

**Summary of Weights & Volumes for Sulayamaniyah Power Project**

Products	Total Volume (CBM)	Total Weight in tons (MT)
<b>HYDERABAD</b>		
Gas Turbine Items	5442.73	1554.29
Generator Items	591.81	514.00
BOP Mechanical Items	3893.41	1026.30
BOP Electrical Items	2518.00	754.90
BOP C & I Items	2843.00	27.85
HE & F Items	1218.20	192.71
WATER SYSTEMS ITEMS	1279.06	472.10
<b>BANGALORE</b>		
CONTROL EQUIPMENTS	38.19	10.46
<b>JHANSI</b>		
GENERATOR TRANSFORMERS ITEMS	403.26	832.00
<b>Total</b>	<b>18227.67</b>	<b>5384.61</b>

**PACKING DETAILS OF GAS TURBINE ITEMS**

Sl No	Item Description	Dimension of box LXWXH) (m) / Volume m <sup>3</sup>	Qty	Qty	Length M	Width M	Height M	Volume/ Unit in M3	Total Volume in M3	Weight of shipment in Kgs	Weight for 2 sets in MT
1	Gas Turbine Fr-9E Flange to Flange	13.2 x 4.6 x 5	1	1	13.2	4.6	5	303.6	303.6	230,000	230
2	Accessory Package (Accessory Base)	8.4 x 3.4 x 4.8	1	1	8.4	3.4	4.8	137.088	137.088	60,000	60
3	Exhaust Frame Blowers	2.2 x 1.5 x 1 (3 Nos.)	3	2	2.2	1.5	1	9.9	19.8	1,000	2
4	Exhaust Plenum							0	0		0
		6 x 4 x 5 (2 Nos)	2	2	6	4	5	240	480	4,500	9
		6 x 4.5 x 4	1	2	6	4.5	4	108	216	6,500	13
		2.5 x 1 x 1	1	2	2.5	1	1	2.5	5	800	1.6
5	Base Exhaust Plenum	6.5 x 1.2 x 1 (2 nos)	2	2	6.5	1.2	1	15.6	31.2	2,000	4
6	Diffuser	6.5 x 6.5 x 3	1	2	6.5	6.5	3	126.75	253.5	8,500	17
7	Lube oil Centrifuge	3 x 1.5 x 1.8	1	1	3	1.5	1.8	8.1	8.1	3,500	3.5
8	Load Coupling with Hardware	4.5 x 1.5 x 1.1	1	2	4.5	1.5	1.1	7.425	14.85	2,850	5.7
9	Accessory Coupling & Hardware	2.2 x 1 x 1	1	2	2.2	1	1	2.2	4.4	500	1
10	Guard Coupling Accessory	1.5 x 1 x 1	1	2	1.5	1	1	1.5	3	300	0.6
11	Jacking Oil Skid (EM Engg)	2.2 x 1.5 x 1.5	1	2	2.2	1.5	1.5	4.95	9.9	1,200	2.4
12	Piping Lube Oil Flush Field -	6.5 x 1.5 x 1.1	1	2	6.5	1.5	1.1	10.725	21.45	1,200	2.4
13	Field Inter Connection Piping	6.5 x 1.5 x 1.1 (10 nos)	10	2	6.5	1.5	1.1	107.25	214.5	32,000	64
14	Enclosure GT & Accessory AND Gen Compartment	250m3 (In -22 boxes)		2				230	460	100,000	200
15	Turbine Vent Fans			2					0	10,000	20
		2.5 x 2.5 x 3.5 (2No.s)	2	2	2.5	2.5	3.5	43.75	87.5		0
		1.8 x 1.8 x 2.0 (4No.s)	4	2	1.8	1.8	2	25.92	51.84		0
		2.0 x 1.8 x 2.5 (4 No.s)	4	2	2	1.8	2.5	36	72		0
		1.5x1.5x 1.0 (1 No.s)	1	2	1.5	1.5	1	2.25	4.5		0
		1.0 x 1.0 x 1.2 (2 Nos)	2	2	1	1	1.2	2.4	4.8		0
16	Inlet Duct			2				0	0		0
	i) Inlet Plenum Extension	4.5 x 2.3 x 3.0 (2 nos.)	2	2	4.5	2.3	3	62.1	124.2	1,500	3
	ii) Inlet duct transition piece	9.8x2.3x1.7	1	2	9.8	2.3	1.7	38.318	76.636	9,500	19
	iii) Inlet Duct Expansion Pieces	10 x 3.7 x 0.4 (2 nos.)	2	2	10	3.7	0.4	29.6	59.2	1,900	3.8
	iv) Inlet Duct Elbow	10x3.7x3.8	1	2	10	3.7	3.8	140.6	281.2	11,100	22.2
	v) Silencer	10 x 3.7 x 3.1	1	2	10	3.7	3.1	114.7	229.4	20,200	40.4
	vi) Duct Pieces	10 x 2.3 x 3.1 (2 nos)	2	2	10	2.3	3.1	142.6	285.2	6,900	13.8
	vii) Support structure	10x2.5x2.5- 4nos	4	2	10	2.5	2.5	250	500	35,000	70
17	Control cab unit	12x4.0x3.0	1	2	12	4	3	144	288	28	0.056
18	Gas Valve Module	2.4x1.6x 3.5	1	2	2.4	1.6	3.5	13.44	26.88	7,000	14
19	CO2 Rack - Frames	3.5 x 1 x 2.5 (4 RACKS nos.)		2	3.5	1	2.5	0	0	4,000	8
	CO2.			2				0	0		0
	CO2 Cylinders	0.5x0.5x2.0- 60 nos	60	2	0.5	0.5	2	30	60	12,000	24
	Co2 cabinet - GT	8.5x2.4 x 3	1	2	8.5	2.4	3	61.2	122.4	11	0.022
	Co2 Cabinet generator	5.8 x 2.4 x 3	1	2	5.8	2.4	3	41.76	83.52	9	0.018
20	Lube Oil Demister	2.5x 1.6 x 2.5 (1 no)	1	2	2.5	1.6	2.5	10	20	3,000	6
21	Water Wash Skid	8x3.5 x 3.2	1	1	8	3.5	3.2	89.6	89.6	7,000	7
22	Piping Arrangement Lube oil Junction Boxes	6.0 x 1.5 x 1.1 (4 nos)	4	2	6	1.5	1.1	39.6	79.2	2,000	4
23	Piping Arrangement Lube oil Junction Boxes			2				0	0	12,000	24

