



POWERTEK ELECTRICALSTM

An ISO 9001:2015 Certified Company

Manufactures & Exporters

Delivering **POWERFUL** Solution
for your **POWER** Problems

Manufacture & Exporter:

- Automatic Voltage Controller
- Distribution Transformer
- Rectifier
- AC/DC Variable Supplies
- Isolation Transformer
- Special Purpose Transformer





ABOUT US

Powertek Electricals is considered as one of the upcoming name in the field of Electrical & Power equipments for more than a decade. We are engaged in manufacturing Servo Voltage Stabilizers, Plating Rectifiers, Hydrogenation Rectifiers, Isolation Transformers, Ultra Isolation Transformers, HT Two in One Systems, HT Servo Voltage Stabilizers, Furnace Transformers, Distribution & Power Transformers Variable Transformers & Special Purpose Transformer under Powertek's Brand.

Our focus has increasingly broadened to embrace the sustainable development through quality products with full backing support for service after sale.

We have been awarded with An ISO 9001 : 2015 Certification on quality, infrastructure and entire products being manufactured. All our products are passed through various quality test stages to produce state-of-the-art technology product. Our equipments are designed for producing high efficiency at lower costs with lesser payback period.

Enthusiast by this growth and guided by our principles of Creativity, Commitment, Concern, Care and Core values. We continue to create innovative & practical product line that surrounds industries to ushers in a better tomorrow.

We have a very strong customer base in India & exporting our equipments to various countries like South Africa, Angola, Zambia, Ghana, Jordan, Iraq, UAE, Tanzania, Uganda, Kenya, Nigeria, Sudan, Myanmar, Saudi Arabia, Kongo, Afghanistan, Nepal & Bangladesh etc. & are increasing our clientele at a faster pace in other countries.

We have complete marketing offices / franchises in all parts of India.

"Our motto is to give our customer the value for the money of the product & life time services."

OUR BUSINESS

Powertek is one of the leading quality manufactures of wide range of electroplating Rectifiers, Servo Stabilizers, Automatic Voltage Controller, Voltage regulator, Isolation Transformer, Furnace Transformer, Electrical Panel, Distribution and Power Transformer & Special Purpose Transformers designed & manufactured by highly trained engineers manforce.

The name trusted all over India. This trust is built over Shear dedication, hard work & Commitment to quality. The learning acquired over 17 years has been harnessed to offer superior quality product at competitive price.

Being an ISO 9001:2015, certified company, our product is manufactured as per ISO Standards. Today with more than 17 years of experience in the manufacturing of Electrical products, Powertek has grown up in geographical range to become one of the leading manufacturer of Electrical products. Our product comprehensively fulfilled the request of national & international standards specification & their stringent requirement. We manufacture each our Equipment under one roof to achieve better quality. We strive to maintain the quality & uniqueness of our product, keeping our price low & deliver it on a schedule. Our effect has been awarded with repeat orders from private & public sectors, Big Industries, Educational Institutes & Big MNC.

INFRASTRUCTURE

Plants : We have our own state-of-the art manufacturing unit located at Ludhiana, Punjab. We use the latest technology and we keep upgrading the skill sets of our employees so as to keep them up to date with the latest technologies in use.

The right combination of designs, sophisticated technology and dedicated employees has helped us a lot of appreciation all over the world. We have even developed a web-based interface to deal directly with both our domestic and international customers. This will not only improve our efficiency but also increase our goodwill in the market.

Testing & Quality Controls : At each stage of production various quality tests are carried out and then passed on to the next stage. The quality control department monitors all quality parameters and maintain proper documentation. Each machine is carried out all the routine tests like no load, full load, insulation & high voltage test.

Testing Parameters: We are available to owners, consultants, project directors and for almost any type of transformers in our range. We provide reliable and cost-effective solutions, including final design and installation on any project worldwide.

We have over 15,000 installations totalling hundreds of thousands of KVA capacity all over India, powering every type of Industry, city and vital installations. In an increasingly safety conscious world, it is our major responsibility to provide safe, effective and long-lasting solutions.

Each machine is carried out all the routine tests like no load, full load, insulation and high voltage test.

QUALITY POLICY

We endeavour to offer a quality range of transformers, voltage stabilizers, all products and isolation transformers to our clients. These are manufactured using superior quality raw material that is tested at the time of procurement. Our quality controllers conduct stringent tests to ensure the products are in compliance with the IS & CE standards. The range is tested on the following parameters:

- Tensile strength
- Resistance against abrasion & corrosion
- Heat resistance
- Ability to withstand pressure

WHO WE ARE?

