



An ISO 9001 : 2008 COMPANY



# Reliable

*Transforming The Future of Voltage Regulation Technology*



**2 MVA HT AVR**

**RELIABLE • MORE EFFICIENT • ADVANCED TECHNOLOGY • FLAWLESS PERFORMANCE**



# Vision

To consolidate our National and International presence as a leading manufacturer of Automatic Voltage Regulator, Power, Furnace and Rectifier Transformers and to achieve multiple growth.

# Mission

To emerge as a preferred solution provider for quality Transformers, Regulating equipments with a team of dedicated professionals and channel partners who are ethical, value driven and create excellent customer relationships.

RELIABLE POWER SYSTEMS founded in 2003 having a team of Engineers having experience of more than 26 years in developing, designing, manufacturing, marketing of Automatic Voltage Regulating Transformers (Stabilizers) HT & LT, Silicon Power Rectifiers, Distribution - Power Transformers, HT & Built in AVR's, Isolation & Dry type Transformers, Electrical Control Panels & other Electrical Equipments.

A long experience and technical development have made RELIABLE competitive and technologically upto date. Beyond the standard products RELIABLE POWER SYSTEMS is organized to be extremely flexible in developing and manufacturing special regulating Transformers according to user's specifications.

The belief that Product quality and customer satisfaction are the basis for a modern organization led to the implementation of an ISO 9001:2008 approved quality system.



## PRODUCT RANGE

DISTRIBUTION / POWER TRANSFORMERS	SINGLE PHASE: UPTO 150 KVA BOTH 11 & 33 KV CLASS
	THREE PHASE: UPTO 40 MVA 66 KV CLASS
TRANSFORMER WITH OLTC ARRANGEMENT	UPTO 20 MVA OLTC 33 KV CLASS
FURNACE TRANSFORMERS	UPTO 10 MVA 33 KV CLASS
DRY TYPE TRANSFORMERS (VPI):	UPTO 5 MVA 33KV V CLASS
EARTHING TRANSFORMERS	UPTO 2 MVA 11 KV CLASS
VARIABLE TRANSFORMERS	UPTO 10 MVA 11 KV CLASS
ISOLATION TRANSFORMERS	UPTO 5 MVA LOW VOLTAGE CLASS
SPECIAL PURPOSE TRANSFORMERS	: Any kind of step up /DN Transformers for LT/HT supply
SERVO VOLTAGE STABILIZERS	UPTO 7000 KVA FOR LOW VOLTAGE CLASS
RECTIFIERS FOR DC APPLICATIONS	UPTO 20.000 DC AMPS
HT AUTOMATIC VOLTAGE STABILIZERS	UP TO 7.5 MVA 11/33KV CLASS
HT TWO IN ONE COMBO SYSTEM	UP TO 7.5 MVA 11/33KV CLASS



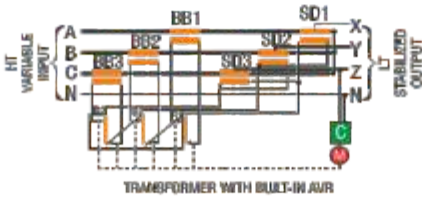
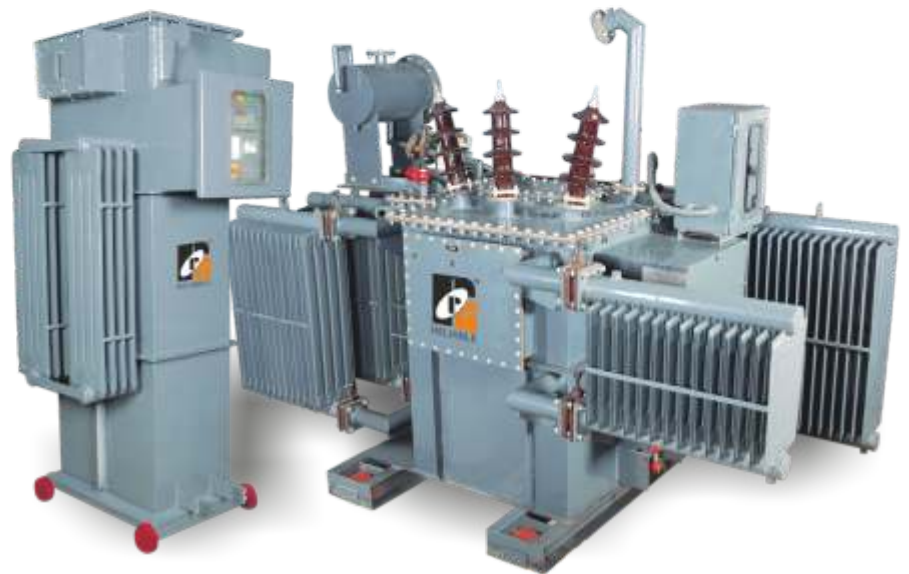


