

## SP2000300065-SPECIFICATION OF 140 KW DC MOTOR

Sl. No.	Specification	BHEL Requirement	Supplier's Offer/Comments	Remarks
	<b>Model No.</b>	<b>To be filled in by Vendor</b>		
1	Rating	(a) 140 KW (nom) (b) 420 KW (intermittent)		
2	Armature Voltage	500 V		
3	Armature Current	(a) 302 Amps (b) (906 A – intermittent)		
4	Speed	0 – 800 – 2000 rpm		
5	Efficiency (excluding shunt losses)	93.2 %		
6	Insulation	Class F		
7	Duty Cycle	Continuous. (for overload refer below)		
8	Construction	B 3		
9	Permissible temperature rise (by resistance method) above Ambient / Cooling air inlet.	75 Deg. C Over 45 Deg. C air inlet.		
10	Direction of rotation	Bi-Directional		
11	Excitation	Separate, shunt & compensated		
12	Excitation Voltage	100 - 24 V		
13	Excitation Current	23 A - 7 A		
14	Maximum Temperature of Ambient/Cooling air at inlet	45 Deg. C		
15	Maximum Relative humidity	95 % at 35 Deg.C.		
16	Altitude of place where machine installed	Less than 1000 mtrs Above mean sea level		
17	Power Supply	Motor shall be suitable for (a) Individual DC converter drive and (b) For field forcing voltage upto 500 V		
18	Protection	(a) IP 44 for all motors. (b) However, motor shall be suitable for converting to IP 23 by suitably replacing solid cover plates on sides by louver plates so as to have interchangeability of motor between top and bottom location. (c) Provision for duct opening on top, bottom and on sides are to be made.		

Sl. No.	Specification	BHEL Requirement	Supplier's Comments	Remarks
19	Cooling	(a) IC 37 i.e. Force cooled in open cycle with air inlet & outlet through ducts at bottom when motor is mounted at the bottom.		
		(b) IC 06 i.e. unit mounted blower when motor is mount in the top. Air entry from top & exit through sides.		
		(c) Supplier shall quote suitably rated unit mounted ventilation blower for top motors.		
20	Quantity of cooling air	1.0 Cu.M/Sec.		
21	Ventilation pressure drop in machine	1300 N/Sq.m		
22	Flow of Cooling air	DE to NDE		
23	Bearing and Lubrication	Grease lubricated ball/roller bearings, mounted on end shields.		
24	Terminal box	No terminal box shall be provided. Only flexible copper cables shall be brought out from motor.		
25	Rotor Shaft	Alloy steel shaft of 85 mm dia. without keyway on drive end and suitable coupling and mounting arrangement for encoder type POG 10 D 1024 (Hubner Berlin make) in non drive end.  Encoder is BHEL Scope.		

Contd../3

...

## B. Foot Note for the Technical Specification :

SI. No	BHEL Requirement	Supplier's Comments	Remarks
<b>1</b>	<b>Motor shall be suitable for :-</b>		
1.a.	300 operation / hour		
1.b.	Speed regulation		
1.c.	0 – 800 rpm by armature voltage		
1.d.	800 – 2000 rpm by field weakening.		
1.e.	Loading factors		
	1.e.1 300 % rated load for 2 sec. repeated 2 times/min. at base speed and		
	1.e.2 200 % for 2 sec. repeated 5 times / min. at top speed during field weakening range.		
1.f.	Both normal and emergency breaking for current not exceeding overload limit.		
1.g.	Motor should be suitable for mounting on the existing foundation with integral frame to match the shaft centre height of 425 mm, cooling air duct openings and mounting of motors one above the other.		
<b>2</b>	<b>Motor shall be supplied with:-</b>		
2.a.	Alloy steel shaft of 85 mm dia without any keyway.		
2.b.	Stator winding temperature monitor for warning and Tripping PT 100–02 Nos.		
2.c.	Space heaters (230 V AC, 50 Hz)		
2.d.	Double Shaft Extension:-		
	2.d.1. DE Shaft shall be cylindrical and suitable for mounting of coupling by shrink fitting.		
	2.d.2. NDE – shaft extension suitable for mounting Pulse Encoder POG 10D-1024 with over speed device. Mounting arrangement will be given during drawing approval		

