



# ADDITION POWER

CUSTOMER CHOICE



CONSERVE ENERGY  
TO PRESERVE FUTURE  
SAVE ENERGY



# ADDITION POWER

CUSTOMER CHOICE

**DISTRIBUTION TRANSFORMER**  
**(11KV & 66KV Voltage Class) With OLTC & HT-AVR**

**RANGE : 63 KVA T 5000 KVA**

## PRODUCT RANGE

Power & Distribution Transformer 63 KVA to 5000 KVA in 11KV, 22KV & 33KV voltage class.

## STANDARDS

**ADDITION POWER** transformer are designed and tested as per IS : 2026, IS : 1180, BS-171, IEC-76 & IEC-726.

## VECTOR GROUP

Transformer will be connected as per vector group reference Dyn 11, Other vector groups can be offered as per specific requirements.

## STANDARDS FITTINGS

- Monogram plate
- Rating and diagram plate
- Earthing terminals - 2 Nos
- Lifting lugs
- Jacking Lugs (500 KVA & above)
- Prismatic glass oil level indicator
- Drain-cum bottom filter valve with plug
- Oil filling hole with plug on conservator
- Oil filling hole with plug on conservator
- Oil conservator with drain plug
- Air release plug
- Silicagel air breather
- Bi-directional flat rollers
- HV terminals-outdoor bushings
- LV terminals-outdoor bushings
- LV additional neutral-1 No. outdoor bushing without socket (for star connected enclosed LV terminals)
- Pressed sheet radiators (tank mounted upto 1000 KVA and detachable thereafter)
- Filter valve with plug
- Thermometer pocket
- Oil temperature Indicator
- Externally operated off circuit tap changing switch
- Sampling valve (for 2000 KVA & above Trf. only)



**1000 KVA Distribution Transformer**  
**11KV Class with OLTC**  
**(Outdoor Type)**

## DISTRIBUTION TRANSFORMER

### ACCESSORIES (OPTIONAL)

- ✓ LV and HV cable boxes
- ✓ Winding temperature indicator
- ✓ Buchholz relay
- ✓ Magnetic oil level gauge
- ✓ Marshalling box
- ✓ Disconnecting chamber
- ✓ Oil temperature indicator with electrical contacts
- ✓ Pressure relief valve with electrical contacts
- ✓ OLTC, AVR & RTCC

## TERMINAL ARRANGEMENTS

H.V. - Bare Bushings or Cable Box, L.V. - Bare Bushings or Cable Box. Disconnecting chambers can also be provided on both HV and LV Cable boxes.

## TEMPERATURE RISE

**ADDITION POWER** Transformers are designed for a maximum temperature rise of 40/45 °C of oil / winding. Lower temperature rise can be offered on request.

## SUPERIOR FEATURE OF ADDITION POWER MAKE DISTRIBUTION TRANSFORMER

### CORE

The core is constructed from low loss, cold rolled, grain oriented, annealed laminations of electrical sheet steel conforming to the latest international standards. Special frame is built in-house for clamping the core to reduce the magnetic noise as well as making the whole structure rigid and robust.

### WINDINGS

Coils are wound with electrolytic high conductivity paper covered or synthetic enameled copper conductors. Cooling ducts are provided to keep the hot spot temperature as low as possible. Coils are dried in electric ovens. Rigid connection support and coil clamping is provided to ensure high short circuit strength.

### INSULATION

Precompressed board PARMALI board and JAPANESE insulation paper of best quality is used

### TAPPING

#### A. OFF CIRCUIT TAP CHANGING SWITCH

Tapping from  $\pm 5\%$  to  $-5\%$  in steps of 2.5% for HV variation or as per customer's requirements

#### B. ONLOAD TAP CHANGER

Tapping range as per specific requirements can be offered. OLTC for remote / auto / parallel operation can also be offered.

### OIL

Oil is tested for resistivity, dielectric and acidic characteristic conforming to IEC - 296/IS-335. Before topping up, oil is filtered throughly.

### TANKS

The tanks are made of M.S. Steel plates / sheets with adequate bracing & stiffeners. Tanks are pressure tested to withstand any type of inside or outside pressure. All the external surfaces are given a primary coat of zinc chromate, red oxide and two finishing coats of grey paint. The inner surfaces are given a coat of heat and oil resisting paint.

### PAINTING

All the external surfaces are given a primary coat of red oxide and two finishing coats of paints. Paints and enamel varnish used confirm to IS: 104 & 2932.

