabilizer is generally 12 months to 24 months depending upon the nature and duration of load and input voltage fluctuation range.

SALIENT FEATURES:

1. Stepless on load Rolling Contact Type Regulator
2. Designed for 100% Continuous Duty Cycle
3. No Waveform Distortion
4. Very High Efficiency
5. Negligible maintenance
6. Dimensions can be customized as per available space.

ADVANTAGES OF DYNAMIC'S SERVO VOLTAGE STABILIZERS :

1. Reduction in breakdown of Electrical Equipment between 60-80% depending upon the input voltage fluctuation and working hours of plant.
2. Reduction in MDI
3. Energy Saving between 10% to 30 % depending upon the input voltage variation and working hour of plant.
4. Improvement in Power Factor.
5. Uniform quality of End Product
6. Less Breakdown in plant resulting in increased productivity.

APPLICATIONS

1. Engineering Industries
2. Cold Storage Units
3. Plastic Moulding Industries
4. Flour Mills
5. Tube Mills
6. Paper Mills
7. Cement Plants
8. Pharmaceutical Unit
9. Rolling mills
10. Textile Industries
11. Footwear & Leather Units
12. Rubber Mills
13. Rice Mills
14. Food Processing Units
15. Hospitals
16. Hotels
17. IT Companies
18. Educational Institutes
19. High Rise Buildings
20. Malls & Multiplex
21. Residential Use

All the accessories shown are not the necessary part of standard equipment.

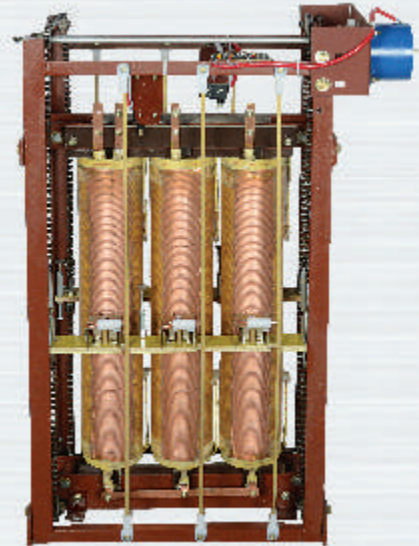
ROLLING CONTACT TYPE SERVO VOLTAGE STABILIZERS

Dynamic's LT Servo Voltage Stabilizers are auto wound Transformers having Helical Coils made out of Copper Strip, mounted on a conventional Laminated core (whereas most of the manufacturers in the market use wire wound coils on toroidal core called variac).

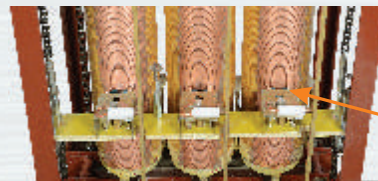
Carbon Rollers assembled on a fibre glass carrier board traverse the length of the coil, as shown in the picture (whereas in variac type stabilizers, ordinary carbon brushes are used which slide on the wire wound coils, while correcting the voltage resulting in more wear and tear).

These rollers are connected to the output terminals and as they are driven over the track, a variable voltage is obtained.

The variation of more than $\pm 1\%$ of the rated output voltage is sensed through Microprocessor Based Controller which sends signals to the Servo Motor which further drives the Rollers upward or downward, so as to increase or decrease the voltage to the required level.



Internal View of Regulator



Carbon Roller

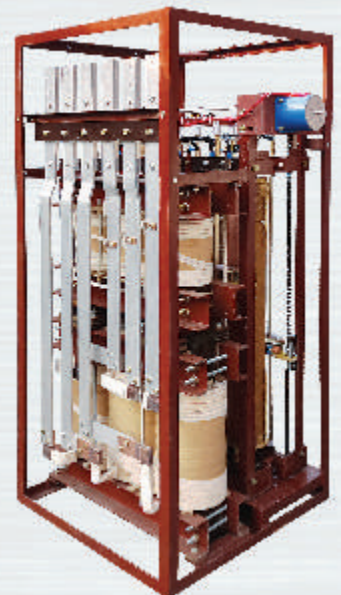
This Roller type Technology along with use of heavy section Copper strip ,results into very high efficiency of the Stabilizer to the tune of 98% to 99.5% depending upon the input Voltage Range and negligible maintenance.