SI. No	BHEL Requirement	Supplier's Comments	Remarks
2.e.	Motor shall be provided with flexible copper conductor cables for armature, field, heater and for PT 100		
	2.e.1 Length of the cables outside the motor frame shall be 10 meters each. Cable sizes will be decided during detailed engineering. Uninyvin cables of suitable size are to be provided for Armature.		
	2.e.2. Cables to be brought outside through holes at the left top corner as viewed from the Non-drive end of motor. The cable holes axis should be parallel to the shaft axis.		
2.f.	Locating keyway /key arrangement both at top and at bottom of the motor to locate the motor in position.		
2.g.	Paint and shade 631 as per IS : 5. (Light Gray)		
2.h	Brush holders should be separate for each brush/brushes in the holder arm for easy replacement. Brushes at the commutator should be located at 45 deg. from horizontal/vertical axis.		
4	<b>Other requirements:</b>		
4.a	All motors should have duct opening for Entry and Exit of air with solid removable cover plates both at top and bottom.		
4.b	All motors should have solid removable cover plates as well as louver plates on both sides of the commutator end. This is required for interchangeability of the motors between top and bottom locations.		
4.c	All the motors should be tested at supplier's works before dispatch. All other routine tests and Load Test as per the IS specification have to be carried out during testing. The supplier should have the necessary facilities to test the motors as mentioned above. Type Test has to be carried out at least for one motor.		
4.d	All motors are to be supplied with unit mounted blowers and supplier should include the same in the Offer.		
4.e	50 Nos of carbon brushes must be provided as spare and the same shall be included in the offer.		