### TERMINAL ARRANGEMENT & BUSHING

Following arrangements are provided: (a) H.V. - Bare of cable box bushings (b) L.V. - Bare or cable box bushings, disconnecting chambers can also be provided on both HV & LV cable boxes. Bushing conforms to IS: 3347, 2099, HV/LV bushing terminals of brass/copper conformers IS: 3347 Section-II metal part.

### GASKET & JOINTS

All gaskets used for making oil tight joints to be with cork as base banded by oil resisting synthetic material or rubber. Neoprene rubber is used for oil tight joints for HV & LV terminals. The gaskets conformers to IS: 4253, Part-II-1980 (Reaffirmed 1999) NC 777, RC 70C.





# ADDITION POWER

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**500 KVA INDOOR BALANCE TYPE  
SERVO VOLTAGE STABILIZER**

**SERVO VOLTAGE STABILIZERS  
(CAPACITY 5 KVA TO 7000 KVA)**

## INTRODUCTION

In spite of best efforts, no state electricity board can ensure constant voltage to the customer because of long and inadequate distribution lines and irregular load pattern on distribution transformers.

Generally Voltage is low during day time and high during night hours.

Moreover on holidays peak hours, rainy days and when agricultural and Industrial load is switched off, the voltage rises sharply which is more dangerous.

## THIS HIGHER CURRENT AFFECTS THE ELECTRICAL MOTORS (PARTICULARLY SMALLER CAPACITY MOTORS UPTO 7.5 H.P.) IN THREE WAYS:

1. Higher current produces higher losses in electrical motors which causes premature failure of winding.
2. These higher losses of electric motors also increase the losses of cables, switches, transformers and other associated equipments.
3. For smooth continuous operation of motors, over load relays are usually set at 20% higher setting. With the installation of the stabilizer and maintaining 390/400 volts, the motor will operate smoothly drawing. In case single phasing occurs, the relay will trip in 40-50 seconds. The motor can withstand the high current for this period and will be safe. Also, the relays, contractors, switch gears, etc. incorporated with the motor will be safe.



**630 KVA INDOOR BALANCE TYPE  
SERVO VOLTAGE STABILIZER**



## COMPARISON BETWEEN ADDITION POWER MAKE & CONVENTIONAL DIMMER TYPE SERVO VOLTAGE STABILIZER

### ADDITION POWER MAKE ROLLER TYPE REGULATOR

- ☑ Electricity 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 roll, 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 Warrantee.

### DIMMER TYPE WITH FLAT CARBON BRUSH REGULATOR

- ☒ Electricity 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.

### APPLICATION :

Though stabilizer are useful for any kind of application, there are most suitable for 24 hours continuous process plants where breakdown due to fluctuation results in heavy financial losses. These include:

- ➔ CEMENT PLANT
- ➔ FLOUR MILLS
- ➔ CLUBS
- ➔ ENGINEERING UNITS
- ➔ HOTELS
- ➔ PHARMACEUTICAL UNITS
- ➔ ROLLINGS MILLS
- ➔ RICE SHELLERS
- ➔ TUBE MILLS
- ➔ TEXTILE MILLS
- ➔ PAPER MILLS
- ➔ RUBBER INDUSTRIES
- ➔ COLD STORAGEES
- ➔ FOOD PROCESSING UNITS
- ➔ HOSPITALS & NURSING HOME
- ➔ TEA ESTATE
- ➔ FOOTWARE & LEATHER UNITS
- ➔ DISTILLERIES & BEVERAGES
- ➔ OIL & VANASPATI PLANTS
- ➔ HIGH RISE BUILDERS

## THE TABLE BELOW GIVES APPROXIMATE QUANTITATIVE ADVANTAGES OF AUTOMATIC VOLTAGE CONTROLLER AT VARIOUS FLUCTUATION LEVELS:

Input Voltage Variation	% reduction in breakdown Motor Load Below 10 HP.	Possible Lighting Load	Approx. Power Saving Motor Load Below 10 HP.	Possible Lighting Load
380-400 volts	Nil	Nil	Nil	Nil & No. Servo Stabilizer Required
380-420 volts	5%	10%	3%	5%
380-440 volts	10%	20%	5%	10%
380-460 volts	40%	40%	7%	20%
380-480 volts	60%	60%	10%	30%

### TECHNICAL SPECIFICATIONS

ADDITION POWER Stabilizer are available in a wide range and various model. The standard three phase models are suitable for balanced and unbalanced supply and loads.

