

WEIGHT SCHEDULE

S.NO.	DESCRIPTION OF EQUIPMENT	WT/UNIT	WT /COM
		MT	MT
✓1	Hydro turbine and auxiliaries	874.60	56.20
✓2	Hydro generator and auxiliaries	1082.27	
3	Static excitation equipment	20.00	20.00
4	Control & monitoring system	18.00	7.00
✓5	Governing control system	21.50	10.00
6	Penstock bf valve and acc	0.00	0.00
7	Main inlet valve	235.50	20.00
8	HP & LP Compressed air systems		133.50
9	Cooling water system		452.80
10	Protection system		4.00
11	Drainage system		34.20
12	Fire fighting system		
13	Elevator		19.25
14	Airconditioning & ventilation system		33.00
15	EOT Cranes		618.50
16	GIS crane		
17	Brake dust collector		
18	DG Sets		
19	Illumination system		
20	Grounding & earthing systems		
21	Power & control cables & accessories		85.00
22	Bearing oil purification unit		
23	Mech. Workshop facilities		19.40
24	Oil filtration plant -Transformer oil		
25	220V&48V DC distribution system		30.00
26	415 V Switch gear		9.00
27	11 KV Switchgear		2.00
28	Telecommunication system /optical fib link system		1.00
29	11 KV Bus ducts	15.00	
30	Electrical workshop		
31	Control & instruments		
32	Transformers		
32.1	8 MVA Transformers (2Nos)	36.00	190.00
32.2	3 MVA UAT(2Nos)	34.00	
32.3	1620KVA SS Transformers(2Nos)	9.00	
32.4	1600kva Transformer/2 nos	5.00	
32.5	500 kva Transformer/2 nos		8.00
Total		2350.87	1752.85

GRAND TOTAL FOR ONE UNIT

2350.87

MT

GRAND TOTAL FOR FOUR UNITS

9403.48

MT

GRAND TOTAL WITH COMMON SYSTEMS

11156.33

MT

NON BHEL EQUIPMENT WEIGHT (ASSUMED)

2000.00

MT

PROJECT : KOLDAM HYDRO POWER PROJECT
(4 x 20 MW VERTICAL FRANCIS TURBINES)

APPROXIMATE SHIPPING DIMENSIONS AND WEIGHTS OF TURBINE, MIV, AUXILIARIES & THEIR SPARES

S.NO	DESCRIPTION	NUMBERS OF PACKAGES	PACKAGE DIMENSIONS			WEIGHT OF EACH PACKAGE (T)	TOTAL PACKAGE WEIGHT (T)
			L (M)	W (M)	H (M)		
A)	TURBINE (EACH UNIT)						
1	RUNNER (Only for IV unit)	1	5.20	5.20	2.50	47.00	47.00
2	MAIN SHAFT	1	4.60	2.10	2.10	46.00	46.00
3	GUIDE VANES	2	2.60	2.20	1.00	13.50	27.00
4	TOP COVER	2	6.40	3.20	1.80	28.00	56.00
5	PIVOT RING	2	6.00	3.00	1.50	9.00	18.00
6	REGULATING RING	1	4.20	4.20	0.70	6.00	6.00
7	GUIDE VANE SERVOMOTOR	2	1.00	1.00	2.50	3.20	6.40
8	STAY RING	2	7.20	3.60	2.20	35.00	70.00
9	SPIRAL INLET PIPE	2	5.10	4.70	2.50	24.00	48.00
10	SPIRAL TEST CYLINDER (COMMON FOR ALL FOUR UNITS)	2	6.20	3.10	1.50	14.00	28.00
11	SPIRAL TEST CONE (COMMON FOR ALL FOUR UNITS)	2	5.00	2.50	2.00	8.50	17.00
12	UPPER DRAFT TUBE CONE	1	5.00	5.00	1.10	6.60	6.60
13	LOWER DRAFT TUBE CONE	4	6.00	3.00	2.40	8.00	32.00
14	DRAFT TUBE BEND LINER	--- IN SUITBLE NUMBER OF TRANSPORTABLE SEGMENTS ---					35.00
15	PIER NOSE LINER	--- IN SUITBLE NUMBER OF TRANSPORTABLE SEGMENTS ---					2.60
16	SPIRAL CASING	--- IN SUITBLE NUMBER OF TRANSPORTABLE SEGMENTS ---					300.00
17	UPPER PIT LINER	--- IN SUITBLE NUMBER OF TRANSPORTABLE SEGMENTS ---					20.00
18	LOWER PIT LINER	--- IN SUITBLE NUMBER OF TRANSPORTABLE SEGMENTS ---					9.00
19	GUIDE BEARING	1	3.20	3.20	1.20	10.00	10.00
20	MISCELLANEOUS VALVES, PIPING, PLATFORMS AND OTHER ITEMS OF TURBINE.	LS					90.00

KOLDAM.

