General Specifications (applicable for all pumps)	
pump type	horizontal centrifugal
number of stage	one (1)
Shaft Materials / Shaft sleeve	SS 316
Impeller material	SS 316
volute Casing Material	SS 304 or 316
pump casing material	to specify by vendor
bolts, fasteners, mechanical seal housing	SS 316 or 304
shaft sealing	mechanical seal
mechanical seal plan	Plan 11
mechanical seal flushing piping material	stainless steel
coupling type	flexible coupling (jaw type preferred)
spare parts (for each pump type)	1. coupling 1set 2. coupling elastomer 5 sets 2. Shaft 1 set (with sleeve if applicable) 3. mechanical seal 2 sets 5. soft materials (gaskets, O-rings, etc..) 2 sets
bearing lubrication type	oil
oil level measurement	dip-stick
rated flow	70%-120% best efficiency point BEP
shut off pressure	120% at the rated capacity point.
painting	epoxy primer / oil paint finish
color	manufacturer standard color
NPSH available	positive

item	Pump Description	Flow [m3/hr.]	Head [m]	Motor RPM	Suction flange [in]	Discharge flange [in]	QTY	Note
1	clarifier pump	18	35	2900	2	1 1/4	2	salt water 10000-15000 PPM TDS
2	MMF back wash pump	72	20	2900	3	2 1/2	2	salt water 10000-15000 PPM TDS
3	UF pump	16	30	2900	2	1 1/4	2	salt water 10000-15000 PPM TDS
4	UF back wash pump	50	20	2900	3	2 1/2	2	salt water 10000-15000 PPM TDS
5	RO flush pump	20	30	2900	2.5	2	1	RO water PH 5-6
6	transfer pump	20	60	2900	2	1 1/4	2	RO water PH 5-6
7	CIP pump	20	30	2900	2.5	2	1	water with acid and alkaline PH 1-12
8	Neutralization pit pump	self-priming pump specification as attached						

Neutralization pit pump

Self-priming pump with motor

Pump Technical Specification

Purpose: Supply of Self-Priming Centrifugal Pump for handling dilute chemical solutions (H_2SO_4 and NaOH up to 5%)
Application: Transfer of water with diluted Sulfuric Acid and Caustic Soda

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1. General Requirements

- **Pump Type**: Self-priming centrifugal pump
- **Flow Rate**: 40 m^3/h (±5%)
- **Total Dynamic Head (TDH)**: 50 meters (at rated flow)
- **Fluid Handled**: Water with up to:
    - 5% Sulfuric Acid (H_2SO_4)
    - 5% Caustic Soda (NaOH)
- **Operating Temperature**: Ambient to 55°C

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2. Hydraulic and Mechanical Design

- **Pump Casing**: Self-priming centrifugal design with robust priming capabilities
- **Impeller Type**: Semi-open or closed, dynamically balanced
- **Self-Priming Capability**: Minimum 5 meters suction lift

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3. Testing and Documentation

- Pump shall be hydrostatically tested per ISO 9906 or equivalent.
- Performance test at duty point to verify flow and head.
- ISO 5199 / ISO 2858 – Standards for centrifugal pump design and performance.
- ANSI/HI 1.1-1.2 – Hydraulic Institute standards for centrifugal pumps.
- API 610 – For pumps used in petroleum, petrochemical, and natural gas industries.
- Vibration and noise levels to be within ISO limits.

4.Required Documentation:

- GA drawing, P&ID, and foundation drawings
- Pump curve and NPSH curve
- Motor datasheet
- Material certificates for parts
- Operating and Maintenance Manual
- Warranty statement (minimum 12 months from commissioning or 18 months from delivery)