



- Mining Transformer
- Lighting Transformer
- Loading Transformer
- Furnace Transformer
- Motor starting Auto Transformer
- Rectifier Transformer
- Ultra Isolation Transformer

### No of Phase

- Single Phase
- Three Phase
- Three Phase to single Phase
- Three Phase to Two Phase (Scott)

### Type of Transformer

- Double wound Transformer
- Auto wound Transformer

### Type of cooling

- Natural Air cooled
- Natural Oil cooled

### Salient Features

- Ranging from 12V to 660V at 50 Hz / 60 Hz
- Capacity = 0.5 to 800 KVA
- Taps can be provided with OFF load Tap changer using links or Switch
- Conforms to IS : 2026 / IS : 11171
- Class of insulation class B / F / H
- Efficiency better than 96%
- Regulation better than 5%

Natural Air cooled transformers are supplied in sheet steel ventilated case, with screwed top cover. Input and output terminals are provided on the top side of the transformer, inside the Terminal Box. Cable entry holes are provided on the bottom side of the Terminal Box. The transformers are suitable for floor mounting and are also supplied with M.S. Rollers for easy portability in case of large size transformers.

Natural oil cooled transformers are supplied in M.S. tanks. In some cases, the tanks are provided with cooling radiators on two or all the four sides. As a standard practice, the tank is provided with oil fitting hole with cap, oil level indicator, drain plug, and earthing terminals. Input and output terminals are brought out generally on two opposite sides, either from the sides of the tanks or from the top of the tank. Plain unidirectional M.S. rollers are fitted on M.S. channels for base mounting.

'AE' also supply transformers in open execution, without any enclosure, when they are to be mounted inside a control panel or a cubicle.

The description given below are for single phase, three phase and three phase to single phase double wound transformers. It is valid only for double wound transformers and for phase voltage between 24 volts and 660 volts at a frequency of 50 Hz. For voltages beyond this range and for other frequencies will be made on request.

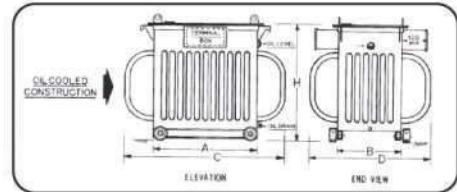
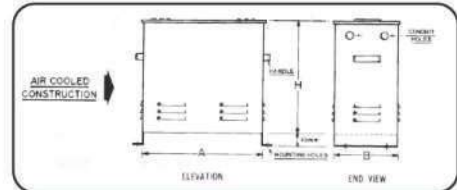
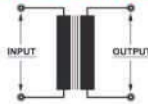
In case of Auto Wound Transformers though the entire range falls within our regular manufacture, their details depend very much on the transformation ratio, in addition to the capacity. Therefore special quotations should be obtained in individual cases. These include single phase and three phase Star-connected transformers, auto-boosters and off-load line voltage correcting transformers.



### SINGLE PHASE DOUBLE WOUND TRANSFORMERS

As stated before, these are made in natural air cooled construction or natural oil cooled construction. Extra off-load taps can be provided on request. The capacity of the transformer at the tap will be proportionately low corresponding to the tap voltage. The declared capacity will hold good only for the highest voltage on both input and output, unless the taps are specified as full capacity taps.

