AUTOMATIC VOLTAGE STABILIZER

SUSHIL'S

Voltage fluctuation is a common phenomenon in our country. The industrial units which are running 24 hours, face the high and low voltage problem. 85% of industrial load is of motors. Electric motors draw considerably high current at high and low voltage. Further higher current affects the electric motors in different ways:

- Higher current produces higher losses in electric motors, which causes premature failure of winding insulation.
- It increases the losses of electric motors and other associated equipments.
- This higher current of electric motor requires higher setting of overload relay to avoid frequent tripping of motors. Higher setting of overload relay have very little safety margin against single phasing & mechanical faults.

With installation of stabilizer, the higher current drawn by motor on account of voltage variation is eliminated. The overload relay can be set as per requirement of motor load, which will reduce the motor failure rate considerably.

500 KVA Automatic Voltage Stabilizer

TECHNICAL SPECIFICATION

SUSHIL'S Automatic Voltage Stabilizers are available in a wide range and various models. The Standard Three Phase models are suitable for balanced input supply and fairly balanced loads.

Input Voltage	360-460V, 340-460V, 320-460V & 300-460V.
Efficiency (Approx)	99% 98.5% 98.3% 98%
Output Voltage	400 Volts ± 1%, 3Phase, 50HZ.
Cooling	Naturally Oil Cooled.
Type	Indoor / Outdoor
Temp. Rise (Max.)	35° C above ambient
Rate of Voltage Correction	8 to 10V/Sec. (Upto - 500KVA)
Wave from Distortion	Virtually Nil
Duty Cycle	99% Continuous
Mounting	On Uni - directional wheels.

NOTE : Non-Standard input and output ranges are also available against specific requirements.

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DESCRIPTION OF SUSHIL'S AUTOMATIC VOLTAGE STABILIZER

ROLLING CONTACT TYPE TECHNOLOGY

In regulator we are using heavy section of electrolytic grade rectangular copper strip instead of copper wire to minimize the losses. It increase the efficiency of equipments. We are also using self-lubricating Carbon roller assemblies instead of ordinary carbon brushes, which offers more reliability and trouble free performance of the equipment.

DOUBLE WOUND BUCK / BOOST TYPE SERIES TRANSFORMERS

In Buck / Boost transformers we are using CRGO lamination to minimize iron losses, the coils of Buck / Boost transformers are wound with heavy section of electrolytic copper strip to minimize copper losses for getting better efficiency of the equipments.

ELECTRONIC CONTROL CIRCUIT

SUSHIL'S Automatic Voltage Stabilizer consist of very simple electronic control circuit for monitoring and controlling voltage where repair and maintenance become very easy. The regulator and Buck / Boost transformers are oil cooled, housed in same or separate sheet steel tanks. Radiators are provided for effective cooling. The coils of voltage regulator & Buck / Boost transformers are vacuum impregnated and oven dried as per standard.

COMPARISON BETWEEN SUSHIL'S MAKE AND CONVENTIONAL MAKE AUTOMATIC VOLTAGE STABILIZER

SUSHIL'S MAKE ROLLING CONTACT TYPE REGULATOR	CONVENTIONAL MAKE WITH CARBON BRUSH REGULATOR
■ Power consumption is 0.5 to 1.5% depending upon the model and input voltage variation.	■ Power consumption is 3 to 5% depending upon the model and input voltage variation.
■ Suitable for continuous 99% duty cycle.	■ Suitable for 40% to 50% duty cycle.
■ The carbon roller roll, while moving on the coil track, so contact point of the roller goes on changing which prolongs the life of the roller.	■ Since the contact is by brush having flat surface, wear & tear of the brush is more, hence require frequent replacement.
■ Life at full load is 17 to 20 years.	■ Life at full load 3 to 5 Years.
■ Negligible losses in full Boost and Buck condition.	■ Max. losses at full Boost and Buck condition.
■ Five years unconditional warranty.	■ Normal warranty for one / two years.