Industrial Servo Voltage Stabilizer

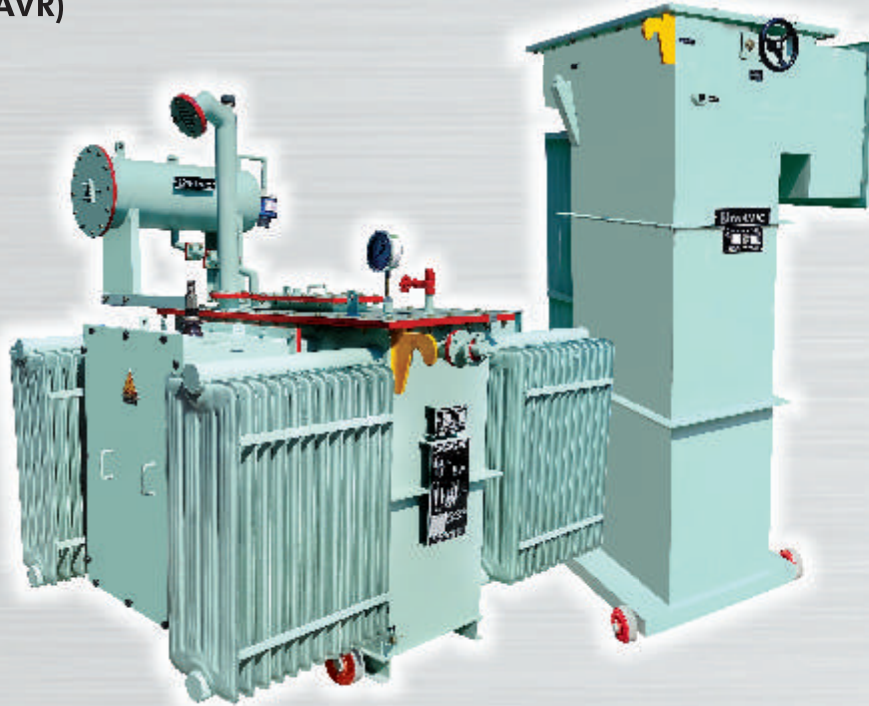


Domestic Voltage Stabilizer



Internal view of Voltage Stabilizer

HT AUTOMATIC VOLTAGE STABILIZER (Also known as HT AVR)



As the name speaks itself, these stabilizers are used to stabilize the voltage on 11KV or 22KV or 33KV side itself i.e. before distribution transformer.

The fluctuating HT Voltage received from electricity authority is stabilized by the HT Stabilizer with accuracy of $\pm 1\%$ and then fed to the transformer resulting in the stabilized LT Output within $\pm 1\%$ accuracy.

Many People remain under the fear that stabilizing voltage on HT Side is dangerous and requires more maintenance and highly skilled technician is required to do preventive maintenance of the same, but this is not true at all.

Rolling Contact type Regulator used is the same as used in LT Stabilizer. Servo Motor and Microprocessor based controller are also same as in case of LT Servo Voltage Stabilizers.

WORKING PRINCIPLE OF VOLTAGE STABILIZATION ON H.T. SIDE : DYNAMIC'S ON LOAD VOLTAGE REGULATOR

Dynamic's On Load Stepless Automatic Voltage Regulator works with the principle of auto transformer, tapped continuously by means of rolling contact mechanism moved by servo motor (which receives signal from electronic controller to move clockwise or anticlockwise) for stabilizing output voltage

continuously. Correction of voltage is also possible by raise /lower push buttons (i.e. manual operation) if electronic controller starts malfunctioning.

If both automatic and motorized controls fails, correction of voltage is possible by means of a Hand Wheel.

