

PACKAGE / SYSTEM : ASH HANDLING SYSTEM

EQUIPMENT : TRANSPORT AIR COMPRESSOR

VENDOR : AERZEN MACHINES (INDIA) PVT. LTD

VENDOR REFERENCE NO. : GID-208-ME-ETP-DS-53112 _ Rev-2

2	Customer comments incorporated	25-May-16			
1	Customer comments incorporated	15-Apr-16	- sd -	- sd -	- sd -
0	For Information	04-Mar-16	- sd -	- sd -	- sd -
REV	DESCRIPTION	DATE	PPD	CHKD	APPD

PROJECT

**IB THERMAL POWER STATION 2 × 660 MW UNITS 3 & 4
BANHARPALI, JHARSUGUDA ODISHA – 768234, INDIA**

OWNER



ODISHA POWER GENERATION CORPORATION LIMITED

OWNER'S CONSULTANT



**DEVELOPMENT CONSULTANTS PVT. LTD.
CONSULTING ENGINEERS
KOLKATA, INDIA**

EPC CONTRACTOR



**BGR ENERGY SYSTEMS LIMITED
CHENNAI - INDIA**

<p>AHP VENDOR</p> <div style="display: flex; align-items: center;">  <p>BGR ENERGY SYSTEMS LIMITED CHENNAI - INDIA</p> </div>	<p>AHP EQUIPMENT SUPPLIER</p> <p>AERZEN MACHINES (INDIA) PVT. LTD</p>
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	NAME	SIGN	DATE	SHEET SIZE	NO. OF SHEETS	
PPD.	AERZEN MACHINES	- sd -	04-Mar-16	A4	4	
CHD.	GOUTAM	- sd -	04-Mar-16			
APPD.	D.DE	- sd -	04-Mar-16			
DEPT.		SCALE	WEIGHT (KG)	REF.TO ASSY. DRG.	ITEM NO.	NO. OF ITEMS
CODE		N.A	N.A	N.A	N.A	N.A
TITLE			CARD CODE	BGR DOCUMENT NO.		REV.
DATASHEET OF TRANSPORT AIR COMPRESSOR			NA	GID-208-ME-ETP-DS-53112		2



Odisha Power Generation Corporation Limited	
2 x 660 MW, Unit # 3 & 4	
DATA SHEET FOR TRANSPORT AIR COMPRESSOR (Doc No.GID-208-ME-ETP-DS-53112 Rev 02)	

1.00.00	General	:	
1.01.00	Manufacturer	:	Aerzen Machines (I) Pvt. Ltd
1.02.00	Model No.	:	VM 85
1.03.00	Type	:	Oil free screw compressor
1.04.00	Numbers offered (working + standby) – Nos.	:	6+3
1.05.00	Design Standard	:	DIN
1.06.00	Testing Standard	:	ISO 1217
1.07.00	Duty	:	Continuous
1.08.00	Dimensions with acoustic hood (LxBxH)	:	5935 x 2200 x 2750 mm
1.09.00	Location	:	Compressor house
2.00.00	Guaranteed Performance	:	
2.01.00	Design temperature	:	40 deg C
2.02.00	Design relative humidity	:	60%
2.03.00	Site elevation	:	199.5 MSL
2.04.00	Free air delivery of each compressor (m3/hr) as per ISO standard	:	6185 m3/hr
2.05.00	Rated discharge pressure	:	220 Kpa to 300 Kpa
2.05.01	Blow off relief valve set point	:	3.25 kg/cm2(g)
2.06.00	Air temperature at compressor outlet at design condition	:	244 deg C
2.07.00	Compressor Rated Speed in RPM	:	7810
2.08.00	Air temperature at cooler outlet at design condition	:	42 deg C
2.09.00	Volumetric efficiency at guaranteed condition	:	Approx. 90%
2.10.00	Type of Transmission between motor and compressor	:	Direct coupled
2.11.00	Guaranteed shaft input power as per design condition (inclusive of positive tolerance)	:	435 kW
2.12.00	Guaranteed power consumption at motor input terminals as per design condition (inclusive of positive tolerance)	:	475 kW
2.13.00	Noise level at a distance of 1 meter from equipment	:	85 dbA
2.14.00	Vibration level	:	Between 12-18 mm/sec as per VDI standard
3.00.00	Construction Features	:	
3.01.00	Type of drive between motor shaft and compressor rotor	:	Direct coupled



