

## GENERAL SPECIFICATIONS FOR ACTIVE FIELD SUPPLY TRANSFORMER FOR OIL RIGS APPLICATION

### 1. SCOPE :

This specification applies to the requirement of 600V (660V) : 170-0-0-170V multitap Active field supply transformer with rating of 20000VA, primarily intended for indoor oil rig application for salt laden 95% humid atmospheric environment at 50 deg C ambient. The transformer shall have the input supply from main bus connected to SCR drives and SCR harmonics shall be present in the input supply. Supplier to take care this aspect in the design. The transformer shall be used for supply to Half controlled rectifier unit for supply to DC motor shunt field winding.

### 1.0 Technical parameters

Applicable Standard	IS 11171
Rating	20 KVA. Suitable for delivering 60 A Continuous.
No. of Phases	One
Primary Voltage	600 VAC +/- 7%, 50 Hz +/- 3%, 1 Phase
Secondary Voltage	170-0-0-170 V AC Double secondary Tapings at 10V/20V/110V/140V on both half
Voltage regulation	4% max
Percentage impedance	4% approximately
Efficiency	Better than 95%.
Insulation class	H
Temperature rise	<75 deg C.
Cooling	Natural air cooled.
Type of Core	EI CRGO
Construction	Dry type for mounting in cubicle i) Complete winding on each limb shall be covered with non-flammable insulating tape.

- ii) Terminals to be suitable for 10-16sqmm cable on secondary side and 10sqmm cable on primary side. Polyamide material ready to terminate type terminals to be used without need of crimping terminals.
- iii) Mounting plate angles shall be of steel and coated with primer paint with epoxy base colour – Light grey shade 631 as per IS 5-1978.
- iv) Terminals leads on primary and secondary including tapings to be brazed with winding and glass sleeved from the brazed joint upto terminal. The terminal/taping leads to be of minimum 16sqmm copper conductor on secondary and 10sqmm on primary.
- v) If required duct in the winding can be provided for proper cooling of the windings.
- vi) Terminal leads/Tapings to be properly insulated inside the transformers with glass epoxy strips so as not to create any inter turn short.
- vii) Eye bolts to be provided at the top for lifting of the transformer.
- viii) Both the secondary 0V terminals to be brought out side and shall be shorted externally.

## Dimensions

420mm (H) x 350mm (L) x 340mm (D) max  
 Mounting slots of size 12 x 20 mm  
 Mounting slots to be located on base frame at 245 mm (along D) x 295 mm (along L)

## Terminations Numbering

Primary -0V (2), 600V (1) or 660V for it-2  
 Secondary-170V (3), 140V (4), 110V (5), 20V(6), 10V (7), 0V (8), 0V(9), 10V(10), 20V(11), 110V(12), 140V(13), 170V(14).  
 Primary and secondary terminals to be numbered as per numbers given in bracket against each voltage terminal.

## Markings on transformer

ACTIVE FIELD TRANSFORMER  
 Item-1 600V/170-0-0-170V, 20000VA  
 Style Code : BP9048097460  
 Item-2 660V/170-0-0-170V, 20000VA  
 Style Code : BP9048124824

## 2.0 Tests

Following acceptance tests to be conducted on each transformer before dispatch by supplier at their premises in presence of BHEL representative. Refer applicable standard for test procedures :

### Acceptance tests

- i) Transformer Ratio Test
- ii) Winding Resistance Test
- iii) Percentage Impedance Test
- iv) No load current & losses Test
- v) Temperature rise test (on first unit of each PO).
- vi) Dielectric test at 3 KV AC rms 50 Hz for One Minute between primary and secondary winding & between shorted windings and frame.

