



INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
MATERIALS MANAGEMENT DIVISION
Powai, Mumbai 400076.

Ref. PR No. **1000057006**

Rfx. No. **6100003097**

Item Description:- **Gas Distribution and Utilities Services**

Sr. No	Item Description	Detailed Technical Specification	Technical Compliance (Yes / No)	Additional Information (if any)
1.	Cylinder for Argon Gas	Quantity: 12 Each • Cylinder capacity: 47 Ltrs Water Capacity (WC) • Purity: 99.999% • Pressure: 135-145 kg/cm ² • Gas volume: 7 m ³ per cylinder		
2.	Cylinder for Regen Gas	Quantity: 4 Each • Gas Composition: 10% H ₂ in Argon • Cylinder capacity: 47 Ltrs WC, containing 7 m ³		
3.	Cylinder for Nitrogen Gas	Quantity: 6 Each • Cylinder capacity: 47 Ltrs WC • Purity: 99.999% • Pressure: 135-145 kg/cm ² • Gas volume: 7 m ³ per cylinder		
4.	Cylinder for Hydrogen Gas	Quantity: 2 Each • Cylinder capacity: 47 Ltrs WC • Purity: 99.999% • Pressure: 135-145 kg/cm ² • Gas volume: 7 m ³ Requires Flashback Arrestor.		
5.	Cylinder for Zero Air Gas	Quantity: 2 Each • Cylinder capacity: 47 Ltrs WC • Purity: 99.999% • Pressure: 135-145 kg/cm ² • Gas volume: 7 m ³		
6.	Cylinder for Oxygen Gas	Quantity: 2 Each • Cylinder capacity: 47 Ltrs WC • Purity: 99.999% • Pressure: 135-145 kg/cm ² • Gas volume: 7 m ³ high purity		
7.	Cylinder for Helium Gas	Quantity: 2 Each • Cylinder capacity: 47 Ltrs WC • Purity: 99.999% • Pressure: 135-145 kg/cm ²		

		• Gas volume: 7 m³		
8.	Cylinder for Carbon Dioxide (CO ₂) Gas	Quantity: 2 Each • Cylinder capacity: 47 Ltrs WC • Purity: 99.9% • Pressure: 50-60 kg/cm² Requires inline Gas Preheater.		
9.	Cylinder for Carbon Monoxide (CO) Gas	Quantity: 2 Each • Cylinder capacity: 47 Ltrs WC • Purity: 99.999% Toxic Gas safety protocols apply.		
10.	Flow Meter (Rotameter) 10-100 mL/Min	Quantity: 2 Each • Body Material: Acrylic with integral needle valve • Connector size: 6"-8" long • Process Fluid: Argon Gas		
11.	Flow Meter (Rotameter) 200-2000 mL/Min	Quantity: 2 Each • Body Material: Acrylic with integral needle valve • Connector size: 6"-8" long • Process Fluid: Nitrogen Gas		
12.	Flow Meter (Rotameter) 100-1000 mL	Quantity: 2 Each • Body Material: Acrylic with integral needle valve • Connector size: 6"-8" long • Process Fluid: Regen Gas (10% H₂ + 90% Argon)		
13.	Cylinder Manifold Assembly & Accessories and Gas Supply Infrastructure Lab Piping	A. Cylinder Manifold Fitting Quantity: 1 SET (SS316) 1) Manifold Frames: 18 Qty of 1+1 Unistrut Frame, GI/MS powder-coated 2) Cylinder Brackets: 72 Qty MS Brackets with chain 3) Nut Bullnose : 72 Qty 4) Check valve : 36 Qty 5) Flexible Hoses: 1-meter long SS 316 braided pigtails with safety wire : 36 Qty 6) High-Pressure Panels: Brass Chrome Plated manual panels with double-stage regulators (Flow: 350 LPM, Inlet: 150 bar, Outlet: 14 bar) and PRV : 18 Qty 7) Outlet Connector (1/4" x 1/4") : 8 Qty 8) Outlet Connector (1/4" x 1/2") : 10 Qty 9) SS 316 Ball Valves (1/4"): 8 Qty 10) SS 316 Ball Valves (1/2"): 10 Qty 11) Brass Flashback Arrestors (3/8" BSP LH) : 2 Qty 12) Indigenous Preheater : 2 Qty Components must be certified up to 1.5x working pressure. Acceptable makes: P-Lok / Astec / Panam / Messer/swagelok & GCE or Substantive equivalent. B. Lab Piping and Accessories Quantity: 1 SET 1) Seamless Tubes (SS 316, ASTM A269 bright annealed): – 1" OD OW : 140 meters – 1/2" OD OW : 890 meters		