The standard models conform to the following specification :

Input Voltage	360-460 V	360-460 V	320-480V	300-480V
Efficiency (as per calculated)	99.58%	99.35%	99.0%	98.7%
Output Voltage	400V+ 1%, 3 phase, 50 Hz			
Cooling	Naturally Oil Cooled			
Type	Indoor			
Temperature Rise (Max)	35°C above ambient			
Mounting	On Ui-directional Whell			
	Nil			
	100% Continuous			

**THE TABLE BELOW COMPARES THE BEHAVIOUR OF H.P. MOTOR AT DIFFERENT VOLTAGE:**

INPUT VOLTAGE	CURRENT	KVA	P.F.
400	7.5 A	5.2	0.8
425	11% More	18% More	0.7
435	19% More	28% More	0.61
445	26% More	38% More	0.57

**THE TABLE BELOW COMPARES THE BEHAVIOUR OF 60 WATT LAMP AT DIFFERENT VOLTAGE :**

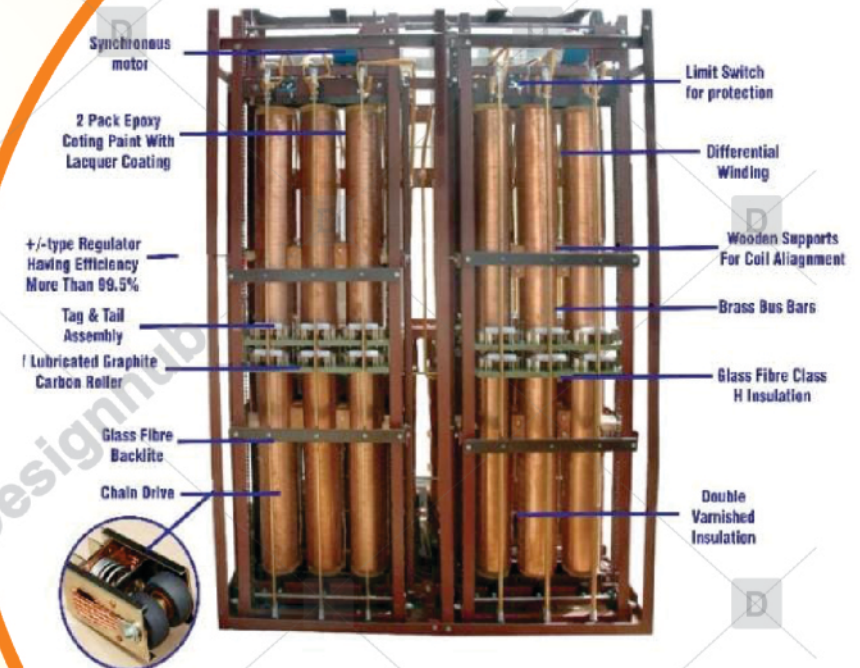
VOLTAGE	CURRENT	WATTS	LUMINOUS INTENSITY	LIFE IN HOURS
230	0.26	60W	710	1000
240	0.27	65W - 8.3% More	820	575
250	0.28	70.6-17.6% More	943	338
260	0.29	75.4-25.6% More	1073	200
270	0.31	83.4-39% More	1213	100

**LOSS COMPARISON OF ADDITION POWER MAKE REGULATOR AND CONVENTIONAL MAKE REGULATOR :**

CAPACITY	ADDITION POWER MAKE ROLLER TYPE REGULATOR LOSSES	CONVENTIONAL MAKE CARBON BRUSH TYPE DIMMERSTAT LOSSES
60 A	575 W	1050 W
75 A	730 W	2055 W
100 A	900 W	3105 W

**ADVANTAGE**

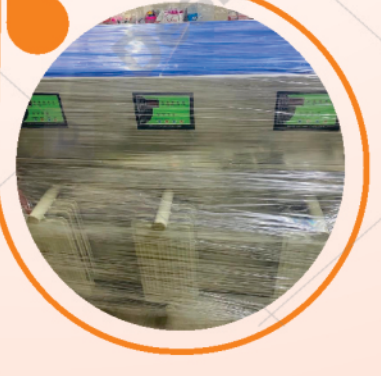
- Reduction in Breakdown of Electrical Equipments
- Improvement in Power Factor (only in Case of High Voltage)
- Power Saving (reduction in Power Bills)
- Depreciation as per Income Tax Act. in India
- Uniform Quality of end Products
- Better Efficiency in Plant
- Reducation in MDI



**Roller Servo Stabilizer 4500 kVA**



**SAVE THE  
NATION BY  
SAVING  
ENERGY**





# ADDITION POWER

AN ISO 9001:2015 CERTIFIED CO.

Plot No. 16, Village Makhan Majara,  
Near Sampark, Chandigarh - 160101  
Mobile : +91-79861-23582, 85568-35241



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