## H.T. Transformer with BUILT IN Automatic Voltage Stabilizer

It is a very altogether different product basically a combination of Standard Distribution Transformer and HT Automatic Voltage Regulator. The Standard Transformer with OLTC can correct limited voltage variation in certain steps where as Built-in operates steplessly monitoring the output voltage continuously. The incoming fluctuating H.T. supply is initially stabilized and then fed to the stepdown transformer and thereby the L.T. Output is maintained within  $\pm 1\%$  accuracy. Built - in has the following advantages:

- Space saving
- Reduced Installation cost
- More efficiency
- Reduction in Electricity Bill

1000 KVA HT Transformer with BUILT IN Automatic Voltage Stabilizer (2 in 1)



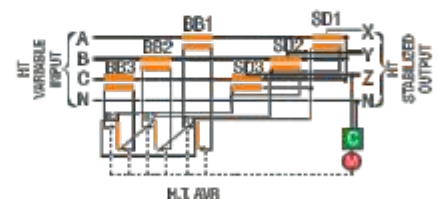
## H.T. Automatic Voltage Stabilizer

2000 KVA HT AVR



HT AVR supplies rated Stabilized Voltage to the Transformer and thereby the utilization of the Transformer will be upto the full rated KVA and is protected from High/Low Voltage fluctuations.

The special features of these AVR is they are ON LOAD, STEPLESS AND ROLLING CONTACT TYPE



- SD = Stepdown Transformer
- BB = Buck Boost Transformer
- R = Regulator
- M = Servomotor
- C = Electronic Control Circuit

# L.T. Automatic Voltage Stabilizer

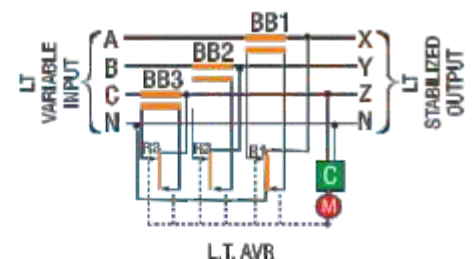
2500 KVA (340-460/400V  $\pm 1\%$ ) L.T. AVR

L.T. AVR being easy to handle are installed in all the running units, units having L.T. connections, units having small H.T. connections. These can be manufactured for Balance Input Voltage and Unbalanced load or Unbalanced Voltage and unbalanced load.

The units are designed for Standard Input Voltage Ranges 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				



## TECHNICAL ADVANTAGES AND APPLICATION OF AUTOMATIC VOLTAGE CONTROLLER (STABILIZER)

### TECHNICAL ADVANTAGES

- Low Replacement Cost
- Undistorted output characteristics ie. no wave from distortion
- Moving parts on L.T. side and it's mass is extremely low, only few lb-inch torque
- Energy savings
- High efficiency (about 99%) and minimum no-load losses
- Simplicity and Flexibility of design
- On load stepless Voltage variation
- Long service life
- Regulating coils are wound with rectangular conductors on their edge, thus giving high mechanical strength compared to other designs

