



Vadodara Gas Limited
Replies to Bidder's Queries

Subject: Purchase of 01 No. 1700 SCMH Motor Driven Compressor Package with 05 Year AMC for Upgradation of VGL CNG Mother Stations

Tender No.: VGL/CO/C&P-CNG/BD202312P094 Dated 19/12/2023 & Tender ID: 615895.

Sl. No.	SEC NO.	PAGE NO.	CLAUSE NO.	SUBJECT	BIDDER'S QUERY	VGL'S REPLY
Commercial Queries						
1	Section – I Invitation for Bid [IFB]	8 of 240	2.0 F)	Delivery Period - 14 Weeks	14 weeks deliveries are not possible considering long lead items like PLC, Motors and compressors having minimum lead time as 16 weeks hence request you to change delivery period from 14 weeks to 20 weeks.	14 Weeks from the approval of the drawing by the EIC.
2		70 of 240	j of 15	In the event of delay in mobilizing the services/ manpower for the particular CNG compressor package a penalty at the rate of 0.5 % of the contract value per week or part thereof shall be recovered from the contractor subject to a maximum of 5% of the contract value.	Please note, maximum of 5 % of Lot quantity / Delivery order. Not on the total contract value. Kindly confirm the same.	Ok Noted.
Technical Queries						
3	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	101 of 240	2.3	Bidder shall be responsible for supply, erection, commissioning and field trial run. Noise level test and performance test of all packages at sites. The field trial run of the compressor will be for minimum of 4 hours (can be in multiple runs) and the package should be kept under observation for 72 hours for stable operation and no major breakdown in which satisfactory performance of the package together with all accessories auxiliaries and controls shall be established for satisfactory performance for specified operating conditions.	Since, Full load performance test is carried out at work for 4 hours on guarantee parameters on Natural gas, we request you to consider a 30mins field trial run and also performance test at site.	Tender Condition Shall Prevail.
4			2.4	It will be the endeavor of all the parties to get the Performance Acceptance Test (PAT) at site conducted within a period of 20 days from the start of commercial operation of a particular package.		Tender Condition Shall Prevail.
5			2.6	Periodic inspections of safety valves, transmitters, pressure vessel gauge and any other equipment as per statutory norms of state factory rules. SMPV and gas cylinder rules shall have to be carried out by the bidder at his own cost during the period of maintenance by the bidder. The inspections have to be carried out by competent persons as per advice of engineer-in-charge and certificates have to be submitted to owner.	The vessels are part of a process equipment and are to be designed as per ASME Sec VIII. The process vessels have not been covered under Gas Cylinder Rules 2016 / Static and Mobile Pressure Vessels Rules. Retesting is carried out for only storage vessels like cascades. Only a thickness check will be carried out every year. Please note, hydro testing will be in scope of the Client . Same is followed in all the CNG packages and with all the CGD companies. Same is accepted in last tender	Ok Noted. Thickness test of Pressure Vessel is carried out every year.



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6	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	103 of 240	2.18	Receipt at site, storage in warehouse as per manufacturer's recommendation and safety and security from theft and breakage/damage during transportation, handling at site.	The storage in the warehouse, safety and security from theft shall be in Client's scope. Kindly confirm your acceptance to the same.	Ok Noted.
7	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	104 of 240	v. of 2.23	2.23 OPERATION AND MAINTENANCE OF COMPRESSOR PACKAGES Contractor has to ensure the safety of man and machine all the times. Damages to equipment due to negligence will be recovered as per the decision of Engineer-in-Charge, which will be final.	Shall be done only for the Packages supplied by KPCL.	Ok Noted.
8	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	107 of 240	xxxv. of 2.23	The bidder shall carryout calibration of gas detectors and flame detectors every six months or earlier as per requirement or instruction of EIC of OWNER. Also yearly calibration of all instruments such as pressure gauges, transmitters, switches, etc shall be in the scope of the bidder. Mass flow meters shall calibrate every 12 months. In addition to the above all safety relief valves shall also be tested and calibrated every Six Months.	For mass flow meters, field calibration shall be carried out. FCRI calibration shall be in Client scope.	Calibration of Mass Flow Meter shall be carried out through OEM or VGL approved agency in every 12 months.
9	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]		xxxviii. Of 2.23	The bidder shall carry out retesting of pressure vessels including blow down vessel periodically i.e. every year or earlier as per Gas Cylinder rules 2016 / Static & Mobile Pressure Vessels Rules.	The vessels are part of a process equipment and are to be designed as per ASME Sec VIII. The process vessels have not been covered under Gas Cylinder Rules 2016 / Static and Mobile Pressure Vessels Rules. Retesting is carried out for only storage vessels like cascades. Only a thickness check will be carried out every year. Please note, hydro testing will be in scope of the Client ,same is followed in all the CNG packages and with all the CGD companies.	Ok Noted. Thickness test of Pressure Vessel is carried out every year.
10	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	110 of 240	ii of 4.	All 3 no. of mass flow meters should be of same make and should have local display and should be weather proof. The flow meters should be enabled with MODBUS/RS 485 communications.	Suction and discharge flow meters are Emerson make and so we need to provide thermal flow meters of Emerson make since tender says same make. Please note, Emerson has stopped manufacturing thermal mass flow meters and the same has been accepted to provide different make in last CNG executed orders.	Ok Noted and the same will be approve by the PESO.
11	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	120 of 240	9.23	The supply shall include all interconnecting piping/tubing/cables.	Please let us know the distances of respective piping / tubing / cables.	1. Compressor package to control/electrical room - Approx. 55 Mtr. 2. UPS DB to package distance for UPS supply to PLC panel - Approx. 55 Mtr. 3. ESD Locations and its distance from Package - Approx. 40 Mtr. 4. Air compressor to electrical room - Approx. 25 Mtr.