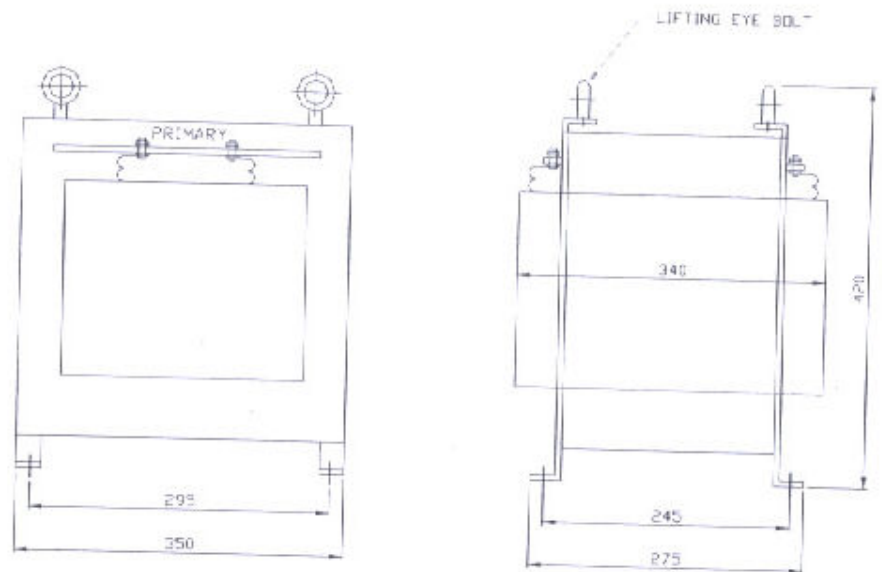
## 3.0 Documents required along with consignment

- i) Test reports - 3 copies

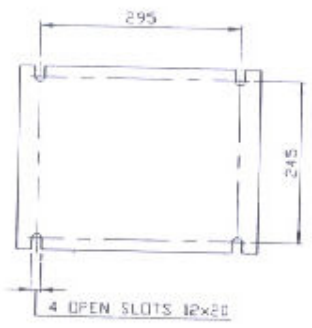
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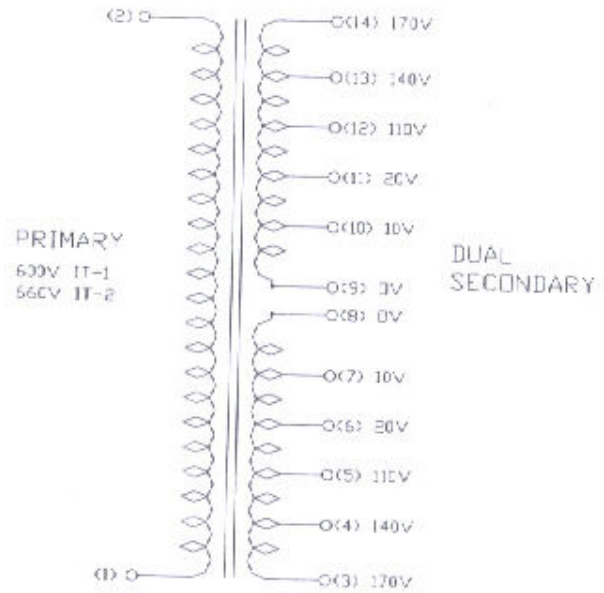
600V (660V) /170-0-0-170V ACTIVE FIELD SUPPLY TRANSFORMER



TAPPING & TERMINAL DETAILS



MOUNTING PLAN



- Item 1 : 600 : 170-0-0-170V- Style Code : BP9048097460
- Item 2 : 660 : 170-0-0-170V- Style Code : BP9048124824

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**PURCHASE SPECIFICATIONS**  
**FOR**  
**ACTIVE FIELD SUPPLY TRANSFORMER**  
**600 V (660V) / 170-0-0-170 V , 20000VA**  
**FOR**  
**OIL RIG APPLICATIONS**



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O/C -1

PREPARED BY  
*Sanjay Ahirwar*  
21.3.09  
SANJAY AHIRWAR  
DY. MGR (D)

CHECKED BY  
*R. K. Agrawal*  
R. K. AGRAWAL  
MGR (D)

APPROVED BY  
*Dipankar Sarma*  
21/03/09  
DIPAK SARMA  
DGM

ISSUED BY

**CONTROL EQUIPMENT ENGINEERING DIVISION**  
**BHARAT HEAVY ELECTRICALS LIMITED, BHOPAL**