**PACKING DETAILS OF GAS TURBINE ITEMS**

Sl No	Item Description	Dimension of box LXWXH) (m) / Volume m <sup>3</sup>	Qty	Qty	Length M	Width M	Height M	Volume/ Unit in M3	Total Volume in M3	Weight of shipment in Kgs	Weight for 2 sets in MT
		6.5x 1.2x 1 (3No.s)	3	2	6.5	1.2	1	23.4	46.8		0
		6.0x 1.5x 1.1 (2No.s)	2	2	6	1.5	1.1	19.8	39.6		0
24	Anchoring, Base Plates Positioning Blocks (Foundation Hardware-Concrete Embedments)	1.2 x 1.5 x 3.5	1	2	1.2	1.5	3.5	6.3	12.6	3,350	6.7
25	Anchoring, Base Plates Positioning Blocks (Foundation Hardware Shims, Guide block etc.	0.5 x 0.5 x 1.5	1	2	0.5	0.5	1.5	0.375	0.75	1,900	3.8
26	Anchoring, Base Plates Positioning Blocks (Angle 75x75x45000)			2				0	0	425	0.85
		6 x 0.175 x 0.325 (7 nos)	7	2	6	0.175	0.325	2.38875	4.7775		0
		3x0.175x0.325(1 no)	1	2	3	0.175	0.325	0.170625	0.34125		0
27	GT inlet air Filter house	10 X 3.5 X 3.5	1	2	10	3.5	3.5	122.5	245	130,000	260
28	GT Auxiliary control panel	1 X 1 X2.5	1	2	1	1	2.5	2.5	5	300	0.6
29	Haz gas monitor	0.2 X 0.4 X 0.2	1	2	0.2	0.4	0.2	0.016	0.032	50	0.1
30	GT Battery	2.5 x 0.7 x 1.5	1	2	2.5	0.7	1.5	2.625	5.25	3,000	6
31	GT Battery charger	1.5 x 1.1 x 2.5	1	2	1.5	1.1	2.5	4.125	8.25	750	1.5
32	Radiation shield assy.	0.8 x0.8 x 0.6	1	2	0.8	0.8	0.6	0.384	0.768	200	0.4
33	Boroscope	1x1x1	1	1	1	1	1	1	1	225	0.225
34	Special Tools for GT Maintenance (Tools)	1 x 1 x 2.2	1	1	1	1	2.2	2.2	2.2	550	0.55
35	Special tools for GT maintenance(Tools chest)	1x1x1	1	1	1	1	1	1	1	500	0.5
36	Special tools for GT maintenance (Hyd Torque wrench)	0.8x1x1	1	1	0.8	1	1	0.8	0.8	350	0.35
37	Special tools for GT maintenance (Tool kit major diassy)	1x1x2.2	1	1	1	1	2.2	2.2	2.2	820	0.82
38	Special tools for GT maintenance (Lifting beam)	10x1.5x1	1	1	10	1.5	1	15	15	4,000	4
39	Rotor stand	1.2x1.5x2.0	1	1	1.2	1.5	2	3.6	3.6	2,200	2.2
40	Exhaust Ducting	6.5x3.5x3.5	1	2	6.5	3.5	3.5	79.625	159.25	120,000	240
41	Dampers	6.5x3.5x3.5	1	2	6.5	3.5	3.5	79.625	159.25	65,000	130
42	Portable lube oil drain pump	1.0x1.0x0.8	1	1	1	1	0.8	0.8	0.8	200	0.2
								<b>3003.8604</b>	<b>5442.7328</b>	<b>931,818</b>	<b>1554.291</b>