ADVANTAGES

■ Energy Saving upto 10% possible ■ Reduction in power consumption ■ Uniform quality of end product and lesser rejection ■ Reduced failure rate of electrical equipments upto 80% ■ Improvement in PF and reduction in MDI

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THE TABLE BELOW GIVES APPROXIMATE QUANTITATIVE ADVANTAGES OF A STABILIZER AT VARIOUS FLUCTUATION LEVELS

INPUT VOLTAGE VARIATION	% OF REDUCTION IN BREAKDOWN POSSIBLE	APPROX. POWER SAVING POSSIBLE
380 - 420 Volts	No reduction in breakdown of electrical equipments	No requirement of stabilizer
380 - 440 Volts	Upto 20% reduction in breakdown of electrical equipments	Upto 5%
380 - 460 Volts	Upto 60% reduction in breakdown of electrical equipments	Upto 7%
380 - 470 Volts	Upto 80% reduction in breakdown of electrical equipments	Upto 10%

SUPERIOR FEATURE OF SUSHIL'S AUTOMATIC VOLTAGE STABILIZER

TEMPERATURE RISE

SUSHIL'S Automatic Voltage Stabilizers are designed to maximum 50°C rise of winding. Temperature rise of top oil will be maximum 40° C.

WINDING

Coils are wound with paper covered (make : Japanese) electrolytic grade copper strip or synthetic enamelled copper conductors. Cooling ducts 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

Pre - compressed board of 'SENAPATI MAKE' & insulation craft paper of best quality are used.

METERS & CONTROL SYSTEMS

'AE' Make meters, 'KAYCEE' make selectors switch, IC based card plug in type. The control MCB's 1.0 AMP for motor load & 0.5 AMP for voltmeters and indicators.

TANK & PAINT

The tanks are made of M.S. Sheets with adequate bracing and stiffners. All the internal surfaces are given a coat of oil resistant zinc chromate primer and external surfaces are given a primary coat of Redoxide primer & final coat of enamel / apoxy paint for best finishing and better life.

Regulator

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PARALLEL OPERATION

Parallel operation can be made to operate in parrallel with existing automatic voltage stabilizer.

WARRANTY

SUSHIL'S Stabilizers are warranteed for a period of 60 months from the date of sale, against any manufacturing defect or bad workmanship. Any repair or replacement shall be carried out by us at free of cost.

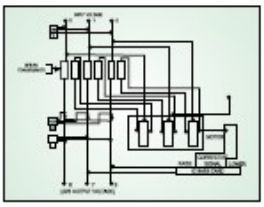
OIL

Oil tested for resistivity, electric and acidic characteristic conforming to IS: 335 : 1993.

Carbon Roller with Tag & Tail

Regulator Close view

Control Card



Circuit Diagram

LOSSES COMPARISON OF SUSHIL'S MAKE STABILIZER AND CONVENTIONAL MAKE STABILIZER

CAPACITY	SUSHIL'S MAKE ROLLING TYPE REGULATOR LOSSES	CONVENTIONAL MAKE CARBON BRUSH TYPE DIMMERSTATE LOSSES
60Amps.	550 Watts	1000 Watts
75 Amps.	775 Watts	1950 Watts
100 Amps.	1000 Watts	3050 watts

APPLICATIONS

SUSHIL'S stabilizer is suitable for 99% continuous duty cycle. The stabilizer can be installed as per actual running load or with a provision for future expansion.

■ Flour Mills ■ Cement Plants ■ Cold Storage ■ Rolling Mills ■ Tube Mills ■ Rice Sheller ■ Showrooms ■ Rubber Industries ■ Tea Estate ■ Textile Mills ■ Hotels ■ Oil & Vanaspati Units ■ Hospitals & Nursing Homes ■ Clubs ■ Paper Mills ■ Footwear & Leather Units ■ Food Processing Plants ■ Pharmaceutical Units ■ Distilleries & Breweries ■ High Rise Building