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						5. CO2 Flooding system to compressor package - Approx. 8 Mtr.
12	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	110 of 240	viii. Of 4	Block and bleed valves to be provided for Pressure gauges and pressure Transmitters.	Block and bleed valves cannot be offered due to space constraints. We shall offer needle valves for Pressure Gauges and Pressure Transmitters.	Ok Noted.
13	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	110 of 240	ix. Of 4	Separate junction boxes for different type of signals like intrinsically safe signals, alarm, shutdowns, thermocouples, RTDs etc. for interfacing to local panel.	Local control panel (With PLC) is mounted on the package itself hence junction boxes are not required. Instruments will be directly wired to the Local control panel.	Ok Noted.
14	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	111 of 240	xii. Of 4	One no. relief valve at each stage discharge, first (1st) stage suction and Blow down Vessel.	Relief valve at first stage suction is not required in addition to one on a blowdown vessel as suction line and blow down vessel are connected to each other.	Ok Noted.
15	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	111 of 240	xiii. Of 4	Y- Type strainers, valves, sight flow indicators, check valves, auto & manual drain traps etc. as required for various auxiliary systems i.e. frame lube oil, cylinder lubrication system, cooling water systems etc.	Please note that as per Manufacturer's standard practice the lubricator will be divider block type. Y type strainers, Sight flow indicators, check valve etc are applicable for Single Plunger per point lubricator, thus not applicable.	Ok Noted.
16	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	111 of 240	xxi. Of 4	One set of priced spare parts catalogue along with the priced bid (Commercial bid), as built drawings and Operation & Maintenance catalogue with each compressor package.	There is no provision to provide prices of spare parts in the SOR. and also O & M is in bidder scope.	Ok Noted.
17	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	111 of 240	xxvi. Of 4	Duplex suction filters to be provided at the inlet of package with Differential Pressure gauge after Y- type strainer.	Please note Duplex suction gas filter with oil drains and temporary suction inline strainer will be placed outside the package.	Ok Noted.
18	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	111 of 240	xxviii. Of 4	Three no. Emergency stop button (push type) along with one hooter in office/customer interface room with its required cable.	Emergency stop button and hooter will be in the purchaser's scope. Any cabling required to interface the same with package PLC will be in the purchaser's scope.	Three no. Emergency stop button (push type) along with one hooter with its required cable.