PRELIMINARY

P No	Name of Parts	Material JIS	Weight kg	Remarks
1	Slip Ring	G3101 SS400	350	
2	Slip Ring Shaft	Ditto	700	
3	Upper Shaft	G3201 SF540	3600	
4	Guide Sleeve	G3201 SF540	2000	
5	Rotor Spoke	G3101 SS400 G3106 SM400	37000	2 Divided
6	Torou Key	G4105 SCM435 G4051 S35C-N	500	8 sets
7	Brake Ring	G3101 SS400	7300	20 sector
8	Lower Shaft With Lower Oil Well Tube	G3201 SF540 G3101 SS400	57000/1000	
9	Coupling Reamer Stud & Nut	G4051 S45C-N G4051 S35C-N		Φ154(M150)x18p.c.s
10	Rotor Rim Key	G4051 S45C-H	850	10 sets
11	Rotor Rim Plate & End Plate	Toshiba Standard G3101 SS400	20,000/3650	9 sector
12	Tighting Reamer Stud with Nut for Rim	Toshiba Standard	(Φ26.5x24:2mm)	288p.c.s
13	Rotor Coil	G3104	35000	36p.c.s
14	Pole Piece End Plate	G3106 SM590	6600	72p.c.s
15	Pole Piece Punching Plate	Toshiba Standard (NKCA4C)	98200	to B
16	Tighting Reamer Stud with Nut for Pole Piece	Toshiba Standard	(Φ36.5x2100mm)	144p.c.s
17	Short Plate & Bar	H3100 C1020PC-H H3250 C1020BDC-H	300/1150	Bar: Φ20x2240, 180p.c.s
18	Connection Lead With Insulation	H3140 C1100BB-O/Toshiba Standard(Ins.)	80,00/2400	
19	Bus Lead With Insulation	H3140 C1100BB-O/Toshiba Standard(Ins.)	800/180	
20	Insulation Cup	Toshiba Standard		
21	Stator Coils With Insulation	Toshiba Standard	22000/6600	864p.c.s
22	Stator Core Clamping Plate	G3101 SS400	21000	170 36sector
23	Stator Core Clamping Finger	G4303 SUS304-B	2800	864p.c.s
24	Stator Core	C2552 50A250	185000	36sector
25	Air Duct Spacer	G4303 SUS304-B	5200	5mm x 5mm
26	Rib Key	Toshiba Standard	4350	72p.c.s
27	Support Plate for Rib Key	G3101 SS400	6000	288p.c.s t25
28	Tigthing Stud for Stator Core	G4051 S35C-N	7700	144p.c.s
29	Stator Frame	G3101 SS400	43000	4 Divided
30	Bind Ring	G3459 SUS304TP	300	40A Sch.40
31	Slip Ring Cover	G3101 SS400	2000	
32	Upper Oil Well Tube	Ditto	500	
33	Upper Oil Guard	G3101 SS400 & H4000 A1050P-O	1100	
34	Upper Oil Reservoir	G3101 SS400	1300	
35	Upper B-aring Bracket Boss	Ditto	9500	
36	Arm for U.B.B.	Ditto	11000	6p.c.s
37	Upper Guide Bearing Pad	G3101 SS400 & H5401 WJ2	290/10	10p.c.s
38	Brake & Jack	G3101 SS400 & Non-Asbestos Lining	2400	6p.c.s
39	Lower Oil Guard	G3101 SS400 & H4000 A1050P-O	2800	3 Divided
40	Lower Bearing Bracket	G3101 SS400	45000	2 Divided
41	Lower Guide Bearing Pad	G3101 SS400 & H5401 WJ2	770/30	20p.c.s
42	Support Ring for Lower Oil Well Tube	G3101 SS400	600	2 Divided
43	Thrust Runner	G4051 S45C-N	2300	
44	Thrust Bearing Pad	G3101 SS400 & H5401 WJ2	1900/60	14p.c.s
45	Spacer for Thrust Bearing Pad	G3101 SS400	800	14p.c.s
46	Thrust Spring	G4801 SUP 9	350	478p.c.s
47	Spring Table	G3101 SS400	8000	
48	Top Cover	G3101 SS400	13000	8 Divided
49	Embedded Frame for Top Cover	G3101 SS400	1500	24 Divided
50	Coupling Cover	G3101 SS400	1300	2 Divided
51	Stator Base	G3101 SS400	18500	8p.c.s
52	Lower Base	G3101 SS400	5700	6p.c.s
53	Foundation Bolt for Base	G3101 SS400	4400	36p.c.s M80
54	Shim for Base	G3101 SS400	1200	
55	Air Seal Plate	Insulation Material (Toshiba Standard)	3600	48p.c.s
56	Protection Cover for Bus Lead	G3101 SS400	3000	
57	Pole Piece Key	G4051 S35C-N	1800	36sets
58	Sliding Plate	G4303 SUS304-P	350	36p.c.s
59	Other Part			

