C-CAMP

Centre for Cellular and Molecular Platforms

Annexure to Enquiry NO. C-CAMP/L-087/2019-2020 (N)

Specification for gas lines

NAME OF THE WORK: Gas Manifold and tubing system for CCAMP Second and Third Floor					
Sl No	Description	Qty.	Unit	Unit Rate	Amount in Rs. Ps.
A	CARBON DIOXIDE (2X2 Manifold)	1	No.		
1	Supply, Installation, testing and commissioning (SITC) of CO2 Gas Manifold system to house two working + two standby standard CO2 cylinders. The manifold shall be made out with well finished rigid MS support structure using square pipes of size min. 50mm X 3mm thickness . The manifold shall have a suitably mounted SS board of min 304 Grade, 3 mm thick and sufficiently sized, to house the Isolator Valves, On-board manifold piping, auto-change over set-up, header pipe line, main isolator and safety pressure relief valve etc. Manifold should have rack valve for each cylinder, master pressure gauge for each bank to indicate bank pressure, stainless steel high pressure non-return valve, master filter regulator with isolation valve and cylinder mounting stand with appropriate fittings. Each cylinder shall have its own dedicated space with easy cylinder replacement provision and its own SS chain link holding system. The manifold system and the components used there-in shall be rated for 250Bar pressure rating. The manifold system shall be floor/ wall mounted as per standard practice with sufficient grouting / fixing arrangements. The manifold system shall be designed to match the site requirements.				
2	SITC of SS 316 CO2 Gas filter, 7 micron, with end compression connector, bull nose adaptor matching to the application / usage, 250 Bar rated.	4	No.		
3	SITC of 1m long, 250 Bar rated, Flexible Teflon tube stub with SS external braiding with appropriate fittings and connectors to connect N2 cylinder direct.	4	No.		
4	FULLY AUTOMATIC CHANGEOVER REGULATOR with Electronic and manual Control option for the change over of Cylinder Banks: SITC of SS 316, Automatic Changeover regulator (primary), Diaphragm sensed & spring loaded, with preset flow, inlet pressure of 250 Bar and outlet pressure of 0 to 10 Bar with fitted Pressure gauges for inlet and one outlet readings, with end connectors, mounting bracket, complete. The changeover of Cylinder banks should be electronic type with appropriate pressure switches and diaghram valves. The system should have redundancy for changeover regulating	1	Set		
5	SITC of SS316, Line Pressure switch with Potential free NO/NC contact for facilitating alarm generation on emptying of the cylinder, suitable for the specific application, with end compression connectors, and other required accessories. The switch shall have standard set point for the specific application required. The system should have electronic controller to Monitor Cylinder and Line Pressure of each Banks. The system should facilitate the connectivity for the Building Management System.	1	No.		
6	SITC of SS316 Pressure relief safety valve with Alarm option for pressure relief in the system, set at 20 bar, on the outlet side of regulator. The valve shall have a potential free NO contact for utilization to generate Alarm in the event of actuation of pressure relief valve.	1	No.		

7	SITC of 500 Watt, 230 Volt Centralized heater module suitable for CO2 gas line system with inbuilt heater ON/OFF control, indication for 250 Bar line pressure with end compression connectors.				
8	SITC of 250 Bar rated, SS 316 Ball Valve, with appropriate fittings and connectors.				
9	a. ¼" diameter	11	No.		
10	b. ½" diameter	3	No.		
	arsenical, half hard, tempered and degreased, rated for 250 Bar pressure, including all the required compression tube fittings / connectors, ferrule fittings, instrument pipe fittings etc,as required at site and as required for the application to complete the work. Each tube line shall be clamped with appropriate size clamps, mounted on GI Slotted rails, with all the required fasteners. The entire tubing system shall be mounted on the wall / from the ceiling with screw rods and GI rails with expansion bolts / grouting as per standard practice. Gas tubing lines shall not sag and supporting shall be provided in intervals of less than 1.5m distance. The GI rails should be capable to hold 6 no's of 1/2" tubing in parallel for future purpose. The formation and installation of the entire tubing system should be properly mounted and aesthetically finished. Each tubing line shall carry permanent labeling and directional flow marking and be suitably color coded for the application. Work shall be complete in all respects including thorough degreasing and clearing of all particulate matter.				
	a. SS 316, ½" diameter	120	meters		
	b. SS 316, ¼" diameter	20	meters		
12	SITC of SS 316, CO2 gas secondary regulator, Diaphragm sensed & spring loaded, with preset flow rate. The regulator should operate at 0-20Bar inlet and outlet pressure of 0 to 10 Bar fitted Pressure gauges for inlet and outlet pressure readings, with 1/4" to 6mm PU tube press fit connectors, mounting brackets, complete.	11	No.		
B	**NITROGEN (2X2 Manifold)**				
1	Supply, Installation, testing and commissioning (SITC) of N2 Gas Manifold system to house two working + two standby standard N2 cylinders. The manifold shall be made out with well finished rigid MS support structure using square pipes of size min. 50mm X 3mm thickness . The manifold shall have a suitably mounted SS board of min 304 Grade, 3 mm thick and sufficiently sized, to house the Isolator Valves, On-board manifold piping, auto-change over set-up, header pipe line, main isolator and safety pressure relief valve etc. Manifold should have rack valve for each cylinder, master pressure gauge for each bank to indicate bank pressure, stainless steel high pressure non-return valve, master filter regulator with isolation valve and cylinder mounting stand with appropriate fittings. Each cylinder shall have its own dedicated space with easy cylinder replacement provision and its own SS chain link holding system. The manifold system and the components used there-in shall be rated for 250Bar pressure rating. The manifold system shall be floor/ wall mounted as per standard practice with sufficient grouting / fixing arrangements. The manifold system shall be designed to match the site requirements.	1	No.		
2	SITC of SS 316 N2 Gas filter, 7 micron, with end compression connector, bull nose adaptor matching to the application / usage, 250 Bar rated.	4	No.		
3	SITC of 1m long, 250 Bar rated, Flexible Teflon tube stub with SS external braiding with appropriate fittings and connectors to connect N2 cylinder direct.	4	No.		