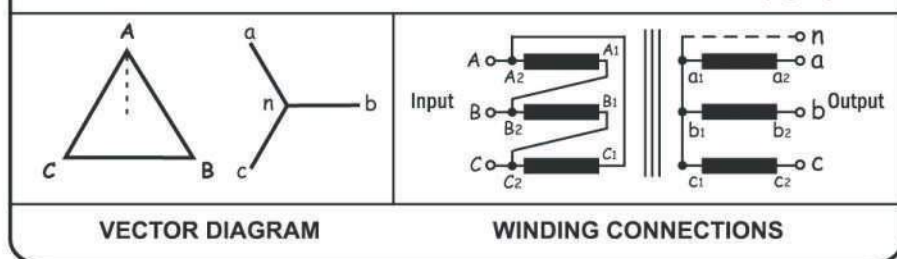
#### WINDING CONNECTIONS



### THREE PHASE DOUBLE WOUND TRANSFORMERS

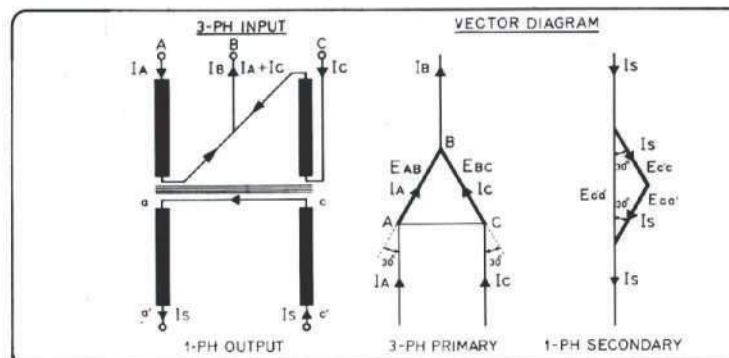
These transformers are generally manufactured in Delta/Star or Star/Delta connections. However, transformers can also be supplied suitable for Delta/Delta or Star/Star or Open delta/Open delta connections on request against specific requirements. Enquiries or orders should clearly state the voltage and connection on the primary and secondary and whether the voltage are between phases or between phase and neutral. Extra off-load taps can be provided at extra cost. The capacity of the transformer at the tap will be proportionately reduced corresponding to the tap voltage, The declared capacity will hold good only for the highest voltage on both input and output unless the taps are specified at full capacity taps.

#### A TYPICAL VECTOR GROUP WITH WINDING CONNECTIONS (Dy11)



### THREE PHASE TO SINGLE PHASE DOUBLE WOUND TRANSFORMERS

These transformers are very widely used where large single phase power is required. These are wound as open delta on the three phase input side and the windings on the secondary are connected in series for single phase output as per diagram shown below. This type of construction given an unbalance in the supply current, e.g. 10 KVA three phase to single phase transformer will have a current distribution as Phase A : 14.5 Amps, Phase B : 29 Amp and Phase C : 14.5 Amp approximately when the supply voltage is 400 volts nominal. However, this unbalance is less serve than when a single phase load is connected between phase and neutral or between phase to phase.



**Single Phase / Three Phase Indoor, air cooled type with enclosure.**

### SAILENT FEATURES

#### 1. Isolation Transformer:

Any Double Wound Transformer is internally an isolation transformer as the primary and secondary are isolated from one another through insulation. However, modern machines and systems need a truly isolated, clean and stable power requirement. This is ensured by an Ultra Isolation Transformer (UIT), it provides for total electrical and electrostatic isolation with most effective screening of spikes, surges and transients, further it gives a true isolated local neutral and dedicated earth which are very essential for modern machines.

Ultra isolation Transformer alternates common mode noise and transverse mode noise and provides for noise or interference free power. In principle, UIT only transfers 50 Hz. Power by transformers action through mutual inductance. It prevents transfer of RF and HF disturbances with extensive insulation between primary and secondary. The insulation levels withstands HV breakdown strength of 2.5 KV and gives a DC Galvanic isolation of above 1000 megohms.

#### 2. IP Enclosure Protection for Isolation Transformer:

AE Isolation Transformer conform to IP-30 protection as per IS:2147, Requirements for other degree of protection can be offered on request.

#### 3. Details of Earthing for Isolation Transformers:

It is recommended that every isolation Transformer should have its own grounded earth, complete in itself.

#### 4. Constructional Features of Isolation Transformers:

Isolation Transformer shall invariably be in one air cooled section. The enclosures are constructed from M.S. angles and CRCA M.S. sheets of best quality of reputed make.

The professional painting process comprises of (i) 7-tank pre-treatment (ii) Primer Coating and (iii) Two coats of final finish paint or powder coating or specified.



### TECHNICAL SPECIFICATIONS

Ratio	: 415 V / 415 V Nominal
Acceptable Input Range	: $\pm 10\%$
Mode of operation	: 1:1 Isolation Transformer
Common mode noise rejection	
Transients, spikes, surges	: Over 100 dB
Coupling Capacitances	: 0.012 PF
DC Galvanic Isolation	: Over 500 Megohms between any
winding or windings to ground	
Breakdown strength	: 2500 V AC for 2 minutes
Acceptable Line frequency	: 47 to 63 Hz.
Load Regulation	: Within 3 to 5 %
Termination	: On Terminal Plate

### Ordering Information

Input voltage, output voltage, capacity Number of phases, CMNR value, coupling capacitances value