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**SCHEDULE OF PANELS
FOR
STATIC EXCITATION SYSTEM WITH AVR**

KOLDAM

SL No.	SCOPE OF SUPPLY	NO.OF SETS	NO. OF PANELS PER SET	SIZE OF EACH PANEL (WDXH)mm	WEIGHT OF EACH PANEL (KGS)
1.	Regulation Panel with AVR	4	1	1150x1250x2320	1000
2.	Thyristor converter Panel	4	3	680x1250x2320	700
3.	Field Flashing Panel	4	1	1150x1250x2320	800
4.	Field Breaker Panel	4	1	1150x1250x2320	800
5.	Excitation Transformer with cubicle.	4	1	2600x1500x2850	8500

Note :

1. All the panels are of simplex type with IP 20 class of protection for Thyristor panels & transformer cubicles. All other panels will have IP22 class of protection.
2. The above details are tentative only.

SCHEDULE OF PANEL/DESK FOR SCADA SYSTEM

SL. NO.	SYSTEM/SUB-SYSTEM	NO. OF SETS	NO. OF PANELS/ SUITES/DESKS PER SET	SIZE OF EACH PANEL/ SUITE/DESK (WxDxH) in mm	WEIGHT OF EACH PANEL/ SUITE/DESK (IN KG)
1.0	LOCAL CONTROL BOARDS				
1.1	Unit Control Board (UCB) Consisting of microprocessor based I/O modules, distributed processing unit, auto synchroniser, control switches, pushbuttons, indicating instruments, relays transducers and recorders. Mimic panel section for Local control, Indication & monitoring of generating units.	4	1	(750+750+750+750+750)x 800x2320	2000
	Alarm and annunciation Panel for units.	4	1	1000x800x2320	600
	Temp & Gauge Panels for units (only empty panels, devices shall be supplied and mounted at site by BHEL-BPL)	4	2	1000x800x2320	500
1.2	Auxiliaries Local Control Board				
	Control & Metering Panel Consisting of microprocessor based I/O modules, distributed processing unit, control switches, pushbuttons, indicating instruments, relays, Mimic panel section alarm annunciator for local control, indication & monitoring	1	1 suit	(750+750+750+750)x 800x2320	2000
1.3	Dam, Spillway and Water Intake Local Control Board (Including DAID)				
	Control & Metering Panel Consisting of microprocessor based I/O modules, distributed processing unit, MMI, control switches, pushbuttons, indicating instruments, recorders, relays, Mimic panel section alarm annunciators for local control, indication & monitoring	1	1 suit	(750+750+750+750)x 800x2320	2000

SL. NO.	SYSTEM/SUB-SYSTEM	NO.OF SETS	NO. OF PANELS/ SUITES/DESKS PER SET	SIZE OF EACH PANEL/ SUITE/DESK (WxDxH) in mm	WEIGHT OF EACH PANEL/ SUITE/DESK (IN KG)
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1.4 Generator Bays (400KV Switchyard) Local Control Unit (SY-LCU)

Consisting of microprocessor based I/O modules, distributed processing unit, control switches, pushbuttons, indicating instruments, relays, transducers alarm annunciators for local control, indication & monitoring.	1	1 suit	(750+750+750+750+750)x 800x2320	1600
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1.5 Disturbance Recorder