**PACKING DETAILS OF GENERATOR ITEMS**

SL.NO	DESCRIPTION EQUIPMENT	Qty	LENGTH mm	BREADTH mm	HEIGHT mm	WEIGHT IN M.T	Total Volume (CBM)	Total weight in MT
1	GENERATOR PACKAGE	2	9000	4050	4700	210	171.315	420
2	AIR COOLER DUCT	2	6600	1900	3500	7	43.89	14
3	FOUNDATION ITMES	2				8	0	16
4	GENERATOR ENCLOSURE	2	12600	5600	5100	8	359.856	16
5	EXCITER	2	4600	2020	1803	7	16.753476	14
6	GEN CONTROL AND RELAY PANEL	2				3	0	6
7	ISOLATED PHASE BUSDUT WITH ADOPTER BOX	2				9	0	18
8	11 KV GENERATOR CIRCUIT BREAKER	2				5	0	10
							<b>591.814476</b>	<b>514</b>

**PACKING DETAILS OF BOP-MECHANICAL ITEMS**

Sl. No	Description of the equipment	Size (each equpt./skid) LXXH in Meters	Qty	Length M	Width M	Height M	Volume in M3	Total Volume (CBM)	Weight (each equpt./skid in MT	Total Weight (MT)	Remarks
<b>1</b>	<b>Fuel gas supply and treatment system</b>										
1.1	Station fiscal gas flow meter	1.2x1.2x0.75	1	1.2	1.2	0.75	1.08	1.08	1	1	
1.2	Gas conditioning skid	12 x 8 x 1.5	2	12	8	1.5	144	288	12	24	
1.3	Indirect electric heated single element water bath heaters	10 x 4 x 3	2	10	4	3	120	240	12	24	
1.4	Pressure reducing valve stations with single PRV and automatic switchover valves.	2.5 x 3.5 x 3	4	2.5	3.5	3	26.25	105	2.5	10	
1.5	Direct gas heater	2.5 x 1.5x 1.0	2	2.5	1.5	1	3.75	7.5	4	8	
1.8	Simplex fine filter skid	6 x 4 x 1	2	6	4	1	24	48	4	8	
<b>3</b>	<b><u>FUEL OIL SYSTEM</u></b>						0	0		0	
3.1	Fuel unloading pumps	5x3x1	5	5	3	1	15	75	5	25	
3.2	Centrifuge skids	8x6x2	6	8	6	2	96	576	8	48	
3.3	Fuel oil forwarding pump skids	4x4x1	4	4	4	1	16	64	8	32	
3.4	25 micron duplex filter skids	4x3x1.5	4	4	3	1.5	18	72	4	16	
3.5	6 micron duplex filter skids	4x3x1.5	4	4	3	1.5	18	72	4	16	
3.6	Hitech additive skids	4x3x1	4	4	3	1	12	48	3.5	14	
3.1	Water bath Fuel oil heaters	4.0x3.0x2.0	4	4	3	2	24	96	40	160	
<b>4</b>	<b><u>INSTRUMENT AIR PLANT AIR SYSTEM</u></b>						0	0		0	
4.1	Screw type air compressors	7x3.5x1.5	2	7	3.5	1.5	36.75	73.5	8.5	17	
4.2	Inlet air filters	4x3x2	2	4	3	2	24	48	3.2	6.4	
4.3	Pre-filters	4x3x2	2	4	3	2	24	48	3.2	6.4	
4.4	Coarse filters	4x3x2	1	4	3	2	24	24	4	4	
4.6	Desiccant type air dryer	4x3x2	2	4	3	2	24	48	8	16	
4.8	local control panel	1x1x1.5	1	1	1	1.5	1.5	1.5	1.5	1.5	
<b>5</b>	<b><u>FIRE FIGHTING SYSTEM</u></b>						0	0		0	
5.1	Fire water pumps	3x1.5x0.75	2	3	1.5	0.75	3.375	6.75	2.5	5	
5.2	Diesel engine driven fire water pumps	5x2x1.5	1	5	2	1.5	15	15	7	7	
5.3	Jockey pumps with drive motor	0.75x0.5x0.3	2	0.75	0.5	0.3	0.1125	0.225	0.5	1	
5.4	HV/MV spray water pump with drive motor	1x1x0.3	1	1	1	0.3	0.3	0.3	1	1	
5.5	HV/MV spray water pump with diesel engine drive	1x1x0.3	1	1	1	0.3	0.3	0.3	1	1	
5.9	Micro processor based fire alarm panel	3x1x1.5	1	3	1	1.5	4.5	4.5	2	2	
5.16	Foam spray pumps	0.5x0.5x0.5	4				0	0	0.5	2	
5.18	Inert gas piping		1				0	0	5	5	

