

SPECIFICATIONS OF DIODE WHEEL ASSEMBLY

(FOR OA7001, OA6301, TA6301, DG6301, TA7006, TA7003AY)

450A, 25V, 79.0 MM SHAFT DIA. (ASSY. DRG. NO. 07211010047, VAR.00.)

1.0 SCOPE :-

This specification stipulates details of assembly and test requirement of diode wheel assy. And material/individual components.

2.0 COMPONENT SPECIFICATIONS & TEST REQUIREMENT :-

Sl No	MATERIAL SPEC/TYPE	DIMENSIONS/DRG	TEST/ INSPECTION
2.1	Copper Connections:		
2.1.1	Copper Connection (Spec.AA12003)	27211010125 It.1,2 & 3	BHEL
2.1.2	Copper Connection (Spec.AA12003)	37211010153 It.2	BHEL
2.2	Aluminium Plates :		
2.2.1	Aluminium Plate (Spec.BP12393)	17211010098 It.1	BHEL
2.2.2	Aluminium Plate (Spec.BP12393)	17211010097 It.2	BHEL
2.3	Special Hardware ;		
2.3.1	Special Hardware (Brass) (Spec.AA12114)	37211010152 It.1,6,7,8	BHEL
2.3.2	Special Hardware (Hard Copper) (Spec.AA12023)	37211010152 It.2,3,4	BHEL
2.4	Insulating Components :		
2.4.1	DMC Moulding grade I10 Spec. AA22826	37211010151 It. 1 to 6	BHEL
2.4.2	DMC Moulding grade I10 Spec. AA22826	17211010100 It. 3	BHEL

Revision : 00

Distribution

Qty

Approved :

(R.N. Paul, AGM)

Date : 25.10.02

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Prepared

Checked

25.10.02

Date



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Sl No	MATERIAL SPEC/TYPE	DIMENSIONS/DRG	TEST: INSPECTION
2.5	Rating Plate :		
2.5.1	Half/Quarter Hard Mat. Grade 19500 Aluminium Plate (Spec.IS:737)	37211010157 It.1	BHEL
2.6	Diodes :		
2.6.1	Ruttonshah make Diode type RTR 321UM/160 or BHEL make diode type L39S with nut (Cathode base High G type) to Spec. TM00325.	-	Supplier test Certificate for routine test as specified in Spec. TM00325
2.6.2	Ruttonshah make Diode type RTR 321UM/160 or BHEL make diode type L39S with nut (Anode base High G type) to Spec. TM00325.	-	Supplier test Certificate for routine test as specified in Spec. TM00325
2.7	Metal Oxide Varistor :		
2.7.1	Epro make type P series 240/20		Supplier test certificate
2.8	Cable & Lugs :		
2.8.1	PTFE Cable	14 AWG, 1.93 sq.mm & 150mm long	BHEL
2.8.2	Round Lug	Suitable for 14 AWG Cable.	BHEL

3.0 ASSEMBLED DIODE WHEEL TEST REQUIREMENT:-

3.1 Components Firm Mounting Check :

Check all components of diode wheel are firmly mounted on base aluminium plate.

3.2 Open Circuit Test :

Check forward voltage drop 0.5V (+ 0.5V) & reverse open circuit voltage for all six diodes of diode wheel. Check diode polarity is as per assy. drg.



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3.3 Short Circuit Test :

- 3.3.1 Connect 300 A/ 75mV shunt across +ve & -ve plates of diode wheel.
- 3.3.2 Connect 415 V 3-phase supply to phase input points of diode wheel through 3-phase, 0-415, 10 amp auto transformer & 3-phase step down transformer of 100:1 ratio.
- 3.3.3 Increase auto transformer O/P voltage from zero voltage smoothly & observe voltage drop across load shunt. As soon as shunt drop reaches to 40 mV, stop increasing auto transformer voltage. Record step down transformer sec.voltage.
- 3.3.4 Continue for 160 Amp (Shunt drop 40mV) load current as stated in clause 3.3.3 for 1 minute.
- 3.3.5 Measure temp. Of +ve & -ve plates of diode wheel near diodes manually. Record ambient temp.
- Check that difference between aluminium plate temp. & ambient should not exceed beyond 20⁰ C.

3.4 Load Test At 1800 RPM :

- 3.4.1 Repeat Clause 3.3 while diode wheel rotating at speed 1800 RPM. Apply input voltage & monitor output load current slip rings during rotation.
- 3.4.2 Continue rotation at 1800 RPM for 3 hour.

3.5 Load Test At 2160 RPM :

- 3.5.1 Repeat Clause 3.4 with diode wheel rotating at speed 2160 RPM.
- 3.5.2 Continue rotation at 2160 RPM for 1 hour.

4.0 TYPE TEST :-

The following type testing shall be conducted on one diode wheel assy for each lot of diodes received.



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It must not be used directly or indirectly in any way detrimental to the interest of the company**- Type Test at 1800 RPM :**

Type diode wheel assembly shall be tested in rotating condition at 1800 RPM at rated current by supplying 3-Phase AC Voltage applied at the input terminals and output DC Voltage shall be measured at every 12 hours alongwith temp. rise of diodes. This shall be conducted for 7 days and the results shall be submitted for approval.

- Type Test at 2160 RPM :

Diode wheel assembly will be subjected for 2160 RPM for 3 hours, Mechanical healthiness of diodes will be ensured Assy. will be subjected for the tests covered in 5.1. Test results will be submitted for approval.

- Type Test at 2400 RPM :

Diode wheel assembly will be subjected for 2400 RPM for 15 minutes, Mechanical healthiness of diodes will be ensured Assy. will be subjected for the tests covered in 5.1. Test results will be submitted for approval.

5.0 INSPECTION AT BHEL :-

- 5.1 One No. diode wheel should be offered for inspection & testing for approval before commencement of bulk manufacturing.
- 5.2 Final inspection & testing will be carried out in presence of TME Engineers.