



# Continuously Variable Voltage Auto Transformer

## DESCRIPTION

**Continuously Variable Voltage Auto Transformer** is the most effective device for stepless, breakless & continuous control of AC voltage & therefore for various parameters, dependent on AC voltage.

These Variable Voltage Auto Transformers, consists of a single layer winding on a toroidal silicon-steel core. As the control knob is rotated, a carbon brush traverses the winding, tapping off a portion of the total voltage across the winding. The brush is in continuous contact with the winding. The discrete voltage increments obtained as the knob is rotated are always less than the voltage between turns. Since the brush spans more than one turn, the change in voltage is practically continuous. As output voltage is continuously variable, Variable Voltage Auto Transformers are rated in terms of current that can be drawn from the output.

The basic Continuously Variable Voltage Auto Transformers is meant for operation from a nominal input voltage of 240 V 1ph AC & can give output voltage anywhere between 0 to 240V or 0 to 270V AC by simple transformer action. Three such Variable Voltage Auto Transformers connected electrically in star and mechanically in tandem, become suitable for operation from a nominal input voltage of 415V 3Ph AC and can give output anywhere between 0 to 415V or 0 to 470V.



## FEATURES

Rating Available: 4 Amps - 1600 Amps

- Simple, rugged construction.
- Coils made from high grade CRGO Silicon Steel & Pure copper.
- Variable DC Output can be given using Diodes & Rectifiers.
- Output voltage variation is smooth, continuous, breakless & linearly proportional to angular rotation.
- High efficiency.
- Negligible waveform & power factor distortion.
- Excellent short time overload capacity.
- Remote operation possible by motorization.
- Wide range of current ratings.
- High quality carbon brush used for current collection.

# ELECTRICAL SPECIFICATIONS



MODEL	a) Flush Open Manual (Air Cooled) — F
	b) Portable Enclosed Manual (Air Cooled) — P
	c) In Tank Manual (Oil Cooled) — T 'F', 'P', T suffixed by 'M' means motor operated models.
OPERATING VOLTAGE	For Single Phase - 240V AC, 50-60 Hz. 1- ph.
	For Three Phase - 415V AC, 50 -60 Hz., 3 - ph - 4wire.
CURRENT RATINGS	For Oil Cooled models, maximum current & continuous current are Appx. one & the same.
	For Air Cooled models, The power Factor is Appx. 0.8
OPERATING TEMP	0° - 45°C.
INSULATION RESISTANCE	Not less than 5M ohms at 500V DC.
DIELECTRIC TEST	2.5kV RMS for 1 minute.
STORAGE TEMP	-9°C to 70°C
HUMIDITY	Upto 95% RH
CONFORMS TO	I.S. 5142.

## MECHANICAL CONSTRUCTION

Notes : Oil should be "Transformer Oil" conforming to IS 335.

Single phase Variable Transformers are available in 3 types.

- Portable type (P) with sheet steel enclosure for floor / table use.
- Flush type (F) with open type construction. Suitable for panel mounting.
- Tank type (T) immersed in oil in sheet steel tank with rollers.

Three phase Variable Transformers is usually ganged assembly of 3 coils, available in all 3 types: P, F, T.

Higher rating Continuously Variable Voltage Auto Transformers (above 200 Amps) use 2/3/4/5/6 or more coils in parallel with load balancing arrangements.

Tank type (T) immersed in oil in sheet steel tank with rollers.

Motorized Variable Transformers uses 240V AC Step-Syn Motor having 60 rpm speed at 50Hz. With proper gearing higher torque at lower speed can be achieved. Standard gear ratios used provide sweep time of 8, 15, 30, 45, 60, 120secs.



## APPLICATIONS

- Auditorium, Hotels, Conference Halls, Exhibitions, Laboratories etc.,
- Testing of 1/3 Phase AC / DC Motors after Rewinding.
- Rectifiers, Battery Chargers.
- Temperature control of Ovens, Furnaces.
- Testing of Instruments, Relays, Circuit Breakers etc.
- Welding, Electro-plating, Anodizing.
- Colleges & Universities Labs.
- Testing & Calibration of various electrical and electronics equipments.



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