Disturbance Recorder Panel (for 4 recorders)	1	1	950x800x2320	1000
PC with Keyboard and Mouse	1	1desk	960x1260x825	100

1.6 Mobile Synchronizing Set

Manual Synchronizing Equipment.	1	---	Trolley mounted	50
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2. Human Machine Interface System(station control level equipments)

2.1 In The Power House Control Room

2.1.1 Operator Control Desk	1	suit of 4 desks	3840x1260x825	1000
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Consisting of :
CPUs, VDUs, Keyboards, & mouse for OWS and CPUs, KBs & Mouses for Large Video Screens

2.1.2 Large Video Screen	4	1	1710x830x1280	150
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2.1.3 Desk For Engineering Work Station , Log Station Plant Computer, maxSTORIAN, maxLINK	1	suit of 4 desks	3840x1260x825	100
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Consisting of :
CPUs, VDUs, Keyboards & Mouses

2.2 At Unit Control Board Level

Portable Operator Work Station and dot matrix printer	1	1	-----	-----
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2.3 At NTPCs OS Control Room

SL. NO.	SYSTEM/SUB-SYSTEM	NO. OF SETS	NO. OF PANELS/ SUITES/DESKS PER SET	SIZE OF EACH PANEL/ SUITE/DESK (WxDxH) in mm	WEIGHT OF EACH PANEL/ SUITE/DESK (IN KG)
2.3.1	Desk For Operator Work Station Consisting of : CPU,VDU, Keyboard & mouse	1	1	960x1260x825	100
2.4	At Spillway Control Room				
2.4.1	Desk For Operator Work Station, maxLINK Consisting of : VDU, Keyboard, Mouse & Dot matrix printer	1	1	1920x1260x825	100
2.5	At Switchyard Control Room				
2.5.1	Desk For Operator Work Station, maxLINK Consisting of : VDU, Keyboard, Mouse & Dot matrix printer	1	1	1920x1260x825	100
2.6	Portable Engineering Work Station/PADT				
	Laptop Computer	2	1	-----	-----
	Printer	2	1	-----	-----
3.	Emergency Control Panel	1	1	3000x800x2320	2000
4.	GPS based Time Synchronization System				
	Panel	1set	1	800x800x2320	700
	Slave Clocks	6	1	-----	-----
5.	230 V, 1-Phase, UPS (to be located in Switchyard control room for 30 min. backup)	1	1 set	--to be providing during execution--	

Note :

All the panels are of simplex type with IP 22 class protection
The above details are tentative only. The exact number, dimensions and weight of panels and other details shall be furnished during execution of the contract.

S.NO.	DESCRIPTION	NUMBERS OF PACKAGES			PACKAGE DIMENSIONS			WEIGHT OF EACH PACKAGE (T)	TOTAL PACKAGE WEIGHT (T)
		L (M)	W (M)	H (M)	L (M)	W (M)	H (M)		
B)	MAIN INLET VALVE (EACH UNIT)								
1	BODY HALF	2	6.00	2.10	3.30			27.00	54.00
2	DOOR	1	8.00	5.20	1.90			56.00	56.00
3	SERVOMOTOR	2	0.90	0.90	3.50			5.00	10.00
4	UPSTREAM PIPE		LS					36.50	36.50
5	DISMANTLING JOINT FLANGES	1	5.50	5.50	0.75			9.00	9.00
6	MISCELLANEOUS ITEMS OF MAIN INLET VALVES.		LS					70.00	70.00
C)	AUXILIARIES+B66 (COMMON FOR POWER HOUSE)								
1	H.P. COMPRESSOR MOTOR SET	2	1.85	1.00	1.50			2.00	4.00
2	H.P. AIR RECEIVER	4	1.20	1.20	2.20			1.80	7.20
3	GENERATOR BRAKE AIR RECEIVER	4	1.00	1.00	1.50			1.50	6.00
4	PIPING VALVES & OTHER SMALL ITEMS OF HP COMPRESSED AIR SYSTEM		LS					2.50	2.50
5	LP COMPRESSOR MOTOR SET	2	1.75	1.20	1.75			2.00	4.00
6	LP AIR RECEIVER	2	1.50	1.50	3.00			2.00	4.00
7	PIPING VALVES & OTHER SMALL ITEMS OF LP COMPRESSED AIR SYSTEM		LS					15.00	15.00
8	DRAINAGE PUMP MOTOR SET	2						1.00	1.00
9	DEWATERING PUMP-MOTOR SET	4						0.50	3.20
10	MISCELLANEOUS PIPINGS, VALVES AND OTHER COMPONENTS OF DRAINAGE AND DEWATERING SYSTEM		LS					30.00	30.00
11	CENTRIFUGAL PUMP-MOTOR SETS	16						1.00	16.00
12	AUTOMATIC STRAINERS	8						1.00	8.00
13	HEAT EXCHANGER	2						4.00	8.00
14	OVERHEAD TANK	4						0.50	2.00