We are one of the leading quality manufactures of wide range of products.

- Electroplating Rectifiers
- Servo Stabilizers
- Automatic Voltage Controller
- Voltage regulator
- Isolation Transformer
- Furnace Transformer
- Electrical Panel
- Distribution and Power Transformer
- Special Purpose Transformers



Automatic Voltage Controller



Automatic Voltage controller is an industrial robot, which continuously monitors the voltage variation round the clock and whenever there is any voltage fluctuation, it rectifies to the desired level in few seconds.

The basic purpose of AVC is to maintain the desired voltage and to reduce the breakdown of electrical equipments due to low/high voltage. Power saving, reduction in MDI and improvement of PF will be added advantages.

In India all electrical equipments are designed for 230/400 volts single/three phase. Voltage variation is common phenomenon. The input voltage is generally low during day time and high during night hours. Apart from above, few months in year/few days in a month/few hours in a day - the voltage is either low or high due to the following reasons.

- Holidays
- Peak hours
- Rainy days
- Agriculture load
- Weather conditions etc.

Therefore for smooth function, it is suggested to install AVC with 400 Volts + 15% or 400 Volts + 20% input voltage variation range i.e. 340-460 Volts or 320-480 Volts models.



Inner view of AVC

Check:

1. You check the failure rate of Electrical Equipments such as bulbs, tubes, chokes, motors, contractor coils and electronic equipments etc.
2. You check the voltage variation by installing the digital voltmeter at your security gate and note down the hourly reading of input voltage variation range for few days.
3. Not down hourly reading of current and voltage of one motor operating at constant load for 2-3 days. From the different readings you will observe that the current drawn by the motor is minimum at 390/400 volts as compared to the current drawn at other voltages. This means that power consumed by the motor is minimum at 390 / 400 volts.
4. Also not down hourly readings of voltage and KW from your electronic Energy Meter for 2-3 days. From the readings you will observe that KW is minimum at 390/400 volts in most of the readings as compared to the higher voltage.

If you find that the above collected details are true then you will certainly have the advantages after installing the Servo Voltage Stabilizer as mention below:

The table below gives approximate quantitative advantages of Automatic Voltage Controller at various fluctuation levels

Input Voltage	Approx. Reduction in Breakdown of Electrical Equipments		Approx. Power Saving	
Voltage Variation Bands	Motor Load below 10HP	Lighting Load	Motor Load below 10HP	Lighting Load
380-400 Volts	Nil	Nil	Nil	Nil & No Servo Stabilizer Required
400 - 420 Volts	5%	10%	3%	5%
420 - 440 Volts	10%	20%	5%	10%
440 - 460 Volts	40%	40%	7%	20%
460 - 480 Volts	60%	60%	10%	30%

At Low Voltage

1. At low voltage you will not be able to operate your machines at rated capacity resulting in lower production.
2. You need to run the machine on DG set. The power cost of DG set is three times as compared to charge by electricity board.

Benefits of installing Automatic Voltage Controller on Lighting Load

By maintaining 380/210 volts-three/single phase output through AVC for lighting load, there will be definite saving in power bill & reduction in failure rate of lighting equipments. Higher the input voltage-more will be the savings. The overall effect on the brightness of the lamp at 210 volts will be negligible.

Payback Period

Owing to its high efficiency and associated benefits, the payback period for the cost of Servo Voltage Stabilizer is from 6-12 months depending upon the input voltage variation and number of working hours of the plant. The HIGHER the input voltage the SHORTER will be the payback period.

Advantage

- Reduction in breakdown of electrical equipments
- Reduction in MDI
- Energy saving

Description of Powertek Make AVC

Powertek Servo Voltage primarily consists of the following:

1. Linear Type Plus/Minus Vertical Rolling Contact Type Regulator
2. Double Wound Buck/Boost Transformer
3. Electronic Control Circuit and meter panel.

The regulator and Buck/Boost transformer are oil cooled, housed in same or separate steel tanks. The radiators, if necessary are provided for effective cooling. Their core is built from grain oriented silicon steel laminations which keep losses to the minimum and they are wound with electrolytic grade copper to minimize the losses, vacuum impregnated and oven dried as per IS standard.

- Improvement in power factor
- Uniform quality of end product
- 80% Depreciation as per Income Tax Act.