### APPLICATIONS OF VOLTAGE REGULATORS

- ❖ Cement Plants ❖ Flour Mills ❖ Engineering Units
- ❖ Pharmaceutical Units ❖ Cold Storages ❖ Rolling Mills
- ❖ Textile Mills ❖ Paper Mills ❖ Tube Mills ❖ Rice Shellers ❖ Rubber Industries ❖ Food Processing Units
- ❖ Oil & Vanaspati Plants ❖ Footwear & Leather Units
- ❖ Tea Gardens ❖ Distilleries & Beverages ❖ Hospitals & Nursing Home ❖ Clubs ❖ Hotels ❖ High Rise Buildings
- ❖ Furnace Transformers ❖ Test Rooms ❖ Glass Industries
- ❖ Research Stations ❖ Chemical Industries



## Distribution & Power Transformer

RELIABLE offers a complete range of Power & Distribution designed to grant the reliability, durability & efficiency required in utility, industrials commercial application.

RELIABLE's Oil Cooled Transformers are manufactured in accordance with the most demanding industry & international standards.

Transformer can be used for indoor or outdoor application and can be provided with Off-load & On-Load Tap Changer (OLTC) upto 15MVA capacity with 11/22/33KV class.

### Rating:

Single Phase Upto 100KVA 11/22/33KV Class

Three Phase 100KVA -20MVA 11/22/33 KV Class

### Applicable Standard

IS:2026, BS-171, IEC-76 & IEC-726



750 KVA transformer  
11/0.433KV with OLTC

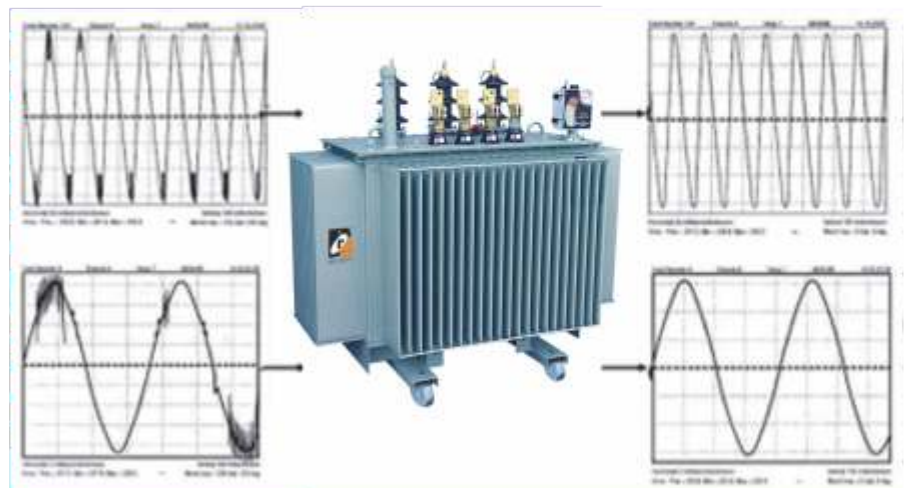


2000 KVA transformer  
11/0.690KV with OLTC

## Ultra Isolation

All the types of electrical noises, predominantly common mode noises can be eliminated by Ultra Isolation Transformers. Since it isolates primary and secondary windings or separates neutral to ground bond on the secondary side, can be used to create separately derived source to combat current loops.

Multiple shielding techniques employed in design to reduce the inter winding capacitance to below 0.005 Pico farad and increase D.C Isolation to over 1000 Megohms.



# DRY TYPE TRANSFORMER

Dry Type Transformers are non-explosive fire resistant, air insulated and cooled by natural circulation of air through ducts provided in the winding. High Temperature and high dielectric insulating material like glass fiber reinforced, Nomex insulation 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

These Transformer are manufactured to comply with the National & International Standard BIS, IS11171, IEC 76

## Description

The winding are made up of Electrolytic Grade, Soft and bright annealed copper conductors covered with nomex insulation 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 fiber 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 plated to clamp & secure the coils adequately. Lifting arrangements is providing on the top yoke frame so that the core and coil assembly is lifted. Off-Circuit Taping if required are provided on HV windings and terminated on Fiber Glass Terminal Board for changing the transformer ration in "Off Circuit" position.

