

**EMPLOYER'S REQUIREMENT FOR
MECHANICAL & ELECTRICAL WORKS**

**CHAPTER 08
SCHEDULE OF GUARANTEES**

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SCHEDULE OF GUARANTEES

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CHAPTER 08

SCHEDULE OF GUARANTEES

8.1. Schedule of Guarantees

1. The Contractor shall guarantee that the plant and equipment supplied under the Contract shall be new and in accordance with the Tender including

variations/deviations, if any, jointly agreed by the Employer and the Contractor and shall be free from defects and poor workmanship. In the event of any defect or failure in the performance of any component of the Plant or part thereof within the guaranteed period specified in the Tender, the same shall be replaced or repaired by the Contractor to the satisfaction of the Employer free of charge, normal wear and tear accepted.

2. The Contractor shall further guarantee that the performance data given by him in the Schedule of Guarantees shall be complied with by him.

In the event of guaranteed performance not being attained, the Contractor shall improve the same to the guaranteed level at his own expense within a reasonable time to the satisfaction of the Employer.

3. Parts which as a result of material or manufacturing defects become unusable or the usefulness of which is appreciably decreased, shall be repaired satisfactorily or replaced free of charge by the Contractor on intimation of such defects by the Employer in writing.

Defective parts shall be property of the Contractor.

SCHEDULE OF GUARANTEES

[illegible]

Construction of New 65 MGD Pump House(Equipped with M&E Pumping Machineries)
at Gharo, Karachi. Package # 2

S.No.	Description	Unit	Tenderer's Guarantees
3	Bar size	mm	
	Bar spacing	mm	
	Screen capacity max.	m3/sec	
	Velocity through bars at max flow	m/sec.	
	Head loss through bars at maximum flow	mm	
	Discharge height above deck	mm	
	Screen raking speed	m/min	
	Motor size	kW	
	Motor speed	rpm	
	Motor protection	IP	
	Material of construction		
	Side frames		
	Roller tracks		
	Head shaft		
	Chain shaft		
	Main chain links		
	Main chain pins		
	Main chain bushes		
	Main chain rollers		
	Rakes assembly		
	Rakes tines		
	8.4. Central flow band screen		
	Manufacturer		
	Country of origin		
	Type		
	Mesh opening size		
	Effective screening width	mm	
		m	

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S.No.	Description	Unit	Tenderer's Guarantees
	Overall screen width	m	
	Overall screen breath	m	
	Height of screen deck	m	
	Screen capacity max	m3/sec	
	Velocity through mesh at max flow	m/s	
	Velocity through back opening at max flow	m/s	
	Head loss through mesh at max flow	mm	
	Motor size	kW	
	Motor speed slow/fast	rpm/rpm	
	Motor protection	IP	
	Screen speed fast	m/min	
	Screen speed slow	m/min	
	Washwater quantity required per screen	l/s	
	Washwater pressure at jet pipe	bar	
	Number of jets per jet pipe		
	material of construction		
	Frames		
	Roller tracks		
	Head shaft		
	Chain sprockets		
	Main chain links		
	Main chain pins		
	Main chain bushes		
	Main chain rollers		
	Mesh panels		

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S.No.	Description	Unit	Tenderer's Guarantees
4	8.5. Rake screen debris skips		
	Length	m	
	Breath	m	
	Height	m	
	Weight empty	Kg	
	Max. Carrying Capacity	Kg	
	Material of Construction		
5	8.6. Band screen debris skips		
		m	
	Length	m	
	Breath	m	
	Height	Kg	
	Weight empty	Kg	
	Max. carrying capacity		
	Material of Construction		
6	8.7. Pumps:		
	Manufacturer		
	Country of Origin	m	
	Model	m3/s	
	Total head at duty point	%	
	Flow at duty point	m	
	Efficiency at duty point	m3/s	
	NPSH required at duty point		
	Runout condition flow		

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S.No.	Description	Unit	Tenderer's Guarantees
7	Runout condition head	m	
	Power Consumption at duty point	KW	
	Max. power consumption over pumping range	KW	
	Speed	rpm	
	Suction flange diameter	mm	
	Discharge flange diameter	mm	
	Impeller diameter duty / maximum		
	Casing material		
	Impeller material		
	Shaft material		
	Casting wear ring material		
	Impeller wear ring material		
	Shaft sleeve material at gland		
	Rating	bar	
	Test pressure	bar	
	Weight	kg	
	Moment of inertia	kg-m2	
	Bottom bearing material		
	Bottom bearing type		
	8.8. Pumps motors:		
	Manufacturer		