Specification

Our AVC are available in a wide range and various models. The standard Three Phase models are suitable for balanced & unbalanced supply and loads. The standard models confirms to the following specification:

Input Voltage	360 to 450, 350 to 460, 340 to 460, 340 to 480, 320 to 460. 300 to 460
Efficiency (approx)	99.5% 99% 98.7% 98.5% 98.25% 98%
Output Voltage	400 V +/- 1% 3-Phase, 50Hz
Cooling	Natural Oil Cooled
Type	Indoor/Outdoor
Temp. Rise (Max.)	30 degree C above ambient temperature
Mounting	On Uni-direction wheels
Correction Rate	6-8V/Sec (Upto 500 KVA) and 3-4 V/Sec. (Above 500 KVA)
Wave form distortion	Virtually Nil
Duty Cycle	100% Continuous

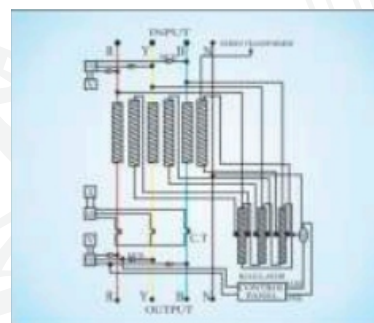
Note: Non-standard input and output models are available against specific requirements



Carbon Roller Assembly



Close view of Carbon Roller



Basic Circuit

Adverse Effects of Single Phase

- The line current increase by 1.5 times.
- If the relay setting is at 15-20% higher than actual operating current then the relay will take 4-6 minutes to trip.
- The motor (particularly smaller capacity motors upto 7.5 HP) cannot withstand this high current for such a long time and in most of the cases it burns out before the relay trips.
- Heavy short circuit current flows through the relays, contactors, cables etc.
- Under this condition when the relay, contactor trips, they produce sparks and some time burst.
- This further damages the switchgear and in some of the cases may cause fire also.

Comparison between Powertek make & conventional make AVC

"Powertek" Make Roller Type Regulator	Conventional Make with Carbon Brush Regulator
Power consumption is 0.5 to 1.5% depending upon the input voltage range.	Power consumption is 2 to 7% under similar conditions.
Suitable for continuous 100% duty cycle.	Suitable for only 30% to 40% duty cycle.
Life at full load is 15-20 years.	Maximum life is 2-3 years at full load.
Five years unconditional guarantee.	Normally guarantee for one year.
Negligible losses in full boost & buck condition.	Max. losses in full boost and buck condition.

Attention for power consumer units having LT connections but not having their own distribution transformer and situated in commercial/residential areas:

It has been observed that the said power consumers usually face unbalanced input voltage problem and to overcome the same should install AVC suitable for unbalanced input voltage (individual phase control).

Attention for Industrial units having OLTC

The units which have already installed OLTC with their transformer, also require stabilizer due to the reasons that the tapping of OLTC is not changed frequently. It is changed only when the problem of very high or very low voltage is felt. On the other hand, the stabilizer continuously monitors the output voltage level. However the input voltage range of stabilizer can be kept low where OLTC is installed.

Distribution Transformer

Standard

Powertek Transformers are designed as per IS : 2026, IS : 1180

Vector Group

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

Temperature Rise

Transformers are designed for a maximum rise of 50/55 degree C of oil/winding, lower temperature rise can be offered on request



Windings/Coils

All windings are made from Electrolytic grade copper as per requirement of customer. The conductor is in the form of triple or double power covered insulated strip and wire. Windings are designed to optimize dynamic, thermal, mechanical and electrical structure depending upon current and voltage requirement. The type of winding commonly used is spiral, crossover, disc, helical winding are used depending upon specific design criteria. The solid insulation used in the winding is either in the form rectangular spacers or blocks assembled from pre compressed high density press board. It is the component of winding which imparts the desired mechanical strength. The low voltage winding of transformer are fabricated from heavy copper bars which can withstand high currents as well as severe mechanical stress without damage.



Inner view of Distribution Transformer

Core & Winding Assembly

The winding are assembled in the core and are supported radially by carefully designed number of pre compressed pressboard spacers to withstand the radical force generated under short circuit. The core and winding assembly is dried in electric oven. The process consist of heating the active part to a temperature between 90-120°C

Fabrication

In house facility is created for tank manufacturing and are made with specialized TIG and MIC Welding Machines. Tank are fabricated out of good quality steel sheets and special attention is paid to avoid unnecessary welds to reduce chance of leakage. High quality standards are obtained and each tank is tested for leakage and deformation to achieve 100% customer satisfaction.

