

PURCHASE SPECIFICATIONS

FOR

**ACTIVE FIELD SUPPLY TRANSFORMER
600 V (660V) / 170-0-0-170 V , 20KVA**

FOR

OIL RIG APPLICATIONS



SPECIFICATION NO. : **OR 12025**
REVISION NO. : **REV 03**
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O/C -1

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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 20KVA, 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 & IS 2026 (For test methods)
Rating	20 KVA. Suitable for delivering 60 A Continuous by both secondary windings.
No. of Phases	One
Primary Voltage	600 VAC +/- 7%, 50 Hz +/- 3%, 1 Phase
Secondary Voltage	170-0-0-170 V AC Double secondary Tappings 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-inflammable insulating tape.

	<ul style="list-style-type: none"> ii) Terminals to be suitable for 10-16sqmm cable on secondary side and 10sqmm cable on primary side. Brass Stud type terminal size M6 for primary and M10 for secondary to be terminated on epoxy terminal strip 8mm thick. 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	<p>450mm (H) x 360mm (L) x 360mm (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)</p>
Terminations Numbering	<p>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.</p>
Markings on transformer	<p>As per Cl 8 of IS11171 and following additional details : 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</p>

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) Measurement of Winding Resistance (As per Cl 16.2 of IS2026 Part –I 1977)
- ii) Measurement of Voltage Ratio & check of voltage vector relationship (As per Cl 16.3 of IS2026 Part-I 1977).
- iii) Measurement of impedance voltage (principal tapping), short circuit impedance and load loss (As per Cl 16.4 of IS 2026 Part-I 1977)
- iv) Measurement of No load loss & current (As per Cl 16.5 of IS 2026 Part-I 1977).
- v) Separate Source voltage withstand test (As per Cl 14 of IS 11171 1985)
- vi) Induced overvoltage withstand test (As per Cl 15 of IS 11171 1985).
- vii) Temperature rise test (on first unit of each PO as per Cl. 17 of IS11171 1985)
- ix) Dielectric test at 3 KV AC rms 50 Hz for One Minute between primary and secondary winding & between shorted windings and transformer frame.

3.0 Documents required along with consignment

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|-----|-----------------------|---|----------|
| i) | Test reports | - | 2 copies |
| ii) | Guarantee Certificate | - | 2 copies |

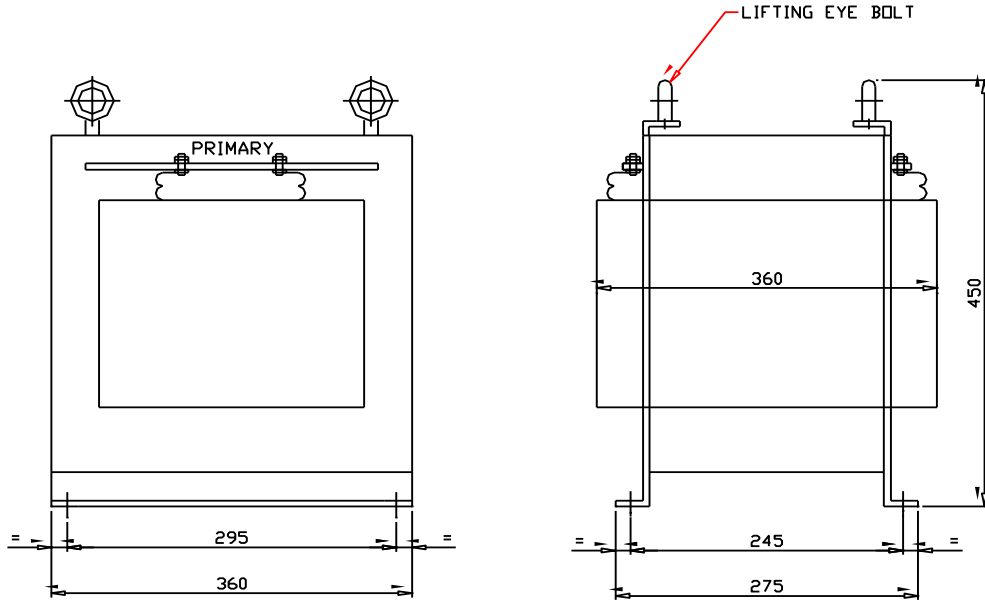
4.0 Packing :

Each transformer to be packed in bubbled polythene material and then to be packed in wooden box with transformer base fixed on to wooden box suitable for storing of material for atleast 8-12 months.

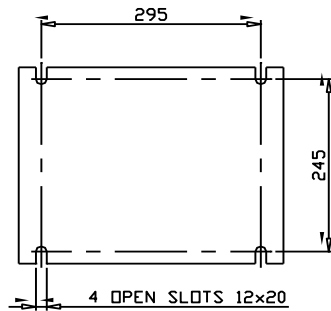
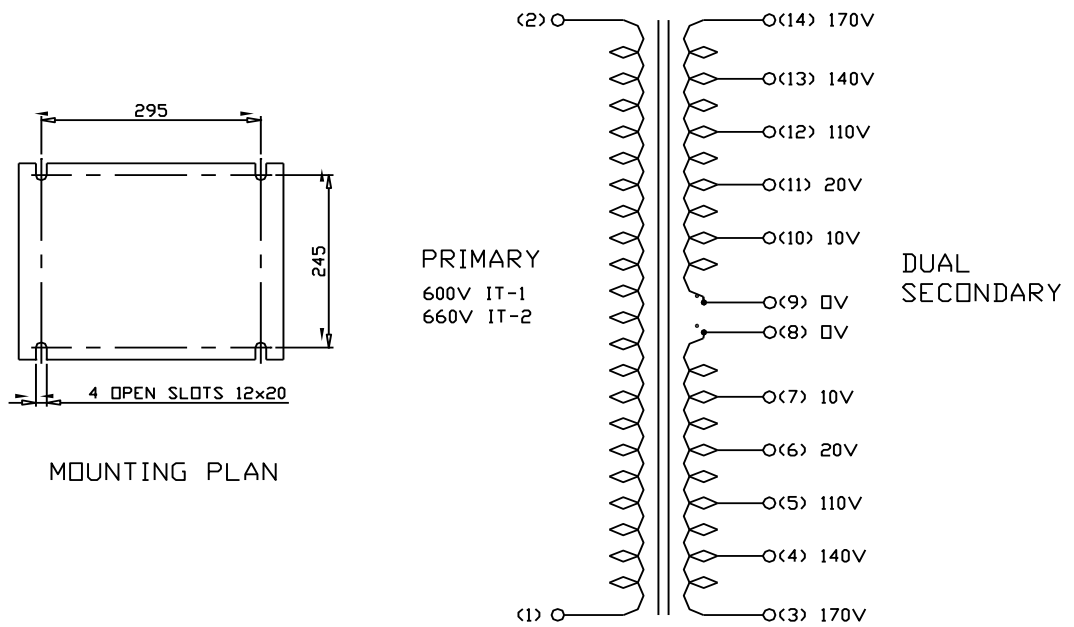
Details of Rev 03 :

1. Dimensions modified.
2. Method of termination specified.
3. Acceptance tests details of IS cl added. Test requirement modified.
4. Requirement of packing added.

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