**PACKING DETAILS OF BOP-MECHANICAL ITEMS**

Sl. No	Description of the equipment	Size (each equpt./skid) LXXH in Meters	Qty	Length M	Width M	Height M	Volume in M3	Total Volume (CBM)	Weight (each equpt./skid) in MT	Total Weight (MT)	Remarks
5.19	Smoke and fire detectors		100				0	0	0.25	25	
5.2	Signal Cables		1				0	0	25	25	
5.21	Control panel	0.5x0.5x0.5	2	0.5	0.5	0.5	0.125	0.25	1	2	
<b>6</b>	<b><u>AIR CONDITIONING SYSTEMS</u></b>										
	<b><u>A/C for Central Control Room</u></b>										
6.1	Refrigerant systems	4 x 4x3	2	4	4	3	48	96	5	10	
6.2	AHU	3 x 3x 3	2	3	3	3	27	54	4	8	
6.3	Condenser water pumps	2.5 x 1.5x 1.0	2	2.5	1.5	1	3.75	7.5	3	6	
6.4	Cooling towers	3 x3 x1.5	2	3	3	1.5	13.5	27	5	10	
6.5	Electric strip heater	1.5 x 1.0x 0.75	6	1.5	1	0.75	1.125	6.75	1.5	9	
6.6	Electric humidifier	3 x3 x1.5	1	3	3	1.5	13.5	13.5	1.5	1.5	
6.7	Chilled water pumps	2.5 x 1.5x 1.0	2	2.5	1.5	1	3.75	7.5	3	6	
6.8	Fresh air fans	1.0 x 1.0 x 0.75	1	1	1	0.75	0.75	0.75	0.5	0.5	
6.9	Absorbent pumps	4.0x1.5x1.0	1	4	1.5	1	6	6	2.5	2.5	
6.1	Package air conditioner	4.0x1.5x1.0	5	4	1.5	1	6	30	2.5	12.5	
6.11	Package humidifier heaters	4.0x1.5x1.0	5	4	1.5	1	6	30	2.5	12.5	
6.12	Strip heater for package air conditioners	1.5 x 1.0x 0.75	5	1.5	1	0.75	1.125	5.625	1.5	7.5	
6.13	Fresh air fan for package Acs	1.5 x 1.0x 0.75	5	1.5	1	0.75	1.125	5.625	1.5	7.5	
6.14	Package air conditioners for control room	3.5x1.5x2	8	3.5	1.5	2	10.5	84	3	24	
6.15	Condensers	1.5x1x1.5	8	1.5	1	1.5	2.25	18	1.5	12	
6.17	AC ducting	--	1				0	0	6	6	GI ducting
	<b><u>A/C for administrative building</u></b>										
6.18	Refrigerant systems	4 x 4x3	2	4	4	3	48	96	5	10	
6.19	AHU	3 x 3x 3	2	3	3	3	27	54	4	8	
6.20	Condenser water pumps	2.5 x 1.5x 1.0	2	2.5	1.5	1	3.75	7.5	3	6	
6.21	Cooling towers	3 x3 x1.5	2	3	3	1.5	13.5	27	5	10	
6.22	Electric strip heater	1.5 x 1.0x 0.75	6	1.5	1	0.75	1.125	6.75	1.5	9	
6.23	Electric humidifier	3 x3 x1.5	1	3	3	1.5	13.5	13.5	1.5	1.5	
6.24	Chilled water pumps	2.5 x 1.5x 1.0	2	2.5	1.5	1	3.75	7.5	3	6	
6.25	Fresh air fans	1.0 x 1.0 x 0.75	1	1	1	0.75	0.75	0.75	0.5	0.5	
6.26	Absorbent pumps	4.0x1.5x1.0	1	4	1.5	1	6	6	2.5	2.5	
6.27	Package air conditioner	4.0x1.5x1.0	5	4	1.5	1	6	30	2.5	12.5	
6.28	Package humidifier heaters	4.0x1.5x1.0	5	4	1.5	1	6	30	2.5	12.5	
6.29	Strip heater for package air conditioners	1.5 x 1.0x 0.75	5	1.5	1	0.75	1.125	5.625	1.5	7.5	
6.3	Fresh air fan for package Acs	1.5 x 1.0x 0.75	5	1.5	1	0.75	1.125	5.625	1.5	7.5	
6.31	Package air conditioners for control room	3.5x1.5x2	8	3.5	1.5	2	10.5	84	3	24	
6.32	Condensers	1.5x1x1.5	8	1.5	1	1.5	2.25	18	1.5	12	
6.34	AC ducting	--	1				0	0	6	6	GI ducting
<b>7</b>	<b><u>VENTILATION SYSTEM</u></b>										
<b>8</b>	<b><u>PLANT WATER SYSTEM</u></b>										
8.2	Filter beds of 2m3/hr cap	1.5x1.0x2.0	2	1.5	1	2	3	6	2	4	