SNO	DESCRIPTION	NUMBERS OF PACKAGES	PACKAGE DIMENSIONS			WEIGHT OF EACH PACKAGE (T)	TOTAL PACKAGE WEIGHT (T)
			L (M)	W (M)	H (M)		
15	MISCELLANEOUS PIPINGS, VALVES AND OTHER SMALL COMPONENTS OF COOLING WATER SYSTEM		LS				
16	SUBMERSIBLE PUMP MOTOR SETS FOR DRAINAGE GALLERY	2					350.00
17	SUBMERSIBLE PUMP MOTOR SETS FOR SURFACE POWER HOUSE DRAINAGE	2				0.40	0.80
18	MISCELLANEOUS PIPINGS, VALVES AND OTHER ITEMS FOR 17 & 18 ABOVE		LS			0.50	1.00
							15.00
D)	SPARES (ONE SET FOR POWER HOUSE)						
1	CUIDEVANES						
2	MIV SERVOMOTOR	2	2.60	2.20	1.00	13.50	27.00
3	MISC. (TURBINE & MIV)	1	0.90	0.90	3.50	5.00	5.00
4	C.W. PUMP-MOTOR SETS			LS			
5	DRAINAGE & DEWATERING PUMP. MOTOR SETS	2					10.00
6	DRAINAGE GALLERY PUMP-MOTOR SET	2					2.00
7	SURFACE DRAINAGE PUMP-MOTOR SET	1					1.30
8	MISC. ITEMS OF ALL AUXILIARIES	1					0.40
							0.50
							10.00

452.9

4/4

KOLDAM HEP MISC WEIGHTS

SNO	DESCRIPTION	PACKAGE DIMENSIONS	UNIT	APOPROX WT IN KG
1	9 PANEL 11KV SWITCHBOARD	6300WX2712HX1831D	MM	9000
2	8MVA UAT	6000WX6000HX5000D	MM	18000
3	5MVA UAT	5000WX6000HX6000D	MM	17000
4	1600 KVA DTT	2500WX2000HX2500D	MM	1000
5	500 KVA DTT	2000WX1800HX2000D	MM	800
6	1620 KVA DTT	2200WX1400HX2500D	MM	1050
7	13.8KV 12.5A BUSDUCT	8TKX1200OD		12000
8	GOVERNING ITEMS			
	P P SET FOR TURBINE GOVERNOR	3500WX2280DX2720H	MM	6500
	PR RECEIVER FOR TUR. GOVERNOR	2150DIA 4680H	MM	12500
	HYDRO MECHANICAL CABINET	800WX800DX1715H	MM	1160
	MICROPROCESSOR BASED DIGITAL GOVERNOR	800WX800DX2320H	MM	500
	MIV HYD CONTROL PANEL	1000WX800DX2320H	MM	800

SUB: 4X200MW KOLDAM HEP: PACKAGE WEIGHTS & DIMENSIONS
As desired the package weights and dimensions for mechanical auxiliaries are being given below:

A. Mechanical workshop Equipment (All covered storage)

SR.NO.	PACKAGE SIZE	WEIGHT	NO.OF. BOXES	
1.	2Mtrsxl.5Mtrsxlmt	450kg each	12Nos.	5.4
2.	1.5mtrsxl.0mtrx0.75mtr	350kg each	10 Nos.	3.5
3.	2.5mtrsxlmtmx0.8mtrs	600kg each	10 Nos.	6.0
4.	1.0mtrx0.8mtrx0.5mtr	300kg each	15 Nos.	4.5
				<u>19.4</u>

B. POWER HOUSE ELEVATORS (ALL COVERED STORAGE)

1.	3mtrsxl.5mtrsx0.5mtrs	450kg each	20 Nos.	9.0
2.	1.2mtrsxlmtmx0.8mtrs	250kg each	26 Nos.	6.25
3.	1 mtrx0.8mtrx0.4mtr	200kg each	20 Nos.	4.00
				<u>19.25</u>