The Complete Unit consists of 4nos. integral units :

- A) Step-Down Transformer – Double Wound
- B) Voltage Regulator Unit is auto wound delta connected with rolling contact capable of moving on the winding through automatic /motorized /manual mechanism for regulation of voltage at output.
- C) Buck Boost Transformer – Double Wound
- D) Microprocessor Based Controller

The Step-down Transformer (A) steps down the H.T. Voltage to low voltage for supply to voltage regulator (B). The Voltage Regulator in turn feeds requisite voltage to the primary winding of Buck Boost Transformer (C). The Buck Boost Transformer

which is a conventional fixed ratio transformer gives requisite voltage at secondary side which is added or subtracted (being in series with the primary of step down transformer) in the incoming H.T. Voltage.

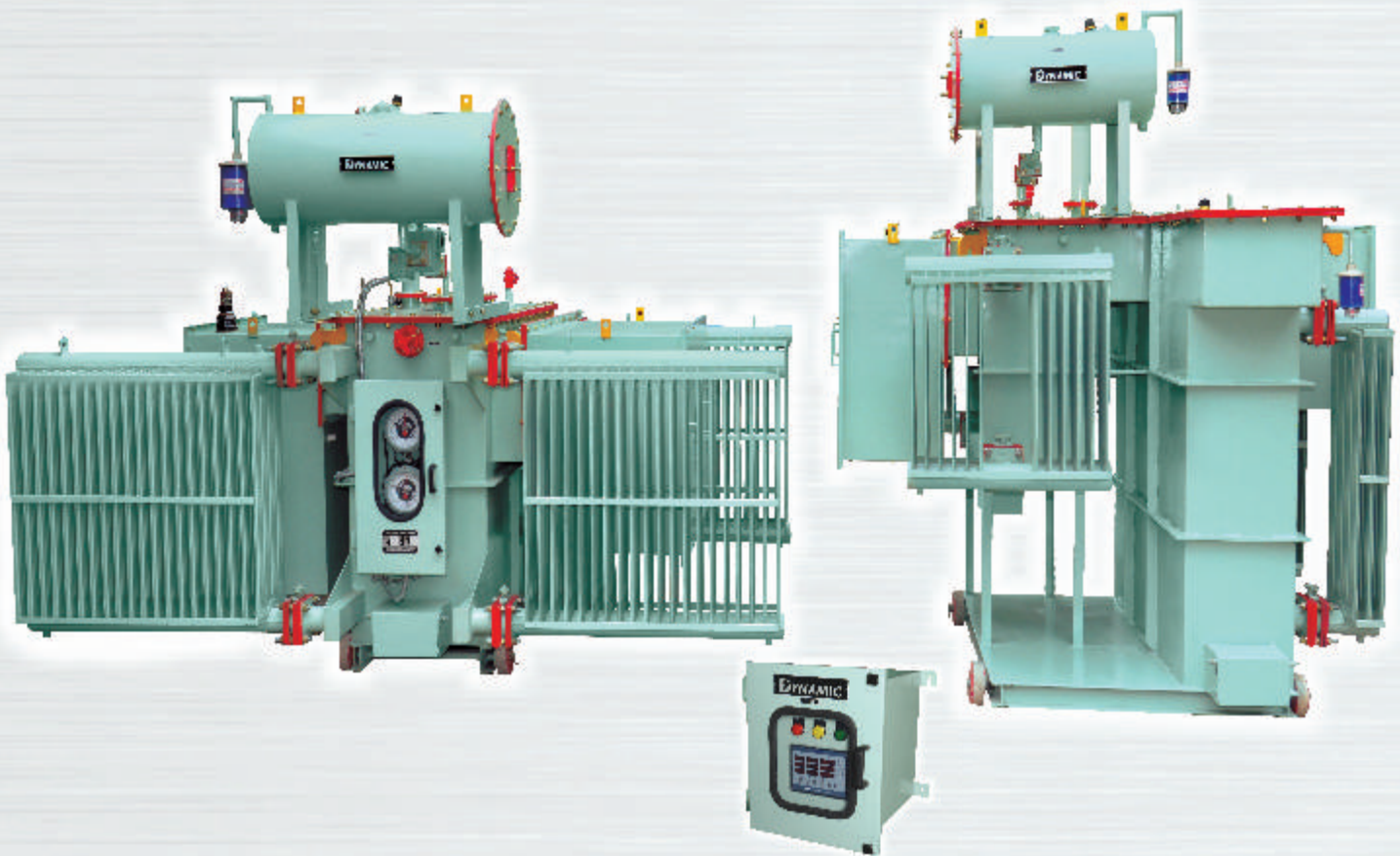
The variation of more than $\pm 1\%$ of the rated output voltage of the Stabilizer are sensed through Micro Processor Based Controller (D) which sends signals to the controlling servo motor (M) which further drives the roller mechanism in such a direction so as to increase or decrease the voltage and stabilize it to the rated output voltage.