## **140KW 2000 RPM DC MOTOR FOR SRM - SP2000300065**

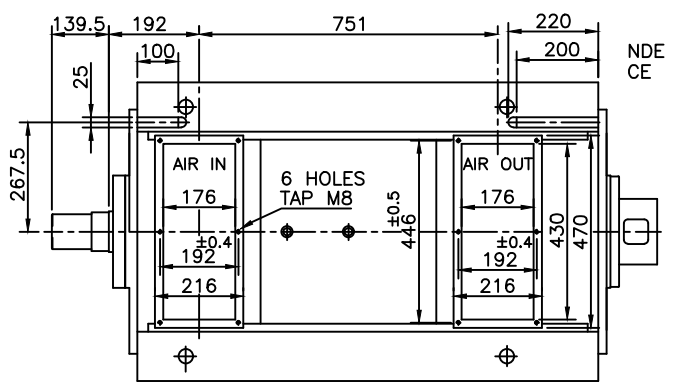
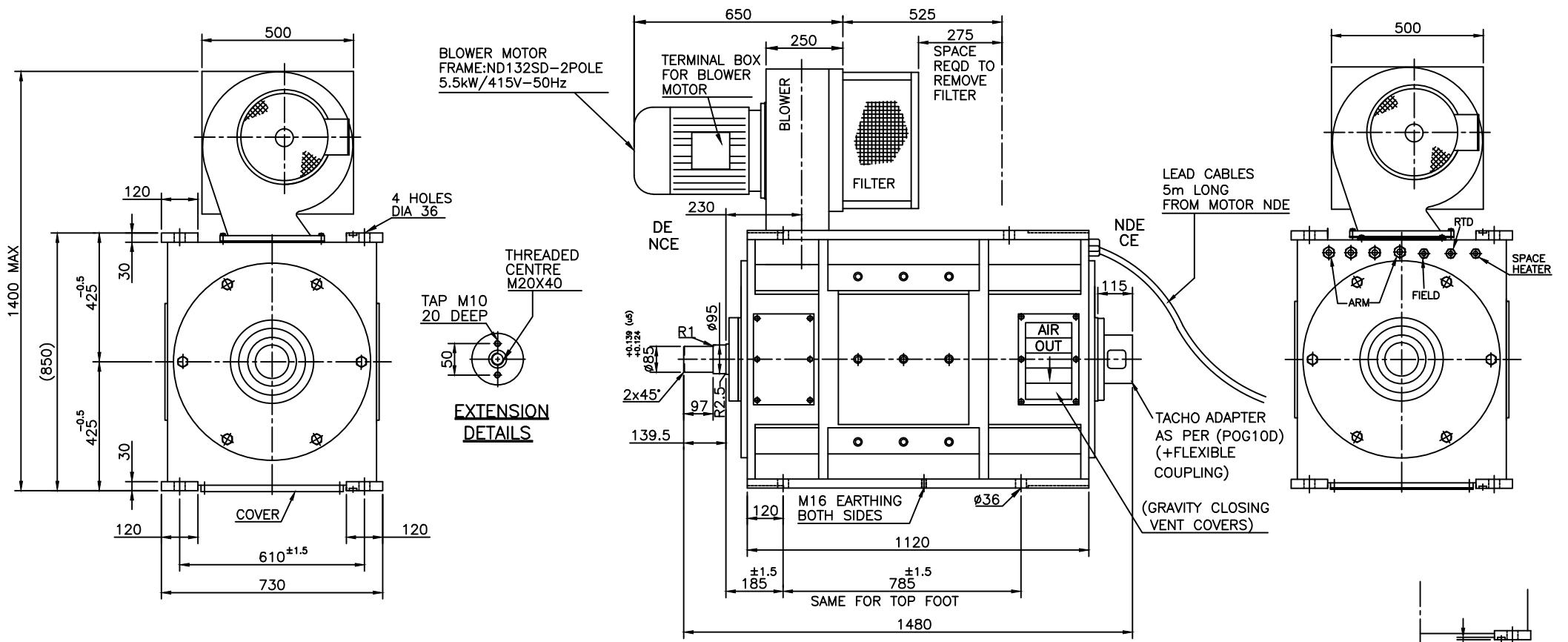
### Note to Supplier:

1. Any deviations from the specifications is to be given in the offer.
2. Catalogue along with the details is to be given along with the offer.
3. General arrangement drawing is to be given with the offer.
4. Operation and maintenance manual with all the details is to be given (2 copies) with the supply.
5. Detailed specifications along with the requirements and the present motor drawing are enclosed along with the enquiry.
6. All points are to be addressed point by point in the offer.
7. 50 Nos of carbon brushes must be given separately along with the motors as spare.

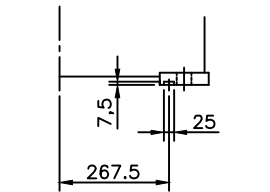
Contd../6

# DIMENSION DRAWING OF DC MOTOR

THIRD ANGLE  
PROJECTION



- NOTES:**
- \* BOTTOM AIR INLET AND OUTLET WITH PLAIN COVERS
  - \* AIR INLET DUCT MOUNTING FLANGE WILL BE PROVIDED ON DE BOTTOM SIDE.
  - \* AIR OUTLET DUCT MOUNTING FLANGE WILL BE PROVIDED ON NDE BOTTOM SIDE.
  - \* CABLES AS SHOWN.



WEIGHT(Kg) 2200 APPROX.

CUSTOMER		RATING (kW)	
INQ/ENQ NO.		POLE	
PO NO.		FRAME	ASBG425SPL
CLIENT		MTG/TB LOCATION	B3
PROJECT		ENCLOSURE/COOLING	IP23/IC06

REV.4/DT.		DRN.	MDK	21.03.11	DRG. NO.	REV.
REV.3/DT.		CHD.	RKA	21.03.11	QAD21619	1
REV.2/DT.		APPD.			SCALE : NTS	All Dimensions are in mm.
REV.1/DT.	MDK/17.07.11	DIM 192 & 751 WAS 212 & 731				