

Technical Specifications

	<u>STATEMENT OF COMPLIANCE</u> (State “Comply or not Comply” for each item description and specifications and attach your company shop/drawing and or brochures / and or Literatures)
DESCRIPTIONS/SPECIFICATIONS	
PR NO. 17-06-08-129: 1 LOT SUPPLY, DELIVERY, INSTALLATION AND COMMISSIONING OF GAS CHLORINATING SYSTEM COMPLETE WITH RESIDUAL ANALYZERS, AUTO VALVES, LEAK DETECTOR, SWITCH OVER SYSTEM, WEIGHING SCALE AND BOOSTER PUMP INCLUDING ACCESSORIES.	
TERMS OF REFERENCE	
Objective:	
The Automatic Switch-Over Gas Chlorination System shall be designed to automatically switch chlorine feed from an empty cylinder to a full cylinder. The system will allow around the clock protection without concern for running out of chlorine when the system is unattended. The chlorinator should be of modular design with a maximum capacity of 200 pounds per day of chlorine feed and shall be equipped with a chlorine flow meter of 200 pounds per day.	
The minimum requirements or specification for the Automatic Switchover Gas Chlorination System are detailed in the following sub-sections:	
The Automatic Switch-Over Gas Chlorination System shall comprise at least the items listed below:	
A.	One (1) set – Automatic Switchover Gas Chlorinator complete with accessories as per Specifications.

B.	One (1) set – Amperometric Chlorine Residual Analyzers complete with accessories as per specifications.	
C.	One (1) sets – Auto Valve rated 200 ppd complete with accessories as per specifications.	
D.	One (1) set – Gas Leak Detector with sensor and alarm light	
E.	Two (2) pcs – Weighing scales with digital indicator complete with accessories as per specifications.	
F.	One (1) lot – Booster pumps, Controls and accessories as per specifications	
G.	One (1) lot - Miscellaneous items and consumables	
MINIMUM REQUIREMENTS / TECHNICAL SPECIFICATIONS:		
A.	AUTOMATIC SWITCHOVER GAS CHLORINATOR	
	The chlorinator shall be of modular design consisting of:	
	1.	two (2) vacuum regulators,
	2.	one (1) vacuum operated switchover module,
	3.	one (1) flow meter/rate valve panel, and
	4.	one (1) ejector/check valve.
	Each of these assemblies shall be capable of being individually located wherever safety and/or operator convenience dictates and shall meet with the following requirements and specifications:	
A1.	VACUUM REGULATOR, 200 PPD	
	Mounting	directly on Chlorine Cylinder Valve
	Yoke Assembly	corrosion resistant and gasket type
	Body Parts	solid machined PVC material
	Diaphragm	spring-opposed
	pressure relief (vent) valve	with separate ports for chlorine feed and chlorine vent
	Outside end of the vent tubing	equipped with an insect screen
	Colored mechanism indicator	One color when the cylinder is still with chlorine content
		One Color when the cylinder is empty and needs to be replaced
	Screw and Nuts	Made of Titanium, corrosion resistant
A2.	AUTOMATIC SWITCHOVER MODULE	

	The switch over module separate mechanical device shall be provided to automatically switch from empty cylinder to the standby cylinder. The switchover module shall be suitable for wall mounting.	
	Operation	Vacuum Operated
	Factory Reset	Requires no manual reset or field adjustment
A3.	GAS FLOW METER / RATE VALVE PANEL	
	Type	Shall be capable of mounting
	Panel	Fiberglass reinforced thermoplastic material
	Flow rate control valve	Fluoroplastic material
	Rate Valve metering tip	Fine, hard drawn silver
	Flow Metering Tube	Dual English/Metric scale variable area
		With a maximum capacity of 200 pounds per 24 hours – 5KG/Hr
A4.	EJECTOR, 200PPD	
	Check valve System	Dual, High pressure / low pressure back
	Back Pressure	300 PSIG (20.7 Bars) max
Other requirements:		
1.	Product Brochure	
2.	ISO 9001 Certificate of Registration issued in the name of the Manufacturer	
3.	Letter from the manufacturer stating that:	
	a.	The bidder is the exclusive distributor in the Philippines;
	b.	Any equipment and spare parts sold by the Bidder in the Philippines has the guarantee and warranty of the manufacturer;
	c.	The bidder's personnel have undergone factory training and are authorized to perform installation, start up and repair services for the manufacturer's equipment's and systems.
4.	Warranty	
	Three (3) years warranty on complete system	
	Five (5) Years warranty on Five Major parts:	
	1.	Vacuum Regulator Inlet / Safety Valve Spring

