



**PURCHASE SPECIFICATIONS**  
**FOR**  
**PASSIVE FIELD SUPPLY TRANSFORMER**  
**600 V (660V) / 0-140 V , 8400VA**  
**FOR**  
**OIL RIG APPLICATIONS**



SPECIFICATION NO. : OR 12026  
REVISION NO. : REV 03  
DATE OF REVISION : 18.3.09  
DISTRIBUTION : AS PER REQUIREMENT  
O/C -1

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

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

### 1. SCOPE :

This specification applies to the requirement of 600V (660V) : 0-140V multitap passive field supply transformer with rating of 8400VA, 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 full wave bridge rectifier unit for supply to DC motor shunt field winding.

### 1.0 Technical parameters

Applicable Standard	IS 11171
Rating	8.4 KVA. Suitable for delivering 60 A continuous at 140V secondary O/P
No. of Phases	One
Primary Voltage	600 VAC +/- 7%, 50 Hz +/- 3%, 1 Phase
Secondary Voltage	0-140 V AC Tapings at 5V/10V/95V/115V
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 3-6sqmm 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.

## Dimensions

380mm (H) x 290mm (L) x 250mm (D) max  
 Mounting slots of size 12 x 20 mm  
 Mounting slots to be located on base frame at 200 mm (along D) x 235 mm (along L)

## Terminations Numbering

Primary -0V (2), 600V (1) or 660V for it-2  
 Secondary-0V (3), 5V (4), 10V (5), 95V(6)  
 115V (7), 140V (8)  
 Primary and secondary terminals to be numbered as per numbers given in bracket against each voltage terminal.

## Markings on transformer

PASSIVE FIELD TRANSFORMER  
 Item-1 600V/0-140V, 8400VA  
 Style Code : BP9048097490  
 Item-2 660V/0-140V, 8400VA  
 Style Code : OE4458567136

## 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.

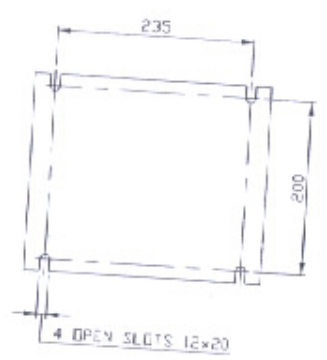
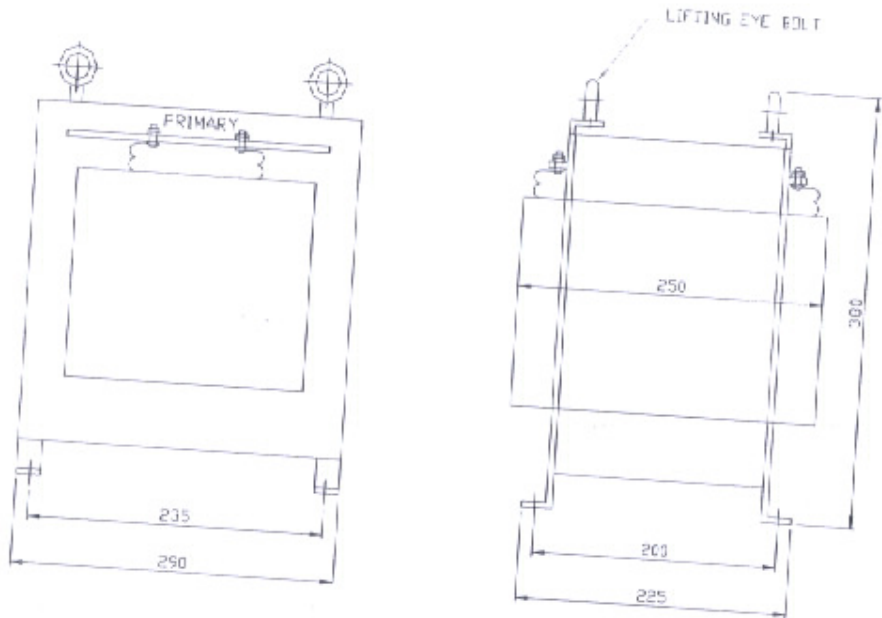
## 3.0 Documents required along with consignment

- i) Test reports - 3 copies

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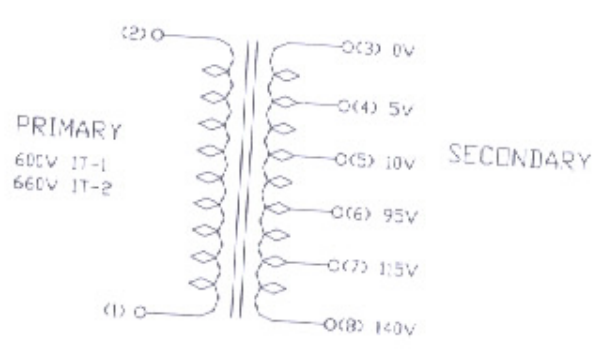
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600V (660V) /0-140V PASSIVE FIELD SUPPLY TRANSFORMER



MOUNTING PLAN

TAPPING & TERMINAL DETAILS



- Item 1 : 600 : 0-140V - Style Code : BP9048097490
- Item 2 : 660 : 0-140V - Style Code : OE4458567136

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