		– ¼" OD OW : 1770 meters – ⅛" OD Coil Tube with color sleeve: 24 meters 2) Ball Valves : – 1" Ball Valves, 2 Qty – ½" Ball Valves, 38 Qty – ¼" Ball Valves, 90 Qty 3) Angle Needle Valves; 21 Qty 4) ¼" Line Regulators with dual gauges with connectors; 31 Qty -Regulator connector ½" x ¼":18 Qty -Regulator connector ¼" x ¼":44 Qty 5) ½"x¼" Bench/Table Mount Regulators with Connectors: 48 Qty -Table Mount Regulator inlet connector(1/2"x1/4"):46 Qty -Table Mount Regulator inlet connector(1/2"x1/2"):2 Qty 6) Connectors & Fittings (SS 316 compression/orbital weld): – Instrument Connectors,136 Qty – Fumehood Connectors, 44 Qty – Source Connectors, 3 Qty 7) Equal Tee ½" : 18 Qty 8) Equal Tee ¼" :102 Qty 9)Unequal Tee 1"x1/2" : 9 Qty 10)Unequal Tee 1/2"x1/4" : 29 Qty 11)Reducer 1"x1/2" : 3 Qty 12)Reducer 1/2"x1/4" : 5 Qty 13)Elbow 1"x1" : 48 Qty 14)Pressure gauge with necessary tee & fittings, etc. ½" : 1 Qty 15)Pressure gauge with necessary tee & fittings, etc. 1" : 4 Qty 16)Vacuum gauge with necessary tee & fittings, etc. 1" : 2 Qty 17)Vacuum gauge with necessary tee & fittings, etc. ½" : 7 Qty 18)Gas Purification Panel with connector: : 5 Qty 19)Micron Filter: 5 Qty 20)Box Clamp with tee nut & SS Allen Screw – 1" OD : 140 Qty – ½" OD : 890 Qty – ¼" OD: 1770 Qty 21)Tagging: 2800 Qty 21)Anchor fastener 10 MM with 10mm stud rod, nuts, washers & accessories (1.0 mtr length): 570 Qty 22)Aluminium profile with end caps: Mtr- 200 23)Slotted Channel :Qty- 200 24)SS Support like ceiling plate, MS angle, grid supports, etc. Lot- 2 Main lines require orbital welding with UHP Argon purge. Tube makes: Scoda / Sumitomo / Prakash. Fittings: P-Lok / Astec / Panam /swagelok& GCE or		
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		Substantive equivalent.		
14.	12-Channel Gas Detector Control Panel	Quantity: 2 SET Gas Detectors Control and alarm panel (12 Channel) with inbuilt hooter and alarm system Smart Gas Monitor with attached Hooter Cum Flasher UNIQUE SPECIFICATION: - - Smart IoT Gateway Supports 8 Channels. - GSM Connectivity = 4G (2 SIM Slots) - Dual SIM card slots for Redundancy with Auto SIM switching in case of network fail- ure - Global supporting GSM module (4G-900MHz/1800MHz). - Two Settable Alarm set-points for each channel (High/ Low) - Display :128x64 Graphical Display with Backlight - Alert & Notification to: - SMS: 10 Mobile numbers - E-mail: 5 E-mail addresses - Buzzer: Beep Sound - Relay: 4 DPDT Relays - SIM Card & its Network plan will be in Client scope GENERALS SPECIFICATION: - - Operating Temperature: -10 to +50 de- gree C - Enclosure: Protection Class: IP-65 (Weatherproof) - Enclosure: Polycarbonate, White colour - Cable Entry: 05 x M20 x 1.5 (Pitch) - Thermoplastic Cable Gland IP68 - Operating Voltage: 24V DC / 12V DC Adap- tor - Enclosure Dimension: 271mm (H) x 170mm (W) x 60mm(D) - Weight: 1 kg. - Mounting: Wall / Stand Mounting - Along with Basic mounting accessories such as Rawl plug, Self-Thread Screw, Plain Washer Spring washer etc. are included. 2 Qty Make: PCI / Honeywell / Oldham or Substantive equivalent. System voltage: 24V DC. SIM cards under client scope.		
15.	4-Channel Gas Detector Panel & Sensor Field Items+	Quantity: 1 SET 1) Gas Detectors Control and alarm panel (4 Channel) with inbuilt hooter and alarm system Smart Gas Monitor with attached Hooter Cum Flasher UNIQUE SPECIFICATION: - - Smart IoT Gateway Supports 8 Channels. - GSM Connectivity = 4G (2 SIM Slots) - Dual SIM card slots for Redundancy with Auto		