Paint

Utmost care is taken during painting of transformer. Two component like Zinc Chromate Primer is applied with an intermediate coat prevent any rusting due to harsh atmosphere pressure and weather condition. Top coat of PU paint as per RAL shades is applied for smooth surface and protection against moisture during export.

Transformer Oil

Oil is used as a coolant conforms IS:335 is centrifuged and filtered before filling into the transformer. Dehydrated EHV grade mineral oil is used which is directly purchased in tankers from refineries.

Testing:

Routine test like measurement of resistance, no load losses, load losses, impedance turn ratio separate source voltage test, induced over voltage withstand test are conducted as per IS:2026

Fitting & Accessories

- | | |
|--|---------------------|
| • Conservator | • Silica Gel |
| • OFF Circuit Tap Changer | • Oil Level Gauge |
| • HV Bushings | • LV Bushings |
| • Air Release Plug | • Lifting Lugs |
| • Rating & Diagram Plate | • Radiator |
| • Explosive Vent | • Earthing Terminal |
| • Thermometer Pocket | |
| • Roller (Unidirectional/Bi-Directional) | |

Quality Control & Routine Testes: Our Transformer undergo rigorous quality control checks and are routine tested as per IS in our full equipped laboratory. Any specific test required by the customer can also be arranged.

Note: Transformer with other rating, voltage ratio, vector group, terminal arrangement can be supplied as per costumer requirements. Fitting like Cable Boxes, Gas Operated Relay MOG, WTI, Marshelling Box can be provided as per requirement.

Transformer Design Option

- Single Phase/Three Phase
- Indoor/Outdoor
- Pole Mounted/Ground Mounted
- Conventional Type/Hermetical Sealed Type
- Conventional Radiator/Corrugated Radiator
- Copper Wound
- Fitting Accessories as per requirement

Warranty & After Sale Service

We are totally warranted against any manufacturing defect & faulty workmanship. Every equipment sold is packed by our excellent and prompt service network. Our organisation is well known by virtue of strong support in terms of pre sales and after sales rendered by us during any solution.

Tappings

A. Off Circuit Tap Changing Switch

Tapping from +5% to -5% in step of 2.5% HV variation or as per customer's requirement.

B. On Load Tap Changer +5% to +15% 1.25%

Terminal Arrangement & Bushing

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

Gasket & Joints

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

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

Rectifiers

Economy & Efficiency Through Excellence

- Electroplating
- Cleaning
- Etching
- Stripping
- Barrelling
- Anodising
- Hydrogenation
- Other Electrochemical Process

Salient Feature

- Powertek rectifier equipments are wound with electrolytic Prime grade italics to minimize power losses, in comparison to Aluminum italic conductor used by many other manufactures. Our equipments are designed liberally as per capacity and are ideally suitable for marginal over loading conductance.
- We use vertical Rolling contact type voltage regulator wound with heavy section of copper strips suitable for 100% continuous duty cycle for industrial applications, in comparison to conventional wire wound Regulators used by other manufacturers. The carbon rollers move on both sides of the winding.



Powertek brings you the finest products designed and engineered by the people who have been in the same field for the last 30 years. Rectifier is an economical and most efficient method of obtaining DC from AC supply. Powertek manufactures a wide range of rectifiers covering 0-500 Volts and upto 30000 Amps. capacity suitable for Electroplating, Anodizing, Hydrogenation and many other Electrochemical processes. The entire manufacturing proces is under one roof ensuring 100% quality control at every stage of production. We believe in quality & customers satisfaction.

Brief Specifications

Input Voltage	380-440 Volts, 3-phase 50 hz. AC supply
Output Voltage	Fixed Rated maximum DC voltage or variable from zero to maximum rated voltage
Output Current	Rated maximum DC current
Temperature Rise	Less than 450 C above ambient at the top of the oil
Efficiency	12V Rectifier - 82%, 24V Rectifier - 90%, 100V Rectifier - 94%, 200V Rectifier - 96% More than 250V Rectifier - More than 97%
Ripple Content	Less than 5%
Insulation	'A' class for oil cooled