DISTRIBUTION TRANSFORMER WITH BUILT IN HT AVR (i.e. Combo)

This Equipment is basically a combination of HT Servo Stabilizer & Standard Distribution Transformer. The incoming fluctuating HT Supply is stabilized and then fed to the step down transformer & thereby the output voltage level is maintained within $\pm 1\%$ accuracy.

This Equipment has following added advantages:

- **Better Efficiency.**
- **Space Saving.**
- **Reduced Installation Cost .**
- **100% Utilization of transformer capacity.**
- **Energy Savings resulting in Electricity Bills.**



ADVANTAGES OF DYNAMIC MAKE TRANSFORMER WITH BUILT-IN HT AVR OVER CONVENTIONAL TRANSFORMER WITH OLTC

Conventional Transformer with OLTC	Transformer with Built-in H.T. AVR
Stepped Correction by OLTC over a varied period depending upon no. of taps changed (8 to 10 sec. per taps with a time delay of 20 second).	Voltage Stabilization is stepless, continuous & smooth.
In OLTC normal range is +5% to -15% or +10% to -10% .(i.e. 9.35 KV to 11.55 KV or 9.9 KV to 12.1 KV)	DYNAMIC Make H.T. Automatic Stabilizer can be designed for any input voltage range i.e. 9 KV – 12 KV / 8 KV -12 KV / 9 KV – 13 KV / 8.5 KV -11.5KV etc. as per customer's requirement.
Life of OLTC is considered to be 5,00,000 operations in On Load position. Because of frequent change in input Voltage, life of OLTC is substantially reduced, particularly at sites where power supply is from rural feeders.	The carbon rollers move on helical coils mounted on a conventional laminated core which is a smooth process resulting in very long Life of the equipment.
The number of moving parts are more, therefore wear & tear of the same is more e.g. moving contacts, fixed contacts gear trains, resistors. Maintenance cost is more and takes more time.	Periodic maintenance is less because the rollers are the only component which undergoes wear & tear. Replacement cost of the same is very less and takes less than hour.
The mechanical movement of the different parts causes spark at each change of tapping as OLTC is fitted on high voltage winding which contaminates the transformer oil by carbonizing it. Periodic change of oil is required which is expensive as well as time consuming.	The roller on the winding of the regulator, which is at low voltage, does not cause spark while moving, which prevents the transformer oil from contamination. Hence periodic change of oil is not required.

All the accessories shown are not the necessary part of standard equipment.

SILICON RECTIFIERS

Rectifier is a device that converts AC Supply into DC Supply. Dynamic's Silicon Rectifiers are widely used in Electroplating, Anodizing, Hard Anodizing and other so many electrochemical processes.

RANGE

A wide range starting from 25Amps to 15000Amps at different output voltages as per customer's requirement. Available in two different models depending upon the variation in the DC Output Voltage i.e. 40% to 100% in 15 steps by two rotary switches and 0 to 100% stepless On load control by voltage regulator.