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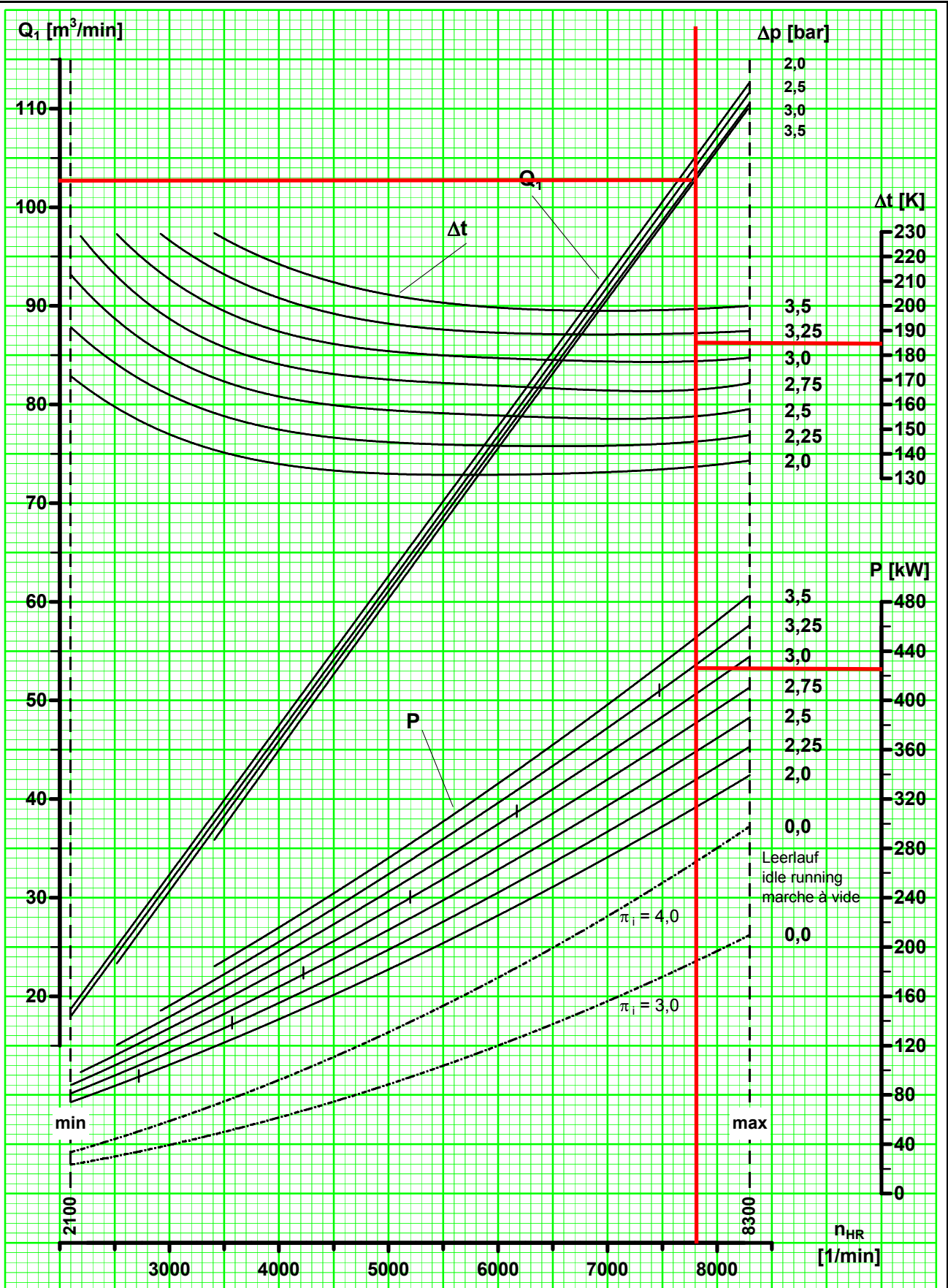
3.02.00	Number of Screw and Screw Arrangement	:	1 male + 1 female
3.03.00	Number of lobes in male rotor	:	4
3.04.00	No. of flutes in female rotor	:	6
3.05.00	Rotor profile (Symmetric / asymmetric)	:	Asymmetric
3.06.00	Type of shaft seal	:	Piston ring labyrinth seal
3.07.00	Make & bearing no	:	FAG/SKF NU217E.CP.C3 / NU218E.M1.C3 NU216E.TVP.C3 / QJ217MA.C3
3.08.00	Life of bearings in hrs		40,000 hrs
3.09.00	Method of bearing lubrication	:	Forced feed
3.10.00	Type of oil used	:	Fully synthetic oil
3.11.00	Maximum pressure of compressor in continuous operation	:	3.25 kg/cm2(g)
3.12.00	Type of cooling	:	Air cooled
3.13.00	No. of safety valve per compressor	:	one per compressor
4.00.00	Material of construction		
4.01.00	Gear casing, Compressor	:	Cast Iron
4.02.00	Compressor casing / rotor housing	:	Cast Iron
4.03.00	Rotors	:	Drop forged alloy steel
4.04.00	Timing Gears	:	16MnCr5 teeth hardened and ground
4.05.00	Bull gear and pinion gear	:	16MnCr5 teeth hardened and ground
4.06.00	Shaft Seals	:	Piston ring labyrinth
4.07.00	Safety Valves	:	PED/97/23/EG
4.08.00	Non return valves	:	PED standards
4.09.00	Blow off valve	:	Housing: Aluminum Valve: Silicone
4.10.00	Tube of oil cooler	:	Black steel
4.11.00	Gear Box	:	Cast iron
4.12.00	Drive shaft	:	Drop forged alloy steel
5.00.00	Connection flange details of the package compressor		
5.01.00	At air inlet	:	8 inch

