

# ELECTRICAL LOAD LIST

SWBD. No.:		MSWG-01				Electrical ROOM					LOAD CALCULATION					CONSUMED LOAD					REMARKS
Item	Tag Number	Description	Voltage (V):	Bus	Starter Type	Load Classification	Absorbed Load	Motor or Equipment Rating (IEC Std)	Load Factor	Efficiency at Load Factor C	Power Factor at Load Factor C	Load Duty: C/I/S	Continuous		kVA = kW . tan φ Intermittent		Stand-By				
							A kW	B kW	C = A/B pu	D pu	E cosφ		F kW	kVAr	G kW	kVAr	H kW	kVAr			
<b>MSWG-01</b>																					
<b>MANIFOLDS AND PIG LAUNCHER</b>																					
1	DB-01	Motor Operated Valve Distribution Board	415	A	MCCB		2.50	6.00	0.42	1.00	0.90	I			2.50	1.21					
<b>OTHERS</b>																					
2	UPS -01	AC/DC UPS FEEDER -1	415	A	MCCB		25.69	27.00	0.95	0.90	0.90	C	28.54	13.82							
3	UPS -02	AC/DC UPS FEEDER -2	415	A	MCCB																
4	WS-03	Transformer Oil Filtering Socket Outlet.	415	A	MCCB		4.00	5.00	0.80	0.90	0.90	I			4.44	2.15					
5	WS -01	Welding Socket Feeder-01	415	A	MCCB		34.00	36.00	0.94	0.90	0.90	I			37.78	18.30					
6	WS -02	Welding Socket Feeder-02	415	A	MCCB		34.00	36.00	0.94	0.90	0.90	I			37.78	18.30					
7	DB -02	Indoor Lighting & Small Power Distribution Board	415	A	MCCB		6.16	10.00	0.62	0.90	0.90	C	6.84	3.31							
8	DB -03	Outdoor Lighting & Small Pwer Distribution Board	415	A	MCCB		11.18	25.00	0.45	0.90	0.90	C	12.42	6.02							
9	DB -04	Auxiliary Power Distribution Board	415	A	MCCB		1.45	3.00	0.48	0.90	0.90	C	1.61	0.78							
10	DB -05	Auxiliary Lighting & Small Power Distribution Board	415	A	MCCB		7.76	10.00	0.78	0.90	0.90	C	8.62	4.18							
<b>HVAC System Electrical room</b>																					
11	ECP -01	HVAC Control and Distribution Board	415	A	MCCB		4.00	5.00	0.80	0.90	0.90	C	4.44	2.15							
12	ECP -02	HVAC Unit 1	415	A	MCCB		35.00	35.00	1.00	0.90	0.90	C	38.89	18.83							
13	ECP -03	HVAC Unit 2	415	A	MCCB		35.00	35.00	1.00	0.90	0.90	S					38.89	18.83			
<b>Split AC DB Load Instrument Room</b>																					
14	ACU -01	AC Split Unit-1	415	A	MCCB		12.00	12.00	1.00	0.90	0.90	C	13.33	6.46							
15	ACU -02	AC Split Unit-2	415	A	MCCB		12.00	12.00	1.00	0.90	0.90	C	13.33	6.46							
16	ACU -03	AC Split Unit-3	415	A	MCCB		12.00	12.00	1.00	0.90	0.90	S					13.33	6.46			
17	ACU -04	AC Split Unit-4	415	A	MCCB		12.00	12.00	1.00	0.90	0.90	S					13.33	6.46			
18	FM -03	Exhaust Fan	415	A	MCCB		0.30	0.30	1.00	0.90	0.90	C	0.33	0.16							
19	FD -01	Fire Damper	415	A	MCCB		0.04	0.04	1.00	0.90	0.90	C	0.04	0.02							
20	SS -01	Safety Shower (Outdoor)	415	A	MCB		1.96	1.96	1.00	0.90	0.90	I			2.18	1.05					
21	TR-01	Cathodic Protection Transformer	415	A	MCCB		7.00	10.00	0.70	0.90	0.90	C	7.78	3.77							
<b>Wellhead Control Panel</b>																					
22	WHCP-01	Wellhead Control Panel	415	A	MCCB		2.20	2.20	1.00	0.90	0.90	C	2.44	1.18							
<b>CHEMICAL INJECTION PACKAGE</b>																					
23	PM-01	Corrosion Inhibitor Injection Pump	415	A	DOL		0.60	0.75	0.80	0.67	0.72	C	0.90	0.86							
24	PM-02	Portable Unloading Corrosion Inhibitor Pump	415	A	MCB		0.79	0.88	0.90	0.76	0.77	I			1.04	0.86					
25	PM-03	Biocide Injection Pump	415	A	DOL		0.68	1.10	0.62	0.83	0.81	C	0.82	0.59							
26	PM-04	Portable Unloading Biocide Injection Pump	415	A	MCB		0.79	0.88	0.90	0.83	0.81	I			0.95	0.69					
<b>CLOSED DRAIN</b>																					
27	PM-05	Closed Drain Pump Motor	415	A	DOL		17.60	22.00	0.80	0.94	0.84	I			18.72	12.09					
28	ECP -11	Automatic Top-Up Unit Local Control Panel	415	A	MCCB		0.80	2.00	0.40	0.76	0.77	I			1.05	0.87					

Maximum of Facility normal running load [ kW = ( x% \* E ) + ( y% \* F ) ] :

172.29	kW	85.26	kVAr	192.23	kVA
178.84	kW	88.44	kVAr	199.51	kVA

Peak Load [ kW = ( x% \* E ) + ( y% \* F ) + ( z% \* G ) ] :

Total kW / kVAr	140.4	68.6	106.5	55.5	65.6	31.8
Total kVA	156.2		120.1		72.8	

**TRANSFORMER RATING**

Peak Load	199.51	kVA
25% Future Growth	49.88	kVA
Total kVA	249.39	kVA
Proposed Transformer Rating	250	kVA
<b>% Loading of Transformer</b>	<b>99.8</b>	<b>%</b>

Notes:

- Coincidence factors x(100%), y(30%) and z(10%) defined as Continuous, Intermittent and Stand-by loads respectively
- Refer to explanatory notes for additional information

## Explanation of Terms

### Load Classification

V	Vital Load:	required to operate after a normal power failure to ensure safe plant shutdown
E	Essential Load:	Process Essential required to be fed from a redundant supply
R	Re-acceleration	required to be re-accelerated after a voltage dip (Reacceleration)
N/E	Non-essential :	Power and lighting supplies to offices, warehouses, residential areas, etc.

Absorbed Power (kW): Mechanical Power Input to drive shaft or absorbed.

Electrical Power for non-motor loads

Rated Power (kW / A): Motor Nameplate or Feeder Power current rating.

### Load Duty

C	Continuous:	Continuous Operation Absorbed Electrical Load.
I	Intermittent:	Intermittent Operation Absorbed Electrical Load.
S	Standby:	Standby Operation to Main drive

## Calculations

Maximum Normal Running Plant Load : = x (%) E + y (%) F

Peak Load : = x (%) E + y (%) F + z (%) G

Peak kVA : =SQRT ( (Peak kW)<sup>2</sup> + (Peak kVAR)<sup>2</sup> )

Load Operation Factors : Diversity Factors applied to Continuous, Intermittent

(x, y, z) and Standby Electrical Loads to represent plant

operating conditions. Where:-

x = 100% : applied to the sum of Continuous operating loads.

y = 30% : applied to the sum of Intermittent operating loads or

modified to account for the largest intermittent drive

or consumer, whichever is the greater.

z = 10% : applied to the sum of Standby drives.