C. POWER HOUSE VENTILATION & AIR (ALL COVERED STORAGE) CONDITIONING SYSTEM

1.	3mtrsxl.5mtrsx0.5mtrs	600kg each	20 Nos.	12.0
2.	2.0mtrsxl.2mtrsx0.8mtrs	450kg each	20 Nos.	9.0
3.	1.6mtrsxl.0mtrx0.6mtr	300kg each	25 Nos.	7.5
4.	1.0mtrx0.8mtrx0.4mtrs	250kg each	18 Nos.	4.5
				<u>33.0</u>

D. EOT CRANES FOR POWER HOUSE & COMMON LIFTING BEAM (ALL COVERED STORAGE)

1.	3mtrsx2mtrsxl.2mtrs	800kg each	16 Nos.	48.0
2.	2mtrsxl.2mtrsxlmt	450kg each	20 Nos.	9.0
3.	1.5mtrsxl.0mtrx0.6mtr	250kg each	15 Nos.	3.75
4.	1.2mtrsxlmtmx0.5mtr	200kg each	20 Nos.	4.0
5.	1.0mtrx0.8mtrx0.5mtr	150kg each	25 Nos.	3.75
				<u>68.5</u>

NOTE: A-part from above, GIRDERS, RAILS, BEAMS & other structural parts of EOT cranes weighing nearly 550 Tons shall be supplied in unpacked conditions & do not require any covered storage.

E. GENERAL & INDUSTRIAL WATER SYSTEM (ALL COVER STORAGE)

1.	2.5mtrsxl.5mtrsxl.0mtr	600kg each	20 Nos.	12.0
2.	2mtrsxl.2mtrsxl.0mtr	450kg each	25 Nos.	11.25
3.	1.6mtrsxl.0mtrx0.8mtr	325kg each	10 Nos.	5.2
4.	1.0mtrsx0.8mtrsx0.5mtr	250kg each	20 Nos.	5.0
				<u>33.45</u>

NOTE: A-part from above, pipes, hangers, supports, & other structural and foundation parts of water system weighing nearly 60 Tons shall be supplied in unpacked condition & do not require any covered storage.

Dimensions of the telecommunication system equipments

Following are different type of panel with their dimensions and power consumption:

Sl no	Equipment type	Dimensions (W x D x H) mm	Location	Qty	Power consumption @ -48 V DC	Weight
1.	PAX	610 x 450 x 510	Power Plant AC Room	1	16A	75 Kg. Floor Mounted
2.	Digital Primary Multiplexer	305 x 105 x 584	Dam site, switchyard site and power plant AC room	2 2 4	2.5A	15 Kg Rack Mounted
3.	SDH Fiber Optic Equipment	435 x 290 x 44	Dam site, switchyard site power plant AC room	2 2 4	1 A	5 Kg. Rack Mounted
4.	MDF	1000 x 800 x 230	Power plant Non-AC operation	1	--	100 kg. Wall mountable
5.	DDF	250 x 120 x 125	Dam site, switchyard site power plant Non-AC Operation	1 1 1	--	20 Kg. Wall mountable
6.	FDF	2750 x 240 x 225	Dam site, switchyard site power plant Non-AC Operation	1 1 1	--	--do--
7.	VRLA battery 42 Ah	199 x 167 x 175	Dam site switchyard site	1 1	--	100 Kg. Floor Mounted
8.	VRLA Battery 80 Ah	615 x 165 x 235	Power plant site	1	--	200 Kg. Floor Mounted



PC Koldam hydro power plant
telecommunication system

9.	Computers	400 x 350 x 180 (CPU) 350 x 400 x 400 Monitor 460 x 160 x 35 Keyboard 610 x 375 x 147 Printer 3 nos.	Power plant site AC Room		--	10 kg. 12.5 Kg. 2 Kg. 7 kg. Table Top
10.	Telephone set installation with internal wiring	-	Power plant Dante Switch yard	100 12 12		
11.	Power cabling for PAX	--	Power plant		-	-
12.	UPS cabling for PC	--	Power plant	33		
13.	Fiber optical cable		Between power and	3m	--	--

Sub: PACKAGE WEIGHTS & DIMENSIONS OF PART LOAD
COMPRESSED AIR SYSTEM - KOLDAM HEP TENDER.

