

 EPD - BANGALORE	Indent Specifications For 2500 kW GEAR BOX	SPECIFICATION NO. EL- 19-2009 / 002
---	---	--

TECHNICAL SPECIFICATIONS

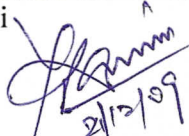
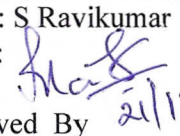
FOR

2500 kW GEAR BOX

PROJECT: BHEL HYDERABAD 150 MW GENERATOR TEST BED Project

CONTENTS

Cover sheet	(Approved)	Sht 1 of 5
Section – I	Site Data	Sht 2 of 5
Section – II	Scope of supply	Sht 2 of 5
Section – III	Detailed Technical specification	Sht 2 of 5
Section – IV	Inspection & Testing	Sht 3 of 5
SECTION-VI	PRICE FORMAT	Sht 5 of 5

Name : Y Ravi Sign :  Prepared By	Name : K S Balachander Sign : Checked By	Name : S Ravikumar Sign :  Approved By
--	--	---

ISSUED BY : EPD	REV NO. 00 DATE OF ISSUE : 24.09.2008	SHEET 1 OF 5
-----------------	--	--------------

 EPD - BANGALORE	Indent Specifications For 2500 kW GEAR BOX	SPECIFICATION NO. EL- 19-2009 / 002
---	---	--

SECTION I - SITE DATA

1.0 SITE CONDITIONS:

- 1 Project site : BHEL- HYDERABAD, ANDHRA PRADESH
- 2 Altitude : Less than 600 meters
- 3 Air Temperature :-
 - 3.1 Air Amb.Temperature Max for Design : 40⁰ C
 - 3.2 Air Amb.Temperature Min. : 9⁰C
- 4 Relative Humidity :-
 - 4.1 Relative humidity (max) : 95 %, Non Condensing
 - 4.2 Relative humidity (min) : 36 %
 - 4.3 Relative humidity for design : 100 %
- 5.0 Atmosphere : Factory Environment

Note: Maximum temperature & maximum relative humidity do not occur simultaneously.

The Equipment shall confirm to the IEC Rules 1956 and statutory requirements in Orissa State as regards safety, earthing and other essential provision specified therein for installation and operation of electrical plant and equipment.

ISSUED BY : EPD	REV NO. 00 DATE OF ISSUE : 24.09.2008	SHEET 2 OF 5
-----------------	--	--------------

 EPD - BANGALORE	Indent Specifications For 2500 kW GEAR BOX	SPECIFICATION NO. EL- 19-2009 / 002
---	---	--

SECTION II - SCOPE OF SUPPLY

Supply, erection and commissioning of

1. Suitable gear box for 2.5 MW DC Motor with output speed of 3000 rpm
 - a. Gear box of 1000/4000 rpm speed ratio.
 - b. Couplings for Motor and Gear box(low speed side)
 - c. Half Coupling for Gear box high speed side(PCDs matching to existing high speed flange.)
2. Base frame for Motor and Gear box.

SECTION III - TECHNICAL SPECIFICATION

1. Suitable gear box with output speed of 4000 rpm (1:4 gear ratio)

Standard: Design manufacture and testing of gear box shall be in accordance with API 613

Gear box ratio : Low speed side : 1000 rpm

High speed side : 4000 rpm

Power output : 2500 kW at 3000 rpm.(continuous)

Types of driver : DC Motor

Gear box needs to run at intermittent speeds continuously at proportionate torque and power.

Set of spare bearings shall be supplied along with the gear box..

Direction of rotation : Bidirectional

2. Couplings

- a) Low speed end suitable to 2.5 MW Drive motor coupling flange.

(Drive motor flange coupling suitable to 2.5 MW DC Motor shall be supplied.)

- b) High speed side : High speed coupling shall be mounted as per the existing PCD of 1900 kW Drive motor gear box coupling.

Installation : Indoor

Coupling guard mounting provision shall be given on both high speed and low speed sides.

Required provision for vibration probes and key phasor probe shall be given on both high speed shaft and low speed shaft journal bearings.

Lubrication : Servo prime 46

ISSUED BY : EPD	REV NO. 00 DATE OF ISSUE : 24.09.2008	SHEET 3 OF 5
-----------------	---	--------------

 EPD - BANGALORE	Indent Specifications For 2500 kW GEAR BOX	SPECIFICATION NO. EL- 19-2009 / 002
---	---	--

SECTION IV - INSPECTION & TESTING

The equipment supplied shall be completely tested at manufacturers works. The inspection and performance testing shall be offered for witnessing at the manufacturers works. Supplier to submit manufacturing / testing QAP for approval. Items offered shall be duly type tested at national laboratories as per latest relevant Indian/International standards. If any type test is not carried out, supplier shall carry out the same at his own cost. All items shall be offered for customer/BHEL inspection. All routine tests/ acceptance tests as per relevant Indian/International standards have to be conducted during inspection. The following tests shall be performed by the supplier on the panel.

Sl No.	Name of Test	Inspection type Type Routine	Test Method	Remarks
1	Visual Inspection	B, C	Check for overall dimensions, general arrangements, Painting, rating, make etc.	
2	Degree of protection	A	Check for degree of protection	

- A - Manufacturer's test certificates would be furnished
- B - Test to be conducted in presence of BHEL representative
- C - Test to be conducted in the presence of customer

5.1 Type test and internal test certificates shall be furnished before inspection.

5.2 Supplier shall submit the test & Inspection procedure along with QAP immediately along with the offer.

ISSUED BY : EPD	REV NO. 00 DATE OF ISSUE : 24.09.2008	SHEET 4 OF 5
-----------------	--	--------------

 EPD - BANGALORE	Indent Specifications For 2500 kW GEAR BOX	SPECIFICATION NO. EL- 19-2009 / 002
---	---	--

SECTION VI – PRICE FORMAT

a) Main

Sl No	Description	Qty.	Unit Price	Total Price	Remarks
1	Gear box with output speed of 4000 rpm (1:4 gear ratio)	1 No.			
2.	Common base frame	1 No			
3.	Full coupling	1 No			
4.	Half Coupling	1No			

b) 2 Years maintenance spares

Sl No	Description	Qty.	Unit Price	Total Price	Remarks
1	Set of spare bearings	1 No.			
2	Set of Spare brushes	1 No			
3	Set of Spare RTDs	1 No			

c) Commissioning spares

Sl No	Description	Qty.	Unit Price	Total Price	Remarks
1					
2					
3					

ISSUED BY : EPD	REV NO. 00 DATE OF ISSUE : 24.09.2008	SHEET 5 OF 5
-----------------	--	--------------