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Sl. No	Description of the equipment	Size (each equpt./skid) LXBXH in Meters	Qty	Length M	Width M	Height M	Volume in M3	Total Volume (CBM)	Weight (each equpt./skid) in MT	Total Weight (MT)	Remarks
8.3	Chlorination system	2x2x2	1	2	2	2	8	8	2	2	
8.7	Package DM Plant of 1m3/h	2x2x2	1	2	2	2	8	8	5	5	
8.8	Potable/service water Pumps	1.5x1.0x2.0	4	1.5	1	2	3	12	0.5	2	
<b>9</b>	<b>Effluent treatment plant</b>						0	0		0	
9.1	Oil transfer pumps	0.5x0.5x0.5	32	0.5	0.5	0.5	0.125	4	0.5	16	
9.2	Pits	2.0x2.0x1.5	16	2	2	1.5	6	96		0	
9.3	Common pit	5.0x4.0x1.5	2	5	4	1.5	30	60		0	
9.5	Screw pumps	0.5x0.5x0.5	4	0.5	0.5	0.5	0.125	0.5	0.5	2	
<b>10</b>	<b>Workshop equipment</b>						0	0		0	
10.1	Heavy duty centre lathe	4 x 2.5 x 1.5	1	4	2.5	1.5	15	15	12	12	
10.2	High speed precision lathe	6 x 2.5 x 1.3	1	6	2.5	1.3	19.5	19.5	6	6	
10.3	Surface grinding machine	4 x 2.5 x 2.0	1	4	2.5	2	20	20	6	6	
10.5	Universal tool and cutter grinder	4 x 2.0 x 1.5	1	4	2	1.5	12	12	9	9	
10.6	Milling machine	2 x 2 x 1.5	1	2	2	1.5	6	6	8	8	
10.7	Radial drilling machine	4 x 4x 1.5	1	4	4	1.5	24	24	8	8	
10.8	Pipe and bolt threading m/c	4.5 x 2 x 1.0	1	4.5	2	1	9	9	5	5	
10.9	Welding Benches	4 x 4 x 1	2	4	4	1	16	32	2	4	
10.1	Hydraulic press	4 x4 x 3.5	1	4	4	3.5	56	56	15	15	
10.11	Shaper machine	4 x 2 x 1	1	4	2	1	8	8	8	8	
10.12	Metal cutting hacksaw	3x1.5x1	1	3	1.5	1	4.5	4.5	4	4	
10.13	Coil winding machine	1x1x0.5	1	1	1	0.5	0.5	0.5	1	1	
10.14	Work benches	2x1x1	2	2	1	1	2	4	1.5	3	
10.15	Fitter wises	2x1x1	2	2	1	1	2	4	1.5	3	
10.16	Plate shears	2 x 1 x 1	1	2	1	1	2	2	1.5	1.5	
<b>11</b>	<b>Fuel oil tank cooling system</b>						0	0		0	
11.1	Water pumps	3 x 2x 1	2	3	2	1	6	12	3	6	
11.2	Spray nozzles	About 50no.	5				0	0	----	0	
<b>12</b>	<b>Nitrogen system</b>						0	0		0	
12.1	Nitrogen bottle racks	6 x 4 x 3	8	6	4	3	72	576	10	80	
<b>13</b>	<b>Black start DG set</b>						0	0		0	
13.1	DG engine (5MW)	8 x 5 x 3	1	8	5	3	120	120	25	25	
13.3	Cooling water module	4 x 3 x 1	2	4	3	1	12	24	3	6	
13.6	Control panels	2 x 1.5 x 1	1	2	1.5	1	3	3	0.5	0.5	
							<b>1432.5425</b>	<b>3893.405</b>	<b>411.65</b>	<b>1026.3</b>	

**PACKING DETAILS OF BOP-ELECTRICALS ITEMS**

Sl No	Item Description	Dimension in mm	Weight in Kgs	Qty	Length mm	Width mm	Height mm	Volume in (CBM)	Total Volume (CBM)	Total weight in MT
2	MVUAT	6500x8000x6500	30000	4	6500	8000	6500	338	1352	120
3	LV UAT	3000x3000x3000	7000	8	3000	3000	3000	27	216	56
4	Stn Aux Trafo	3000x3500x3000	7000	8	3000	3500	3000	31.5	252	56
5	6.6kV swgr									
		12000x2550x2700	13000	1	12000	2550	2700	82.62	82.62	13
		10000x2550x2700	11000	1	10000	2550	2700	68.85	68.85	11
		6000x2550x2700	6000	1	6000	2550	2700	41.31	41.31	6
		6000x2550x2700	6000	1	6000	2550	2700	41.31	41.31	6
6	Stn LV swgr	7000x1250x2450 each app	30000	8	7000	1250	2450	21.4375	171.5	240
7	Stn DC supply	8000x4500x2500(battery) 5000x1000x1500 (for Charger)	3000	1	8000	4500	2500	90	90	3
8	Neutral grounding resistors	1500x1000x1500	1000	6	1500	1000	1500	2.25	13.5	6
9	HT Power cables(6.6 kV)	5000 mtrs appx		1						
10	LT Power cables (415V)	50000 mtrs appx		1						
11	Control Cable	30000 mtrs appx		1						
12	Local Control Stations	100x50x150	100	1	100	50	150	0.00075	0.00075	0.1
13	Cable trays & accessories	15000 mtrs app (of 600mm,300mm,150mm &50mm) S Steel appx(30T)	120000	1				0	0	120
14	Safety equipments			1				0	0	0
15	DG set	6000x6000x4000	20000	1	6000	6000	4000	144	144	20
16	LT Bus duct	15000x1000x600	15000	1	15000	1000	600	9	9	15
17	Scada Marshalling Panel	2500x800x2400	800	1	2500	800	2400	4.8	4.8	0.8
18	Earthing & Lightning Protection materials	20000 mtrs	50000	1				0	0	50
19	Illumination & small power system			1				0	0	0
20	Fire/smoke proof sealing material		200					0	0	0
21	Control & Relay panel	4000x800x2400 each	8000	4	4000	800	2400	7.68	30.72	32
22	Cable Glands, Lugs, Termination kits and other cable accessories			1				0	0	0
			<b>328100</b>						<b>909.7583</b>	<b>2517.61</b>
										<b>754.9</b>



