3. SCOPE OF SUPPLY, TECHNICAL SPECIFICATIONS & OTHER CONDITIONS

Item to be Supplied:

Item No.	***Qty.***	***Unit***	***Description***
01	***02***	***No.***	***Caustic Pump*** *(06 P1 A/B)* *Design & supply of Caustic Pump with base plate, foundation bolts, coupling & motor as per the following Specifications & other Conditions*
02	***02***	***No.***	***Caustic Pump*** *(06 P4 A/B)* *Design & supply of Caustic Pump with base plate, foundation bolts, coupling & motor as per the following Specifications & other Conditions*

Specifications

1. Caustic Pump 06P1 A/B Pump

Item	***Description***	***Unit***
Pump Type	End suction vertical discharge centrifugal pump	
Service	Caustic (NaOH) Circulation	
Operating Pressure	134.7	psia
Pumping Temperature	100 (37.7)	F (^{o}C)
Specific Gravity of the fluid	1.07/1.16	
Capacity-normal	5.3	usgpm
Capacity-Maximum @ 134.7 psi	6.1	usgpm
Differential head at maximum capacity	171	ft.liq
Available NPSH	37	m
Pump Material	Suitable for caustic service	
Flange Size - Suction	2”-150 RF	
Flange Size - Discharge	1.5”-150 RF	
Pump Seal	Mechanical Seal	
Bearing Lubrication	Ring Oiled	

2. Caustic Pump 06P4 A/B Pump

Item	***Description***	***Unit***
Pump Type	End suction vertical discharge centrifugal pump	
Service	Caustic (NaOH) Injection	
Operating Pressure	150	psia
Pumping Temperature	100 (37.7)	F (^{o}C)
Specific Gravity of the fluid	1.07/1.16	
Capacity-normal	9	usgpm

Capacity-Maximum @ 134.7 psi	15	usgpm
Differential head at maximum capacity	270	ft.liq
Available NPSH	7.69	m
Pump Material	Suitable for caustic service	
Flange Size – End Suction	2”-150 RF	
Flange Size – Vertical Discharge	1.5”-150 RF	
Pump Seal	Mechanical Seal	
Bearing Lubrication	Ring Oiled	

Other conditions:

1. Country of origin should be from USA, Japan or European only.
2. Pump shall meet the manufacturer’s country standards.
3. Manufacturer’s standard to which the pump is designed shall be indicated clearly in the offer.
4. Spare parts to be quoted separately for 02 years operation & complete list of spares with their current prices to be submitted along with the offer.
5. Pump performance curves and data sheets shall be submitted along with the offer.
6. 18 months manufacturer’s warranty to be given from the date of delivery.
7. Material test certificates to be sent along with the pumps.
8. Pump spare parts catalogues shall be sent along with the pumps.
9. Operation and maintenance manual with cross sectional drawings (with part numbers) of the pumps shall be provided along with the items.
10. Mechanical Seal sectional drawing with part numbers to also be given with the pump.

SPECIFICATIONS FOR A SQUIRREL CAGE INDUCTION MOTOR (06 MP 1 A/B)

1. MOTOR DETAILS

1.1 Capacity	:	Vender to design
1.2 No. of poles	:	Vender to design
1.3 Frame Size	:	Vender to design
1.4 Shaft length	:	Vender to design
1.5 Power supply	:	400V, 3 phase, 50Hz
1.6 Mounting	:	Vender to design
1.7 Direction of rotation	:	Bi-directional

2 SERVICE CONDITIONS

2.1. Max. ambient temperature	:	40^0C
2.2. Relative humidity	:	95%
2.3. Altitude	:	Less than 1000m
2.4. Location	:	Outdoor, hazardous area
2.5. Duty	:	Continuous
2.6. Environment	:	Corrosive
2.7. Voltage & Frequency	:	400V ± 10%, 3 phase, 50Hz ± 3%
2.8. Starting	:	Motor shall be suitable for direct on line (DOL) starting with power supply 400V, 3Phase, 50Hz

3 CONSTRUCTION REQUIREMENTS

3.1.	Hazardous area	:	Class 1 Zone 2, Group IIB according to IEC
3.2.	Enclosure	:	TEFC Non Sparking, ExN II T3 according to IEC
3.3.	Cooling Method	:	IC 411 (according to IEC 34-6)
3.4.	Degree of Protection	:	IP 55
3.5.	Insulation Class	:	F
3.6.	Bearings	:	Ball / Roller bearing with grease lubrication
3.7.	Earthing	:	Both internal & external earthing terminals should be provided
3.8.	Balancing	:	Motor shall be dynamically balanced using a half key & type test reports to be submitted along with the motor
3.9.	Stator	:	Should be made out of cast steel/iron.
3.10.	Cooling Fan	:	Should be made out of metal alloy

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4. OTHER CONDITION

4.1.	Noise Level	:	Shall no exceed 85 dB at 1 meter
4.2.	Vibration	:	Within the limits specified in ISO 2372 or equivalent
4.3.	Terminal Box	:	Shall have a sufficient space to accommodate the cables. All six terminals shall be available at the terminal plate for end user to select a proper starting method. Cable entry plate should be mounted separately for easy disconnection of incoming cables

5. STANDARDS & CODES APPLICABLE

The motor shall be manufactured according to ANSI, NFPA, NEC, API, IEEE, NEMA, BS, IEC, VDE or any other equivalent international standard.

6. TEST CERTIFICATION

The motor has to be certified and labeled to ensure that it complies with the hazardous area classification by an internationally recognized testing authority such as BASEEFA, PTB, UL, FM

7. DRAWING

Supplier shall provide dimensional drawings along with the offer.