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S.No	Description	Unit	Tenderer's Guarantees
	Country of Origin		
	Model		
	Voltage	KV	
	Rating	KW	
	Full load current	A	
	Duty point current	A	
	Starting current	A	
	Efficiency full load	%	
	Efficiency 3/4 load	%	
	Efficiency 1/2 load	%	
	Power factor full load		
	Power factor 3/4 load		
	Power factor 1/2 load		
	Insulation class		
	Enclosure protection	IP	
	Noise level at duty point dB (A) at 1m	dB(A)	
	Bearing type		
	Moment of inertia	kg-m ²	
	Run up time	second	
	Permitted numbers of start per hour		
	Weight	kg	

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S.No.	Description	Unit	Tenderer's Guarantees
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8	method of cooling		
	Non – reversing arrangement		
	8.9. Flexible shaft:		
	Manufacturer		
	Country of origin		
	type		
	Diameter of shaft	mm	
	Length of shaft	m	
	Material of construction		
	Type of bearing upper / lower		
	Type of intermediate bearings		
	Numbers of intermediate bearings		
	Guard system		
9	8.10. Pipe Work:		
	Manufacturer		
	Country of origin		
	Material		
	Thickness of plate (1800mm diameter)		
	Thickness of plate (500 mm diameter)	mm	
		mm	
	Thickness of plate (500 mm diameter)	mm	
	Thickness of plate (300 mm diameter)	mm	
	Rating	bar	
S.No.	Description	Unit	Tenderer's

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			Guarantees
S.No	Description	Unit	Tenderer's Guarantees
10	Test Pressure	bar	
	Internal coating		
	External finishing priming		
	External finishing top coat		
	8.11. Electric Overhead Gantry Crane:		
	Manufacturer		
	Country of origin		
	Type		
	Lifting capacity	tonne	
	Voltage	V	
	Hoist speed high / low	m/min	
	Motor size	KW	
	Motor speed	rpm	
	Travel speed	m/min	
	Motor size	KW	
	Motor speed	rpm	
	Gantry crane speed	m/min	
11	8.12. Flow meter:		
	Manufacturer		
	Country of origin		
	Type		

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S.No.	Description	Unit	Tenderer's Guarantees
12	Model		
	Pressure rating	bar	
	Diameter	mm	
	Flange rating	PN	
	Body material		
	Internal lining		
	External coating		
	Flow range	m3/s	
	Control signal	mA	
	8.13. Submersible pumps:		
	Manufacturer		
	Country of origin		
	Type		
	Model		
	Duty flow	l/s	
	Duty head	m	
	Motor rating	KW	
	Motor protection	IP	
	Speed	Rpm	
	Overall efficiency at duty point	%	
13	8.14. Butterfly valves (All applications):		

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S.No.	Description	Unit	Tenderer's Guarantees
14	Manufacturer		
	Country of origin		
	Type		
	Working pressure	bar	
	Test pressure	bar	
	Size of bypass	mm	
	Material of construction		
	Body		
	Shaft		
	Seals		
	Rating	PN	
	8.15. Non return valves:		
	Manufacturer		
	Country of origin		
	Type		
	Diameter	mm	
	Working pressure	bar	
	Test pressure	bar	
	Material of construction		
	Body		
	Disc		
	Body seal		
	Disc facing ring		
	Disc		
	Body seal		

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S.No.	Description	Unit	Tenderer's Guarantees
16	Seal Valve shaft Bushes Lever arm Lever weight		
	8.17. Flexible Slip out Joints (all applications): Manufacturer Country of origin Type Packing material Working pressure Test pressure	bar bar	
17	8.18. Pressure Relief Valves Manufacturer		

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S.No.	Description	Unit	Tenderer's Guarantees
18	Country of origin		
	Type		
	Diameter	mm	
	Test pressure	bar	
	Working pressure	bar	
	Material of construction		
	Seat		
	Spring		
	Body		
	8.19. Penstock		
	Manufacturer		
	Country of origin		
	Overall dimension		
	Length	mm	
	Width	mm	
	Gate size		
	Length	mm	
	Breath	mm	
	Working Pressure	bar	
	Test Pressure	bar	
	Stem diameter	mm	
	Operating system		
	Material of construction		
	Frame		
	Gate		
	Stem		

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S.No.	Description	Unit	Tenderer's Guarantees
19	Seats		
	8.20. Main 11 KV Incoming switch board		
	Manufacturer		
	Country of origin	vacuum	
	Type		
	Type Nr	KV	
	Rated normal service voltage		
	Number of mases	Hz	
	Frequency		
	Overall dimensions of switchboard		
	Height		
	Length	mm	
	Width	mm	
	Weight	mm	
		kg	
	Weight and dimensions per panel		
	Height		
	Length	mm	
	Depth	mm	
	Weight(total)	mm	
	Weight of moving portion	kg	
		kg	
	Minimum distance required for withdrawal of moving portion	mm	
	Minimum height for removal of voltage transformer	mm	

