



**SPECIFICATIONS OF DIODE WHEEL ASSEMBLY /
ROTATING RECTIFIER ASSEMBLY (RRA)**
(FOR Brushless Alternators)

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1.0 SCOPE :-

This specification stipulates detailed test requirement of diode wheel assembly. However, the components and manufacturing is to be done as per the respective drawings & specifications.

2.0 ROUTINE TEST REQUIREMENT:-

2.1 Components Firm Mounting Check :

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

2.2 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.

2.3 Short Circuit Test :

2.3.1 Connect 300 A/ 75mV shunt across +ve & -ve plates of diode wheel.

2.3.2 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.

2.3.3 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 secondary voltage.

2.3.4 Continue for 160 Amp (Shunt drop 40mV) load current as stated in clause 3.3.3 for 1 minute.

2.3.5 Measure temp. Of +ve & -ve plates of diode wheel near diodes manually. Record ambient temp. Check that the difference between aluminium plate & ambient temperatures should not exceed beyond 20⁰ C.

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	TME	2			



**PRODUCT STANDARD
TME DIVISION, BHOPAL**

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PAGE 02 OF 02

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2.4 Load Test At 1800 RPM :

2.4.1 Repeat Clause 3.3 while diode wheel rotating at speed 1800 RPM. Apply input Voltage & monitor output load current slip rings during rotation.

2.4.2 Continue rotation at 1800 RPM for 3 hour.

2.5 Load Test At 2160 RPM :

2.5.1 Repeat Clause 3.4 with diode wheel rotating at speed 2160 RPM.

2.5.2 Continue rotation at 2160 RPM for 1 hour.

3.0 TYPE TEST :-

3.1 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 along with temperature rise of diodes. This shall be conducted for 7 days.

3.2 Type Test at 2160 RPM :

Diode wheel assembly will be subjected for 2160 RPM for 3 hours, Mechanical healthiness of diodes will be ensured.

3.3 Type Test at 2400 RPM :

Diode wheel assembly will be subjected for 2400 RPM for 15 minutes, Mechanical healthiness of diodes will be ensured.

4.0 INSPECTION BY BHEL :-

4.1 Tests stipulated in this clause 2.0 are to be performed on all the RRA for an order.

4.2 Vendor to submit test report of routine tests as per Cl. 2.0 along with the supplies.

4.3 Additionally, Tests stipulated in clause 3.0 are to be performed on the first prototype RRA to be supplied by a new vendor. Also these test have to be performed by regular vendor every 7 years.

4.4 Approval of bulk supply to be given only after witnessing of the Type tests by the Inspecting authority and approval by TME.