		SIM switching in case of network fail- ure - Global supporting GSM module (4G-900MHz/1800MHz). - Two Settable Alarm set-points for each channel (High/ Low) - Display :128x64 Graphical Display with Backlight - Alert & Notification to: - SMS: 10 Mobile numbers - E-mail: 5 E-mail addresses - Buzzer: Beep Sound - Relay: 4 DPDT Relays - SIM Card & its Network plan will be in Client scope GENERALS SPECIFICATION: - - Operating Temperature: -10 to +50 de- gree C - Enclosure: Protection Class: IP-65 (Weatherproof) - Enclosure: Polycarbonate, White colour - Cable Entry: 05 x M20 x 1.5 (Pitch) - Thermoplastic Cable Gland IP68 - Operating Voltage: 24V DC / 12V DC Adap- tor - Enclosure Dimension: 271mm (H) x 170mm (W) x 60mm(D) - Weight: 1 kg. - Mounting: Wall / Stand Mounting - Along with Basic mounting accessories such as Rawl plug, Self-Thread Screw, Plain Washer Spring washer etc. are included.1 Qty 2) Hooter Cum Flasher:1 Qty 3) Hydrogen Sulfide Gas Detector with HOOTER flameproof with display(Alarms: Low 20% LEL, High 40% LEL): 1 Qty 4) Oxygen Gas Detector with HOOTER flameproof with display (Alarms:Low 19.5% v/v, High 21.5% v/v): 14 Qty 5) Hydrogen Gas Detector with HOOTER flameproof with display (Alarms: Low 20% LEL, High 40% LEL) :8Qty 6) Carbon Dioxide Gas with HOOTER flameproof with display(Alarms: Low 250 ppm, High 500 ppm): 1Qty 7) Carbon Monoxide Gas Detector with HOOTER flameproof with display(Alarms: Low 20% LEL, High 40% LEL):5Qty 8) 3 Core x 1.5 Sqmm Cable: 640 meters 9)Flame proof cable gland: 60 Nos 10) Cable Tray along with stud rods, anchor bolts, washers, saddle clamps, nuts and complete accessories 50 mm width :80 meters 11) Cable Tray along with stud rods, anchor bolts, washers, saddle clamps, nuts and complete		
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		accessories 100 mm width: 50 meters 12)Cable Tray along with stud rods, anchor bolts, washers, saddle clamps, nuts and complete accessories 250 mm width: 30 meters 13) SS Conduite with clamps, fasteners & accessories : 87 meters		
	Warranty	1 Year warranty		

ADDITIONAL REQUIREMENTS:

1. The bidder should have a minimum of 03 (Three) years' experience in the supply, installation, testing, and commissioning of gas line/gas pipeline systems in Government Departments, Public Sector Undertakings, Autonomous Bodies, reputed academic/research institutions, laboratories, large industrial establishments. Documentary evidence in the form of copies of purchase orders/work orders/completion certificates for similar works shall be submitted along with the bid. For the purpose of this tender, "Similar Work" shall mean the supply, installation, testing, and commissioning of gas line/pipeline systems, including associated fittings, valves, regulators, manifolds, gas cylinder connections, gas detectors/gas leak detection systems and safety accessories.
2. The OEM/Manufacturer should have a minimum average annual financial turnover of Rs. 4.00 Crores during the last three financial years. The bidder shall submit documentary evidence in support of the same in the form of Turnover Certificates duly certified by a Chartered Accountant.
3. The bidder should possess adequate after-sales service and maintenance support infrastructure and shall be capable of providing prompt and satisfactory service during the warranty/guarantee period. The bidder shall also have adequate availability of spare parts, consumables, and trained service personnel for timely maintenance support in Mumbai.
4. To qualify for the tender process, it is mandatory for the bidder to attend the Pre-Bid Meeting and Site Visit.
5. It is the responsibility of the bidder to ensure the gas distribution systems are suitably designed and BoQs are properly estimated.