S.No.	Description	Package size L x B x H (mtrs)	Wt. Each Unit	Total Qty.	
A. <u>MECHANICAL SYSTEM.</u>					
01.	Centrifugal Compressor-I	4.5 x 3.5 x 2.5	11 T	2 Nos.	22
02.	Centrifugal Compressor-II	5 x 3 x 3.5	17 T	2 Nos.	34
03.	Pipes, Valve	-	18 T	1 No.	18
B. <u>ELECTRICAL SYSTEM</u>					
01.	Transformer 2.5MVA 13.8/6.6 KV	4 x 3 x 3.5	08 T	2 Nos.	16
02.	Transformer 750 KVA 6.6/0.415KV	3 x 2.5 x 2.5	3.4 T	2 Nos.	6.8
03.	6.6KV Elect. Breaker & Protection	3 x 2.5 x 3	04 T	2 Sets.	8
04.	<u>CABLES</u>				104.8
	<u>HT Cable (13.8 KV)</u>	<u>Length in meter.</u>			28.75
	a) 1C x 500 sq.mm, cu	- 5000			
	b) 3C x 50 sq.mm, cu	- 1000			
	<u>LT Cable (1100/600V)</u>				
	c) 1C x 185sq. mm, cu	- 3000			

(C.K. Jain)

KOLDAM HEP (4 X 200 MW)

S.NO.	EQUIPMENT	QTY.(Nos)	W X D X H (IN MTR.)	WT. TONS EACH
1	A.C. Distribution Panel	8	5.0 x 1.5 x 3.0	2.50
		6	3.0 x 1.5 x 3.0	1.00
2	220V D.C. System	BATTERY	18	2.0 x 2.0 x 1.0
		CHARGER	4	2.0 x 1.0 x 3.0
		DCDB	1	3.5 x 1.5 x 3.0
		OTHER PANEL	5	2.0 x 1.5 x 1.5
3	48V DC SYSTEM	BATTERY	4	3.0 x 2.5 x 1.5
			2	2.0 x 2.5 x 1.5
		CHARGER	6	2.0 x 1.0 x 3.0
		DCDB	2	3.5 x 1.5 x 3.0
		OTHER PANEL	8	2.0 x 1.5 x 1.5
				0.40
4	UPS SYSTEM	BATTERY	4	3.6 x 2.4 x 1.5
			4	2.5 x 2.0 x 1.5
		CHARGER/INVERTOR	4	2.0 x 1.0 x 3.0
		DCDB	4	3.5 x 1.5 x 3.0
5	STARTER PANELS		20	1.0 x 0.3 x 1.0
			20	1.2 x 0.8 x 1.2
			20	2.4 x 0.5 x 2.3
19	PROTECTION PANELS	24	1.5 x 1.5 x 2.0	0.50
20	11KV SWITCH GEAR	20	2.0 x 3.0 x 3.0	2.00
21	<u>CABLES :-</u>			
a)	<u>CONTROL CABLES, 2.5 mm sq. COPPER</u>		TENTATIVE LENGTH IN MTR.	
	2 C		20000	
	4 C		22000	
	7 C		10000	
	12 C		38000	
b)	<u>TWISTED PAIR, 0.5 mm sq. COPPER</u>			
	2 Pair		10000	
	4 Pair		13000	
	8 Pair		13000	
	12 Pair		10000	
	16 Pair		23000	

c) 1100V, LT POWER CABLES, ALUMINIUM CONDUCTOR

2C 6 mm sq. (cu)	}	
4C 6 mm sq. (cu)		166000
4C 16 mm sq.		5000
3.5C 25 mm sq.		1000
3.5C 35 mm sq.		8000
3.5C 50 mm sq.		1000
3.5C 70 mm sq.		2000
3.5C 95 mm sq.		9000
3.5C 150 mm sq.		12000
1C 185 mm sq.		17000
1C 240 mm sq.		1000
1C 300 mm sq.		1000
1C 360 mm sq. (cu)		9000
1C 500 mm sq.		21000
1C 630 mm sq.		13000
1C 630 mm sq. XLPE		17000

d) 11 KV CABLES

1C 500 mm sq. / L	3000
1C 185 mm sq. AL	44000

Note: 1) Trays for the above cables to be taken suitably