R1



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5.02.00	At air outlet	:	8 inch
6.00.00	Drive Details		
6.01.00	Recommended motor rating & syn. rpm	:	500 kW & 2975
6.02.00	Speed ratio of Gear Box	:	0.3818 (i_8/9) R1
6.03.00	Type of Gear Box	:	Helical
6.04.00	Transmission efficiency	:	Approx. 98%
7.00.00	Weights		
7.01.00	Each compressor assembly with motor	:	10100 kgs approx
7.02.00	Maximum weight to be handled at a time during maintenance (kg)	:	Motor – 4500 kgs approx
8.00.00	Compressor Accessories		
8.01.00	Air intake filter	:	Dry type
8.02.00	Duty	:	continuous
8.03.00	Number per compressor	:	1
8.04.00	Particle removal efficiency (Mention particle size)	:	97% (>5 microns)
8.05.00	Filter rating	:	G4
8.06.00	Filter medium	:	Cellulose fibre
8.07.00	Suction silencer	:	One per compressor
8.08.00	Discharge silencer	:	One per compressor
9.00.00	Oil cooler		
9.01.00	Number per compressor	:	One per compressor
9.02.00	Type	:	Air-air oil cooler, Fin type
9.03.00	Maximum operating oil temperature	:	80 deg C
10.00.00	Painting of Compressor	:	As per Aerzen standard
11.00.00	Inspection and testing	:	As per approved QAP



Q_1 : Ansaugvolumenstrom (Luft) bei $p_1 = 1,0$ bar und $t_1 = 20^\circ\text{C}$	intake volume flow (air) at $p_1 = 1.0$ bar and $t_1 = 20^\circ\text{C}$	débit aspiré (air) pour $p_1 = 1,0$ bar et $t_1 = 20^\circ\text{C}$
n_{HR} : Hauptrotordrehzahl	main rotor speed	vitesse du rotor principal
n_V : Verdichterwellendrehzahl	compressor shaft speed	vitesse de l'arbre du compresseur
P : Leistungsbedarf an der Kupplung	power required at the coupling	puissance absorbée à l'accouplement
Δt : Temperaturerhöhung	temperature rise	élévation de température
Δp : Druckerhöhung	pressure difference	pression différentielle
π_i : Eingebautes Druckverhältnis	built-in compression ratio	rapport de compression interne

Leistungsdiagramm - **Überdruck** - für Schraubenverdichterstufe
 performance diagram - **overpressure** - for screw compressor stage
 courbes de fonctionnement - **fonctionnement en pression** - pour étage de compresseur à vis

VM 85