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S. No.	Description	Unit	Tenderer's Guarantees
	Maximum shock load imposed on foundations when operating under fault conditions. (State whether tension or compression)	KN	
	Switchgear and bus-bars		
	Rated bus-bar current	A	
	Maximum temperature rise at rated bus-bar current above 45°C ambient	°C	
	Bus-bar type test report reference		
	Short time withstand current of switchgear & bus-bar	rms kA rms kA	
	a) One second b) Three second	peak kA	
	Making capacity		
	Constructional features		
	Is an external series break incorporated in breaker		
	Method of closing		
	Method of tripping	A ms	
	Closing solenoid coil current and duration at rated voltage	V dc	
	Closing solenoid coil rated voltage	A ms	
	Trip coil current and duration at rated voltage	V dc	
	Trip coil rated voltage	V dc	
	Minimum dc voltage required for		

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S. No.	Description	Unit	Tenderer's Guarantees
20	successful closing at make rating	W	
	Rating of heaters for circuit breakers		
	8.21. 11 KV transformer outgoing		
	Manufacturer		
	Country of origin	vacuum	
	Type		
	Type Nr.	kV	
	Rated nominal service voltage		
	Number of phases	Hz	
	Frequency		
	Overall dimensions of switchboard		
	Height	mm	
	Length	mm	
	Width	mm	
	Weight	kg	
21	Minimum distance required for withdrawal / removal of switchboard components.	mm	
	Bus- bars		
	Rated bus bar current	A	
	Maximum temperature rise at rated bus bar current above 45°C ambient	°C	
	Bus bar fault rating	kA	
	For	seconds	
	8.22. 11 KV pump motor outgoing		

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S.No.	Description	Unit	Tenderer's Guarantees
22	Manufacturer		
	Country of origin	vacuum	
	Type		
	Type Nr.	kV	
	Rated nominal service voltage		
	Number of phases	Hz	
	Frequency		
	Overall dimensions of switchboard		
	Height		
	Length	mm	
	Width	mm	
	Weight	mm	
		kg	
	Minimum distance required for withdrawal/ removal of switchboard components	mm	
	Bus- bars		
	Rated bus bar current	A	
	Maximum temperature rise at rated bus bar current above 45°C ambient	°C	
	Bus bar fault rating For	kA	
		seconds	
	8.23. Transformers		
	Manufacturer		
	Country of origin		
	Rated Voltage	kV/V	
		kVA	

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S.No.	Description	Unit	Tenderer's Guarantees
23	Rating	mm	
	Height	mm	
	Length	mm	
	Width	kg	
	Weight	kg	
	Weight (without – oil)	kA	
		seconds	
	Fault rating for	IP	
	Protection		
	8.24. Cables		
24	11 KV		
	Manufacturer		
	Type		
	400/230 v		
	Manufacturer		
	Type		
	8.25. Control and Instruments		
	Manufacturer		
	Type		
	8.26. Earthing Equipment		
25	Manufacturer		
	Earth electrodes	Nos.	
	Inspection covers		
	Cabling		
	Copper earth bar size		

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S. No.	Description	Unit	Tenderer's Guarantees
26	Thermionic welding material		
	8.27. LV distribution switchboard for utilities	A	
	Manufacturer	kA	
	Bus bar continuous rating	seconds	
	Bus bar fault rating for	IP	
	Protection	A	
	Incoming MCCB Manufacturer	kA	
	Rating	seconds	
27	Fault rating for		
	8.28. LV distribution switchboard for pump house	A	
	Manufacturer	kA	
	Bus bar continuous rating	seconds	
	Bus bar fault rating for	A	
	Incoming ACB manufacturer		
	Rating	kA	
	Fault rating for	seconds	
	ACB manufacturer	mm	
	ACB dimensions	mm	

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S.No.	Description	Unit	Tenderer's Guarantees
28	Height	kg	
	Length		
	Width		
	Weight		
	MCB manufacturer		
	Contactor manufacturer		
	Dimensions		
	Height	mm	
	Length	mm	
	Width	mm	
	Weight	kg	
	8.29. Operating requirements		
	The following items are to be completed in order to obtain an estimate of operating cost:		
	Electrical loads:		
	1) Total connected load	KW	
	2) Maximum running load	KW	
	3) Average running load	KWh/day	
	4) Guaranteed average power consumption	KWh/day	

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