**PACKING DETAILS OF BOP-C & I ITEMS**

Sl No	Item Description	Dimension in mm	Weight in Kgs	Qty	Length mm	Width mm	Height mm	Total Volume (CBM)
1	Emission monitoring system	1200x800x2200 mm	30	1	1200	800	2200	2.112
2	110V AC UPS	6000x800x2200 mm	1200	1	6000	800	2200	10.56
3	Telephone system	1200x800x2200 mm	200	1	1200	800	2200	2.112
4	Public Address System	1200x800x2200 mm	200	1	1200	800	2200	2.112
5	CCTV	1200x800x2200 mm	100	1	1200	800	2200	2.112
	<b>Cables</b>							0
1	12px1.5	5000 mts	2500	1				0
2	6px1.5	8000 mts	1800	1				0
3	1px1.5	3000 mts	100	1				0
4	3cx2.5	6000 mts	2000	1				0
5	1 Traid	1000 mts	2000	1				0
6	6 Traid	500 mts	3000	1				0
7	12px0.5 communication cable	5000 mts	2500	1				0
8	1px0.5 communication cable	2000 mts	2000	1				0
9	Cabling for water system	8000 mts	3000	1				0
	<b>Other items</b>							0
1	Control valves	30 nos	400	1				0
2	Safety valves	10 nos	300	1				0
3	Flow meters	10 nos	300	1				0
4	Pr. Gaiges	40 nos	250	1				0
5	Pressure Transmitters	52 nos	300	1				0
6	Level Transmitters	8 nos	100	1				0
7	Level gauges	4 nos	80	1				0
8	Ultrasonic Flow meters	3 nos	75	1				0
9	Pressure switches	25 nos	125	1				0
10	Temperature gauges	10 nos	20	1				0
11	Differential Pr Tansmitters	2 nos	15	1				0
12	RTD's	10 nos	50	1				0
13	Online gas Chromatograph	1 no	1000	1				0
14	CCTV's	20 nos	500	1				0
	<b>Erection Materials for above</b>							0
1	Valves (needle/globe/gate)	120 nos	1200	1				0
2	Compressor fittings	lot	500	1				0
3	Air filter regulators	18 nos	150	1				0
4	Thermowells	10 nos	25	1				0
5	SS pipe 33.4x3.4 mm	400 mtrs	125	1				0
6	SS pipe 12.7x2.1 mm	850 mtrs	250	1				0
7	SS pipe 21.3x3.7 mm	450 mtrs	200	1				0
	Structural steels	Lot (supply & erection by CMEI)	1200	1				0
	Cable lungs Crimping cu lugs	Lot (supply & erection by CMEI)	10	1				0
	Market, Tags Ferrules	Lot (supply & erection by CMEI)	10	1				0
	Cable clamps	Lot (supply & erection by CMEI)	10	1				0
	CS & SS pipe 1/2" & 1'	Lot (supply & erection by CMEI)	20	1				0

**27.845**

**19.008**

**PACKING DETAILS FOR HEAT EXCHANGERS**

SL. NO.	DESCRIPTION	APPROX. DIMENSIONS L x B x H (mm)	QTY./Unit	Length mm	Width mm	Height mm	Volume/Unit in CBM	Total Volume (CBM)	WT./Piece (Kgs.)	Total Wt./Unit (Kgs)
1	FOUNDATION ITEMS	1000 x 1000 x 500	1	1000	1000	500	0.5	0.5	2200	2200
2	TUBE BUNDLE ASSY.	13200 x 3000 x 900	8	13200	3000	900	35.64	285.12	8720	69760
4	30 KW MOTOR	1000 x 1000 x 500	8	1000	1000	500	0.5	4	350	2800
5	FLOOR BEAMS	6000 x 2500 x 2500	1	6000	2500	2500	37.5	37.5	17600	17600
6	COLUMNS	6000 x 2500 x 2500	1	6000	2500	2500	37.5	37.5	11100	11100
7	FASTENERS	1000 x 1000 x 500	1	1000	1000	500	0.5	0.5	2000	2000
8	PLENUM CHAMBER	6200 x 6200 x 1700	8	6200	6200	1700	65.348	522.784	1900	15200
9	STAIR CASE & LADDERS	6000 x 1000 x 2000	1	6000	1000	2000	12	12	1400	1400
10	GRATINGS	4000 x 2000 x 1000	2	4000	2000	1000	8	16	1900	3800
11	HAND RAILS	4000 x 1000 x 1500	1	4000	1000	1500	6	6	2300	2300
12	PLAT FORM SEGMENTS	6000 x 2000 x 2000	1	6000	2000	2000	24	24	10000	10000
13	BRACKETS	2500 x 2000 x 1500	1	2500	2000	1500	7.5	7.5	3000	3000
14	BRACINGS	5000 x 2000 x 2000	1	5000	2000	2000	20	20	9800	9800
15	MOTOR FRAME ASSEMBLY	2000 x 2000 x 2000	1	2000	2000	2000	8	8	1680	1680
16	GUARDS	1500 x 1500 x 500	1	1500	1500	500	1.125	1.125	1370	1370
17	SUSPENSION STRUCTURE	6000 x 6000 x 500	8	6000	6000	500	18	144	2100	16800
18	SPREADER BEAM	9500 x 3400 x 600	1	9500	3400	600	19.38	19.38	1700	1700
19	PIPE LINES, FLANGES & VALVES	3500 x 2500 x 2000	3	3500	2500	2000	17.5	52.5	3800	11400
20	PUMP WITH MOTOR	2500 x 1000 x 800	2	2500	1000	800	2	4	2400	4800
21	SURGE TANK ASSY	7200 x 1200 x 1200	1	7200	1200	1200	10.368	10.368	1000	1000
22	BASKET STRAINER	1000 x 1000 x 1500	2	1000	1000	1500	1.5	3	500	1000
23	BEARING BLOCK ASSLY	500 x 500 x 1200	8	500	500	1200	0.3	2.4	250	2000
								<b>1218.18</b>		<b>192.71</b>
24	SUCTION PIPE LINE - 1	-	1						160	160
25	12" VALVES	-	2						600	1200
26	SUCTION PIPE LINE - (2 & 3)	-	1						100	200
27	STRAINER BASKET 12"	-	2						500	1000
28	SUCTION PIPE LINE - 4	-	1						320	320
29	SUCTION PIPE LINE - 5	-	1						110	110
30	SUCTION PIPE LINE - 6	-	2						500	1000
31	FLANGES	-	5						50	250
32	VALVES 2"	-	3						180	540