**Precious
Metal Coating
Rectifier**



High Rating Rectifier Equipment



Standard Rectifier



Economic Rectifier

SOME STANDARD RATING:

On Load Volts	DC Output Amperes							
8	250	500	750	1000	1500	2000	3000	upto 15000
12	250	500	750	1000	1500	2000	3000	upto 15000
16	250	500	750	1000	1500	2000	3000	upto 15000
20	250	500	750	1000	1500	2000	3000	upto 15000
24	250	500	750	1000	1500	2000	3000	upto 15000
80	250	500	750	1000	1500	2000	3000	upto 5000

- Non Standard ratings are quoted on specific demand.
- For ED Coating 300V to 400V Rectifiers are required.
- For Electrophoretic 80V to 150V Rectifiers are required.

APPLICATIONS :

- Electroplating
- Anodizing
- Hard Anodizing
- Hard Chrome Plating
- Etching
- Electrophoretic
- ED Coating
- Hydrogen Gas Production
- Chlorine Gas Production
- Annealing
- Furnace & Heating Furnace
- Other Electrochemical Processes

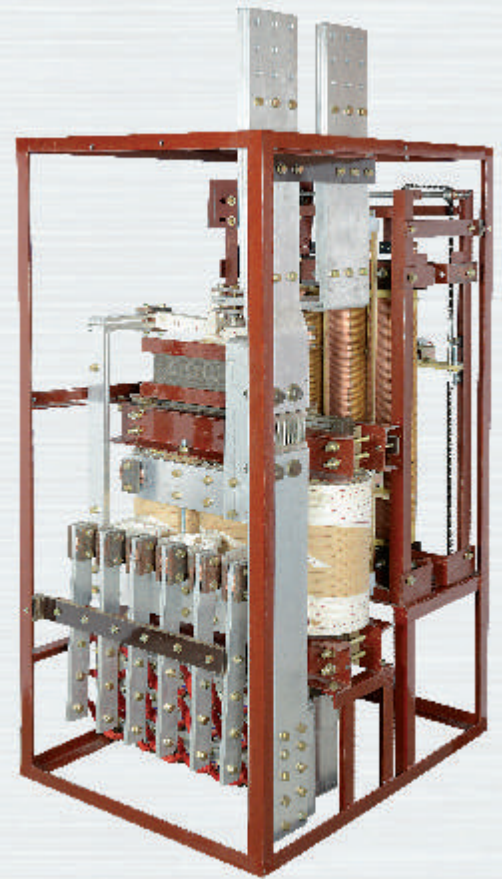
SPECIAL FEATURES:

SOME SPECIAL FEATURES WHICH DIFFERENTIATE 'DYNAMIC' FROM OTHER REPUTED MAKES IN THE MARKET.

1. All Dynamic Rectifiers are provided with DC shunt of proper rating for accurate measurement of DC Current for uniformity in quality of your end product, instead of calibration (which may not be effective after some years of operation).
2. All Dynamic Rectifiers are mounted on Nylon Wheels instead of Cast iron wheels which go rusty after some period of use.
3. All Dynamic Rectifiers are provided with Digital Voltmeter and Digital Ammeter for measurement of DC Voltage & DC Current more accurately.
4. All Control Panels (Optional), if supplied by us, are powder coated instead of general spray paint.

OPTIONAL FEATURES :

- Control Panel Consisting of customized items like MCCB/ Contactors / Timer / Buzzer / CVC / CCC etc.
- CVC (Contant Voltage Controller).
- CCC (Constant Current Controller).
- DC Overload Tripping.
- Minium Run Down Facility.
- Signals for PLC Compatibility.