These Transformers are environmental friendly as there is no oil, hence handling becomes easier and there are no chances of spillages & leakages and there is minimal non toxic smoke in case of fire.

## Testing:

All Transformers are tested for routine test. Reliable has in house facility for conduction all routine test.

## Rating

100KVA to 5000KVA, 11/22/33KV Class with Off Circuit Tap Switch & On Load Tap Changer (OLTC)

## Salient Features of Dry Type Transformers

- High Level of safety
- Maintenance free
- No inflammable liquid
- No toxic gases
- Can be placed close to the load
- Higher resistance to short circuit forces using disc wound coils having self locking property
- No partial discharge

Dry Type Distribution Transformer



Core Coil Assembly 200KVA Transformer



Dry Type Automatic Voltage Controller

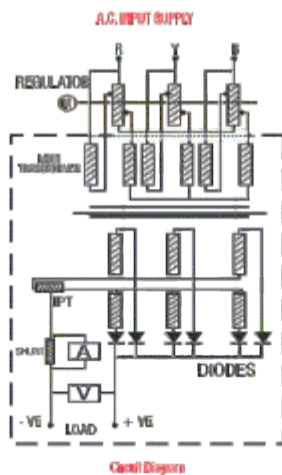


# D.C. POWER SUPPLIES (RECTIFIER)

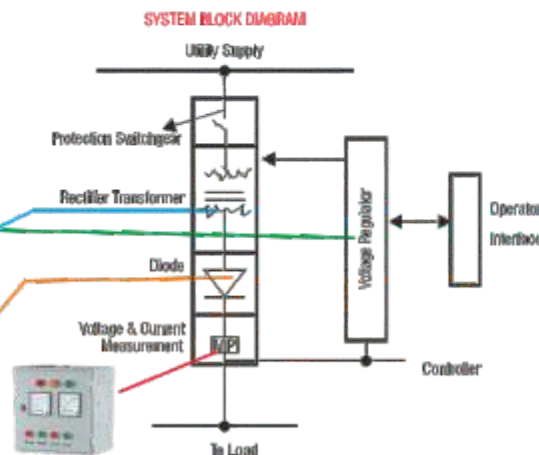
With its easy convertibility from one voltage to another A.C. (Alternating Current) reigns supreme in the generation transmission and distribution Systems. Yet DC (Direct Current)/ DC power supplies for Electroplating Plants, Electro chemical plants, Copper, Aluminium & Zinc Refining all requires modest Voltage and high DC current. DC power is also required in other Industrial processes like Hydrogenation & Electrolysis. Such continuous Power Industries look for a reliable economical and trouble free form of DC Power supply Systems. **RELIABLE** offers a complete range of Rectifier Equipments for all such application and provides Engineering, Design and Technical support in choosing the right solution / Equipment.

## APPLICATIONS

- Electroplating (Chrome Plating, Hard Chrome Plating, Zinc Plating, Nickel Plating, Copper Plating, Gold Plating, Silver Plating etc.)
- Anodizing, Anodized Electro Coloring, Hard Anodizing.
- Heating Furnace, Magnetization, Ionization.
- Electroforming
- Hydrogenation, Electrolysis
- Copper, Aluminium & Zinc Refining



Rectifier 0-12 V/ 2000 A (24 KW)



Rectifier 0-12 V/ 5000 A (60 KW)



Distribution Transformer  
with Off-load Tap Changer



CCA Furnace Transformer



FURNACE TRANSFORMER



Auto & Buck boost  
Transformer Assembly



B4C Regulator



Unbalanced Type AVR



LT Automatic Voltage Regulator

## Reliable Power Systems

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• PROFICIENT

• INNOVATIVE

• CUSTOMER-ORIENTED