	2.	Ejector Check Valve Spring
	3.	Non-Metallic Inlet Adaptor
	4.	Main Vacuum regulator diaphragm
	5.	Vacuum regulator body screws
B.	CHLORINE / pH RESIDUAL ANALYZER (AMPEROMETRIC)	
	Measuring element	Amperometric probe
	Rotameter	permit regulation of sample flow rate
	Control valve	
	Monitoring instrument	Dual Input – pH & chlorine probes
		Display – 2 line by 16-character LCD
		Outputs- 4-20 mA dc,
		Four contacts – 1.2A@120Vac
		4-pushbutton operator interface
		Enclosure – NEMA 4x, fiberglass
	Mounting – wall or surface	
	Sensors	
	*Chlorine	
	Range	0.5, 2.0, 10.0, & 20.0 ppm
	Temperature	5 to 45 degrees C.
	Amperometric probe	
	*Ph	
	Range	0-12 pH
	Temperature	5 to 135 degrees C
	Glass measuring electrode with annular ceramic double junction reference cell	
	Other requirements:	
	1.	Product Brochure
	2.	Warranty – One (1) year on complete system
C.	AUTO – VALVE, 200ppd	
	Physical Input	Flow: 4-20 Ma DC
		Residual: 4-20Ma DC
		Valve position: Potentiometer input. Approx. 0.25-2.25 VDC
	Impedence	4-20mA Input 250 Ohm (+/- 1%)
	Display	2-line, 16 character, back lighted LCD
	Stepper motor	Bi-polar (4 wire), 5.6 VDC, 1A Phase Resistance

		5.6 Ohms, Phase Inductance 25.6 mH
		Holding Torque 72 oz-in, Rotor Inertia 0.00166 oz-in-sec
	Output	2.5 VDC potentiometer excitation
		4-20mA reference to local ground-600 phm drive (max)
Other requirements:		
	1.	Product Brochure
	2.	ISO 9001 Certificate of Registration issued in the name of the Manufacturer
	3.	Letter from the manufacturer stating that:
	3.A	The bidder is the exclusive distributor in the Philippines;
	3.B	Any equipment and spare parts sold by the Bidder in the Philippines has the guarantee and warranty of the manufacturer;
	3.C	The bidder's personnel have undergone factory training and are authorized to perform installation, start up and repair services for the manufacturer's equipment's and systems.
	4.	Warranty
		Three (3) years warranty on complete system
A.	GAS LEAK DETECTOR	
	This shall be capable of responding to levels of gas in air over a range of 0.1-30 PPM. The unit shall consist of an electro-chemical gas sensor and a microprocessor-based alarm indicator unit. The sensor can be mounted in the hazardous area, while the monitor remains in a safe area, protecting the operator from exposure to the hazardous gas. The operator is alerted to the hazardous condition by an audible alarm and flashing display on the indicator. The alarm indicating unit can interface with up to two sensors, each of which can monitor the same or a different gas.	
	Technical Specifications of GAS SENSOR:	
	Type	Electrochemical
	Enclosure	NEMA 4X (IP65)
	Range, Full scale	0.1-30 ppm (Field Adjustable)
	Sensor Resolution	0.1 ppm
	Temperature	-20 to 50 C
	Power, from AIU	12 VDC

	Technical Specifications of ALARM INDICATOR:	
	Enclosure	NEMA 4X (IP65)
	Analog Output	Isolated 4-20 mAdc into Ohms (Max)
	Digital series Interface	RS232
	Display	2-line x 16-character LCD backlit
	Alarms	-Programmable, 4 std. (2 opt.)
	Alarm Contacts	3A@250 VAC, Gold Flashed Contact
	Memory	Flash RAM & EEPROM
	Data & Command	Entry front mounted keypad, 4 tactile feedback push buttons
	Other requirements:	
	1.	Product Brochure
	2.	Warranty – One (1) year on complete system
E.	HYDRAULIC SCALE WITH INDICATOR	
	Input	Electronic load cell or Ultrasonic sensor
	Output	Isolated 4-20mA output
	Readout Specs	32 character, backlit, alphanumeric LCD
	Numerical Display	6 Full Digits (999,999)
	Bar Graph Display	User adjustable 0-100%
	Increments	0.1, 0.2, 0.5, 1,2,5,10,20 or 50
	Operating Temperature	32-122-degree F (0.50-degree c)
	Input Power	10-250 VAC (50-60 Hz, 5 watts) or 24 VDC
	Enclosure	NEMA 4X
	Other requirements:	
	1.	Product Brochure
	2.	Letter from the manufacturer stating that: The bidder is the exclusive distributor in the Philippines;
	3.	Warranty
		Five (5) years warranty on complete system with attached PERFORMANCE GUARANTEE Certificate from the manufacturer.
F.	STAINLESS STEEL VERTICAL MULTI STAGE PUMP – 2 HP	

	Flow	Up to 725 GPM
	Head (TDH)	Up to 1200 feet
	Power Supply	Three Phase and single phase 50 and 60 Hz
	Power	Standard motors from .5HP to 75HP
	Maximum operating pressure	Up to 580 PSI (40bar) for sizes 1SV through 125SV
	Temperature of pumped liquid	-22F to 250F standard version / up to 300F in "hot water design"
	Motor Enclosure	ODP, TEFC and explosion proof with premium efficiency options
	Motor Insulation	Class F
	Other requirements:	
	a)	Delivery :
		Within 90 days upon receipt of approved Purchase Order
	b)	Manpower Requirements:
		To provide list of staff and personnel to undertake and take charge of the project.
	c)	After Sales Service:
		Must have a local office in Cagayan De Oro City to render support within 48 hours
	d)	Attach items brochure and/or literature for technical evaluation
	Other requirements:	
	a)	Prospective bidder/supplier must conduct site inspection and submit design scheme for the gas chlorination system.
	b)	The winning bidder / supplier will provide at least three (3) days of training on proper usage, maintenance and troubleshooting if necessary. The cost of which shall be shouldered by the winning bidder.