Inner view of Rectifier

Starting Circuitry

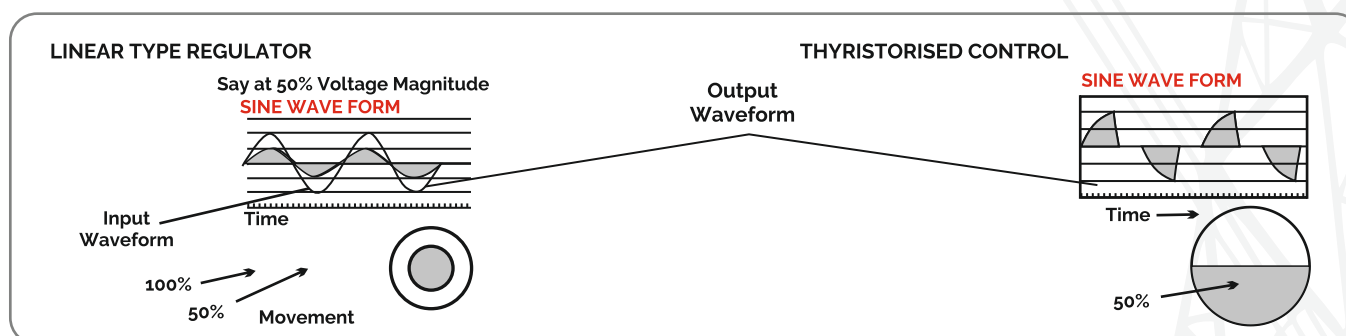
Powertek Rectifiers are designed for 3 phase, 50 Hz AC input supply and are available for operations at any voltage between 380 and 440 volts, covering a wide range of voltage fluctuations. It is recommended that the input to the rectifier should be connected through a proper protective device, to provide positive protection to personnel and the system, in the event of maintaining or in case a fault occurs.

DC Output Control

The function of the variable output controls is to control the voltage or current or its operating range by varying input voltage to the main transformer primary. The DC output voltage variation is achieved sleeplessly 0-100% by means of an ON LOAD roller type voltage regulator.

- **DIODE:** Silicon diodes are tested in house, similar PIV batch and same forward drop diodes are used in the equipment for equal load sharing and reducing the power losses of diodes.
- **LAMINATION CORE:** We use imported CRGO Lamination core which have minimum power losses and results in better efficiency of equipment and saving in energy bill.
- **PAINTS:** Epoxy paint is used which is resistant to acidic environment of plating process and enhance the life of the equipment by preventing it from corrosion.
- **METER:** We use reputed make DC meters only which are very accurate and durable.
- **CONSTANT VOLTAGE CONTROLLER (CVC) (OPTIONAL):** We offer CVC Electronic attachment with rectifier equipments, which will maintain constant Output Voltage or Current as per setting automatically-irrespective of input voltage variation

Roller Type Regulator	Thyristorised Control
No wave form distortion at any load. Electrical wave form is like a moving wheel. For 50% Rated Voltage the Dia of wheel is reduced accordingly i.e. magnitude for a wave is decreased	Wave form distortion. It is like cutting the wheel by 50% and then moving the wheel i.e. wave form is cut as shown at full magnitude
Higher power factor of more than 0.95 is achieved	.The power factor is lower between 0.5 to 0.9
The system is simple and can be repaired and maintained even by simple mechanic	The system is specified and needs specially trained Electronic Engineer to repair and maintain
The cost of spares is very negligible	The cost of replacement is very high
Over all losses is less	Over all losses is more



Compact Sub Station

Capacity :

**Upto 2.5 MVA in 11KV, 22KV
& 33KV configurations**

Our Compact Sub Station are compartmentalized with suitable medium voltage/low voltage section and transformer section with separate doors for each compartment. Our packaged sub-stations are tested as per latest IEC standard 62271-202.



These packaged sub stations are designed & manufactured as per the tailored requirement of the customer. Variety of HV/LV Switchgear/VCB can be chosen & the CSS is designed accordingly. They are fully designed to withstand electrical impulses, thermal and dynamic stress. They are fully compartmentalized and require minimum maintenance. One of the biggest advantage of using PSS is that there's no need to use cabling thus being more economical as well as safer than using bulky non-aesthetic cables.

Electrical Control Panel

EASY SOLUTION IN AUTOMATION UNDER ONE ROOF

We are Manufacturer
of All Types of
Electrical Control Panels



Industry We Are Serving



Food Industry



Rice Industry



Power Plant



Paper Industry



Water Treatment



Textile Industry



Refinery



Chemical Industry



Foundries



Plastic Industry



Cement Industry



Pharma Industry



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