4	FULLY AUTOMATIC CHANGEOVER REGULATOR with Electronic and manual Control option for the change over of Cylinder Banks: SITC of SS 316, Automatic Changeover regulator (primary), Diaphragm sensed & spring loaded, with preset flow, inlet pressure of 250 Bar and outlet pressure of 0 to 10 Bar with fitted Pressure gauges for inlet and one outlet readings, with end connectors, mounting bracket, complete. The changeover of Cylinder banks should be electronic type with appropriate pressure switches and diaghram valves. The system should have redundancy for changeover regulation.	1	set		
5	SITC of SS316, Line Pressure switch with Potential free NO/NC contact for facilitating alarm generation on emptying of the cylinder, suitable for the specific application, with end compression connectors, and other required accessories. The switch shall have standard set point for the specific application required. The system should have electronic controller to Monitor Cylinder and Line Pressure of each Banks. The system should facilitate the connectivity for the Building Management System.	1	No.		
6	SITC of SS316 Pressure relief safety valve with Alarm option for pressure relief in the system, set at 20 bar, on the outlet side of regulator. The valve shall have a potential free NO contact for utilization to generate Alarm in the event of actuation of pressure relief valve.	1	No.		
8	SITC of 250 Bar rated, SS 316 Ball Valve, with appropriate fittings and connectors.				
9	a. ¼" diameter	4	No.		
10	b. ½" diameter	3	No.		
11	SITC of SS316 tubing system, Solid drawn, seamless, deoxidized, non-arsenical, half hard, tempered and degreased, rated for 250 Bar pressure, including all the required compression tube fittings / connectors, ferrule fittings, instrument pipe fittings etc,as required at site and as required for the application to complete the work. Each tube line shall be clamped with appropriate size clamps, mounted on GI Slotted rails, with all the required fasteners. The entire tubing system shall be mounted on the wall / from the ceiling with screw rods and GI rails with expansion bolts / grouting as per standard practice. Gas tubing lines shall not sag and supporting shall be provided in intervals of less than 1.5m distance. The GI rails should be capable to hold 6 no's of 1/2" tubing in parallel for future purpose. The formation and installation of the entire tubing system should be properly mounted and aesthetically finished. Each tubing line shall carry permanent labeling and directional flow marking and be suitably color coded for the application. Work shall be complete in all respects including thorough degreasing and clearing of all particulate matter.				
	a. SS 316, ½" diameter	150	meters		
	b. SS 316, ¼" diameter	20	meters		
12	SITC of SS 316,N2 gas secondary regulator, Diaphragm sensed & spring loaded, with preset flow rate. The regulator should operate at 0-20Bar Inlet and outlet pressure of 0 to 10 Bar fitted Pressure gauges for inlet and outlet pressure readings, with 1/4" to 6mm PU tube press fit connectors, mounting brackets, complete.	4	No.		
c	Compressed Air System				

1	SITC of SS316 tubing system, Solid drawn, seamless, deoxidized, non-arsenical, half hard, tempered and degreased, rated for 250 Bar pressure, including all the required compression tube fittings / connectors, ferrule fittings, instrument pipe fittings etc,as required at site and as required for the application to complete the work. Each tube line shall be clamped with appropriate size clamps, mounted on GI Slotted rails, with all the required fasteners. The entire tubing system shall be mounted on the wall / from the ceiling with screw rods and GI rails with expansion bolts / grouting as per standard practice. Gas tubing lines shall not sag and supporting shall be provided in intervals of less than 1.5m distance. The GI rails should be capable to hold 6 no's of 1/2" tubing in parallel for future purpose. The formation and installation of the entire tubing system should be properly mounted and aesthetically finished. Each tubing line shall carry permanent labeling and directional flow marking and be suitably color coded for the application. Work shall be complete in all respects including thorough degreasing and clearing of all particulate matter.				
	a. SS 316, ½" diameter	80	meters		
	b. ¼" diameter	3	No.		
	Compressed Air Reguator with moisture filter	3	No.		
	Installation/ Commissioning Charges	1			
	Total				
	Vendor Should visit for better understanding of requirement				
	Note: Final measurement will be taken and will be paid at actuals				