**PACKING DETAILS FOR HEAT EXCHANGERS**

<b>SL. NO.</b>	<b>DESCRIPTION</b>	<b>APPROX. DIMENSIONS L x B x H (mm)</b>	<b>QTY./Unit</b>	<b>Length mm</b>	<b>Width mm</b>	<b>Height mm</b>	<b>Volume/ Unit in CBM</b>	<b>Total Volume (CBM)</b>	<b>WT./Piece (Kgs.)</b>	<b>Total Wt./Unit (Kgs)</b>
33	PUMP DISCHARGE - 1	-	2						42	84
34	2" VALVES	-	4						1600	6400
35	PUMP DISCHARGE - 2	-	1						76	76
36	PUMP DISCHARGE - 3	-	1						300	300
37	INLET PIPING HE ASSY - 1	-	1						190	190
38	INLET PIPING HE ASSY - 2	-	1						200	200
39	INLET PIPING HE ASSY - 3	-	1						200	200
40	PUMP WITH MOTOR	-	2						2400	4800
41	DISCHARGE PIPE LINE ASSY - 4	-	1						400	400
42	PUMP SUCTION PIPING - 10	-	1						110	110
43	PUMP SUCTION PIPING - 11	-	1						150	150
44	PUMP SUCTION PIPING - 12	-	1						250	250
45	PUMP SUCTION PIPING - 13	-	1						90	90
46	PUMP SUCTION PIPING - 14	-	1						70	70
47	PUMP SUCTION PIPING - 15	-	1						450	450
48	PUMP SUCTION PIPING - 16	-	1						190	190
49	PUMP SUCTION PIPING - 17	-	8						32	256
50	PUMP DISCHARGE - 5	-	8						50	400
51	PUMP DISCHARGE - 6	-	1						75	75
52	PUMP DISCHARGE - 7	-	1						125	125
53	PUMP DISCHARGE - 8	-	1						350	350
54	PUMP DISCHARGE - 9	-	1						125	125
55	PUMP DISCHARGE - 10	-	1						185	185
56	PUMP DISCHARGE - 11	-	1						45	45
57	PUMP DISCHARGE - 12	-	1						260	260
58	PUMP DISCHARGE - 13	-	1						91	91
59	PUMP DISCHARGE - 14	-	1						90	90
60	INLET LINE TO HE - 4	-	1						190	190
61	INLET LINE TO HE - 5	-	1						275	275
62	INLET LINE TO HE - 6	-	8						40	320
63	INLET LINE TO HE - 7	-	8						40	320
64	INLET LINE TO HE - 8	-	1						200	200
65	INLET LINE TO HE - 9	-	1						82	82

## PACKING DETAILS FOR HEAT EXCHANGERS

[illegible]