Internal view of Rectifier

5. RC network of Synchronous Motor is fitted on the top cover enclosed in the meter panel/junction box in order to reduce maintenance time of taking out the whole Rectifier assembly in DRC Model .
6. All Dynamic Equipment are provided with autocat polyester light weight body filler instead of normal enamel putty used by others for better finish.
7. OUR DESIGN IS SUCH THAT ALMOST 80% OF THE MAINTENANCE WORK (LEAVING APART DIODE REPLACEMENT OR SOME FAULT IN THE COIL) CAN BE DONE WITHOUT TAKING OUT RECTIFIER TRANSFORMER ASSEMBLY WHICH INVOLVES LABOUR AND PRECIOUS TIME RESULTING IN PRODUCTION LOSS.

ULTRA ISOLATION TRANSFORMER

Ultra Isolation Transformers are made of electrolytic grade copper and cold rolled grain oriented lamination with copper shield separating the primary to the secondary winding, in order to clear the high end surges and spikes coming from incoming supply or generated from the inside distribution systems.

Dynamic offers high quality Ultra Isolation Transformers suitable ideally for the sophisticated CNC Machines, Bio-Medical Equipment, Printing Machinery, Large Computer Installations, Telecommunication Equipment, Scientific Equipment etc for suppressing the surges and spikes at the maximum level.

Specifications :

System Connection	Delta/Star or Star/Delta
Ratio	1:1 OR 2:1
Regulation	better than 3.5%
Power Factor	0.75 lag to 0.75 lead
Dielectric Strength	2500 V AC for 120 sec
Insulation Resistance	more than 1000 mega ohm
Coupling Capacitance	0.1 pF for 100 db

RATING : 25 KVA to 1000 KVA

APPLICATIONS

Dynamic's Ultra Isolation Transformers are used to reduce the effects of power line problems like spikes, surges and neutral to a minimum.

Due to Inductive loads, capacitive loads, electronic ballasts, the present AC Power lines are superimposed with dangerous spikes, surges, transient and harmonics resulting in failure of electronic equipment.

With Dynamic's Isolation Transformers, the precious electronic equipment can be protected.



Ultra Isolation Transformer

OTHER PRODUCTS



Electro Colouring Transformer



Special Purpose Transformer



Furnace Transformer



Continuous Variable Auto Transformer

TESTING & QUALITY CONTROL

We, at Dynamic, is obsessed with quality and has made quality improvement a continuous endeavor. Keeping in mind our primary objective of client satisfaction, we use the best quality raw materials, which makes our products highly efficient and reliable.

To maintain consistently high quality, all the facilities like winding, core cutting, assembling, fabrication, and painting are done in-house. Every product is tested at various manufacturing stages to maintain quality and performance at our client's end. This testing is also done at our in-house

testing facility which again helps in maintaining consistently high quality.

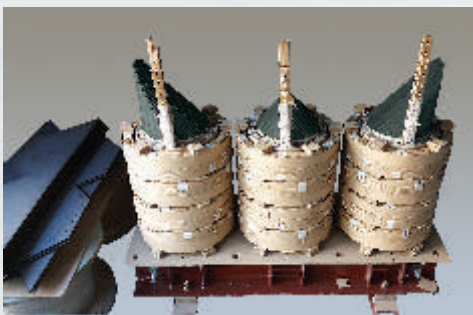
The company also involves itself into ground breaking R&D work and inculcation of new technologies to the manufacturing process. The company has a team of highly qualified and experienced design engineers and skilled design draftsman, trained in advanced software who help in creation for customized and more efficient designs for better productivity.



Each equipment is declared fit for dispatch after passing the under mentioned tests :

1. Measurement of Insulation Resistance
2. Separate Source Voltage Withstand Test (HV Test)
3. Induced Over Voltage (DVDF) Test
4. Measurement of Voltage Ratio, Polarity and checking of Vector Relationship
5. Measurement of No Load Losses and No Load Current
6. Measurement of Short Circuit Impedance and Load Loss
7. Measurement of Winding Resistance
8. Oil Dielectric Test (BDV of Transformer Oil)

MANUFACTURING CAPABILITIES



www.dynamicenergy.in

Note: Illustration & specifications are subject to change without prior notice.



DYNAMIC ENERGY SOLUTIONS

(An ISO 9001 : 2015 Certified Company)

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