**PACKING DETAILS OF WATER SYSTEMS**

Sl.No	Equipment Description	Dimension LxBxH in m	Wt. in TONs (each)	Qty	Length m	Width m	Height m	Volume/ Unit in CBM	Total Volume in CBM	Total weight in MT	Remarks
<b>1</b>	<b>DM water system</b>	--	--								
1.1	Raw water transfer pumps	3x2x2	3	2	3	2	2	12	24	6	
1.2	Potable water pumps	0.5x0.3x0.3	0.2	2	0.5	0.3	0.3	0.045	0.09	0.4	
1.3	Service water pumps	0.5x0.3x0.3	0.2	2	0.5	0.3	0.3	0.045	0.09	0.4	
1.4	Pressure sand filters	Dia 1.5 x 2.0	10	6				0	0	60	Flooded
1.5	Filter plant feed pumps	2x0.3x0.3	2	2	2	0.3	0.3	0.18	0.36	4	
1.6	Filter backwash pumps	2x0.3x0.3	2	2	2	0.3	0.3	0.18	0.36	4	
1.7	Backwash water collection pit	8x6x3		1	8	6	3	144	144	0	RCC Pit
1.8	Backwash disposal pumps	3x2x1	1.5	2	3	2	1	6	12	3	
<b>2</b>	<b>DM Plant</b>										
2.1	DM water feed pumps	3x1.5x1	3	2	3	1.5	1	4.5	9	6	
2.2	Dual Media filters	4x4x3	10	2	4	4	3	48	96	20	
2.3	Activated Carbon filters	4x4x3	10	2	4	4	3	48	96	20	
2.4	Cation units	4x4x3	10	2	4	4	3	48	96	20	
2.5	Degassifier Tower	4x4x3	10	2	4	4	3	48	96	20	
2.6	Degasified water storage tanks	? 5x4	1	2				0	0	2	
2.7	Air Blowers	1x1x0.5	1.5	4	1	1	0.5	0.5	2	6	
2.8	Degassified water pumps	2x0.3x0.3	2	4	2	0.3	0.3	0.18	0.72	8	
2.9	Anion units	4x4x3	10	2	4	4	3	48	96	20	
2.1	Mixed bed units	4x4x3	10	2	4	4	3	48	96	20	
2.11	Acid unloading pumps	3.0x0.5x1	0.5	2	3	0.5	1	1.5	3	1	
2.12	Alkali unloading pumps	3.0x0.5x1	0.5	2	3	0.5	1	1.5	3	1	
2.13	Acid measuring tanks	? 2.0x1.0	6	4				0	0	24	
2.14	Alkali measuring tanks	? 2.0x1.0	6	4				0	0	24	
2.15	Acid storage tank	? 2.5x5	15	1				0	0	15	
2.16	Alkali storage tank	? 2.5x5	15	1				0	0	15	
2.17	DM water pumps for injection	4 x 2.0x1.0	6	3	4	2	1	8	24	18	
2.18	Neutralisation waste discharge pumps	3x1.5x1	1.5	2	3	1.5	1	4.5	9	3	

**PACKING DETAILS OF WATER SYSTEMS**

Sl.No	Equipment Description	Dimension LxBxH in m	Wt. in TONs (each)	Qty	Length m	Width m	Height m	Volume/ Unit in CBM	Total Volume in CBM	Total weight in MT	Remarks
<b>3</b>	<b>A.C. system for DM Plant Control Room</b>										
3.1	Package Air Conditioners	4X1.5X3.0	5	8	4	1.5	3	18	144	40	
3.2	Dehumidifiers	1.2X0.75X0.75	0.5	2	1.2	0.75	0.75	0.675	1.35	1	
3.3	Condensers	3X3X1.5	4	8	3	3	1.5	13.5	108	32	
3.4	AHU	3X3X0.5	2	2	3	3	0.5	4.5	9	4	
<b>4</b>	<b>VENTILATION SYSTEM</b>										
4.1	Ventilation fans for DM plant		3kg	10no				0			
4.2	Air filters	1.5x1.5x1.0	0.5	2	1.5	1.5	1	2.25	4.5	1	
4.3	Air washing unit	1.5x1.5x1.5	3	2	1.5	1.5	1.5	3.375	6.75	6	
4.4	Wash spray pump	0.75x0.75x0.75	0.4	2	0.75	0.75	0.75	0.421875	0.84375	0.8	
<b>5</b>	<b>Effluent Treatment Plant</b>										
5.1	Acid dosing skid	4x3x2	5	1	4	3	2	24	24	5	
5.2	Alkali dosing skid	4x3x2	5	1	4	3	2	24	24	5	
5.3	Aerators	3x3x3	4	1	3	3	3	27	27	4	
5.4	Control panels	2x2x0.5	0.5	1	2	2	0.5	2	2	0.5	
<b>6</b>	<b>Cables</b>										
6.1	Power cables		1000m	1lot				0			
6.2	Signal cables		3000m	1lot				0			
6.3	Control cables		3000m	1 lot				0			
<b>7</b>	<b>Electrical equipment</b>										
7.1	Electrical panels	5m x 2m x 1m	4	6	5	2	1	10	60	24	
7.2	Control equipment	5m x 2m x 1m	4	6	5	2	1	10	60	24	
<b>8</b>	<b>Eye wash units</b>		2	2				0	0	4	

**610.851875    1279.0638    472.1**

**PACKING DETAILS OF MARK-VI AND DAVR**

Sl no	ITEM DESCRIPTION	GROSS WT KG	SIZE WXD <sub>X</sub> H in mm
	UNIT #3		
1	GT CONTROL PANEL	3000	2600X1300X2650
2	LOOSE ITEM	130	900X900X900
3	LOOSE ITEM	100	870X870X600
4	DAVR	2000	2600X1300X2650
	UNIT #4		
1	GT CONTROL PANEL	3000	2600X1300X2650
2	LOOSE ITEM	130	900X900X900
3	LOOSE ITEM	100	870X870X600
4	DAVR	2000	2600X1300X2650

**PACKING DETAILS OF GENERATOR TRANSFORMER**

Sl no	ITEM DESCRIPTION	GROSS WT KG	SIZE WXD <sub>X</sub> H in mm
	UNIT #1		
1	GENERATOR TRANSFORMER	125000	6500X3300X4700
2	OTHER ITEMS	83000	
	UNIT #2		
1	GENERATOR TRANSFORMER	125000	6500X3300X4700
2	OTHER ITEMS	83000	
	UNIT #3		
1	GENERATOR TRANSFORMER	125000	6500X3300X4700
2	OTHER ITEMS	83000	
	UNIT #4		
1	GENERATOR TRANSFORMER	125000	6500X3300X4700
2	OTHER ITEMS	83000	