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19	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	112 of 240	xxx. Of 4	Secondary lubrication system with check valve protector, HP (High Pressure) Filter (for all lubricating points) & DNFT (Digital No Flow Timer) flow switches with standby pump. Secondary lubrication system with divider block shall be provided.	Standby pump is not envisaged and therefore will not be provided. Oil pump mounted on a compressor is sufficient for cylinder lubrication.	Ok Noted.
20	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	112 of 240	5.20	Silencer has to be provided in the starting air vent line.	Not applicable.	Ok Noted.
21	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	114 of 240	2.2 of B.	B. COMPRESSOR PERFORMANCE DATA 2.2 Compressor Discharge temperature 52° C (After cooler) with ambient air temperature of 47.5° C and gas inlet temperature of 35° C (max.).	Please note discharge temperature shall be Ambient +10 deg C. This design is followed in all our packages and same is supplied in GED tender.	Ok Noted.
22	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	118 of 240	9.50	Compressor cylinder shall be provided preferably with removable liners.	Please note that the compressor cylinders are without liners as per manufacturer's standard design.	Ok Noted.
23	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	119 of 240	9.12	In case of lubricated cylinder & packing design, single plunger force feed mechanical lubricator shall provide lubrication to compressor cylinders. Lubricators with double ball check valve shall be provided at each lubricator point. Digital no flow timer shall be provided to stop the compressor in case of loss of cylinder lubrication.	Please note that as per Manufacturer's standard practice the lubricator will be divider block type. Double ball check valves are applicable for Single Plunger per point lubricator, thus not applicable.	Ok Noted.
24	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	119 of 240	9.21	Cross head inspection windows should be transparent for easy of inspection during running. Set values should be prominently marked on the gauges.	Crosshead covers are not transparent as per manufacturer's standard design.	Ok Noted.
25	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	119 of 240	a) of 9.22	Gas tight crankcase.	Crankcase is not gas tight and Crankcase is provided as per manufacturer's standard design.	Ok Noted.
26	SECTION – V SCOPE OF	120 of 240	h) of 9.22	Crankcase breather piped back to suction.	Crankcase is as per manufacturer's standard design. and not piped back to suction.	Ok Noted.



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	WORK [SOW] & TECHNICAL SPECIFICATION [TS]					
27	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	131 of 240	11.14	For handling of all heavy parts for maintenance purpose suitable lifting arrangement shall be provided i.e. beam fitted with chain hoist arrangement. The chain hoist arrangement i.e. chain pulley block shall be removable type, which can be disassembled and shifted onto the other machines. 1no. each shall be provided for tendered quantity of compressors. Eye bolt arrangement shall be provided on heavier components like electric motor, cylinder crankcase, and wherever felt necessary for lifting during maintenance.	We will provide suitable arrangement such as plate for sliding the compressor motor out of the Canopy for maintenance purpose. No other equipment requires lifting arrangement considering their weight and therefore chain pulley arrangement is not required.	Ok Noted.
28	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	125 of 240	1) of 9.35	The power factor (PF) of the whole electrical system should not be below 0.95. Motor feeder shall be provided with energy meter.	Please note, to maintain power factor of 0.95 in our system, APFC panel is required. We would like to inform you that APFC panel is in Client scope because the APFC panel to be designed considering the complete station load and not only CNG compressor load.	Ok Noted.
29	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	126 of 240	10.4	Temperature process values should be taken from temperature transmitters and should be independent from temperature gauges installed on local gauge panel.	We shall provide temperature elements like RTD, K-type thermocouple instead of transmitters. All temperature elements shall be directly connected to PLC with appropriate protection.	Ok Noted.
30	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	126 of 240	10.5	Individual (2/3 core) cabling is required for each field instrument from field JB to avoid multiple JB's and multicore cables in field for easy trouble shooting & replacement.	Local control panel (With PLC) is mounted on the package itself hence junction boxes are not required. Hence Multicore cable is not required.	Ok Noted.
31	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	126 of 240	vi. Of 10.11	Compressor jacket water coolant temperature indicator on local gauge panel	Not applicable for air cooled compressor cylinders.	Ok Noted.
32	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION	127 of 240	10.16	A separate hooter for customer interface room shall be provided with annunciation window alarm of individual protection device.	We are not providing annunciation window Same is accepted to many CGD companies.	Ok Noted.



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	[TS]					
33	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	128 / 129 of 240	f) of 10.18	PLC shall be configured as a remote terminal unit of supervisory computer and data acquisition system complete with GPRS and Ethernet connectivity.	Please note this is an additional requirement and will impact the price of the machine. However, we can provide an extra port in our PLC for GPRS connectivity. GPRS hardware (sender end), Software (Receiving end) and cable from our PLC to owners Control room.	Ok Noted.
34			g) of 10.18	Successful bidder to include in scope live demonstration of remote monitoring of all PLC logged parameters in one machine at his works. OWNER may ask for the same. However, this may be required to be demonstrated at site.		Ok Noted.
35	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	130 of 240	11.1	Each compressor module shall be housed within a purpose built SS 304 acoustic enclosure or in case of mild steel the surface shall be treated with anti-rust coatings followed by UV resistant epoxy paint for durability and rust protection.	We will use GI sheets for enclosure as per standard design and shall be weather proof.	Ok Noted.
36	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	130 of 240	11.4	The maximum temperature within the enclosure shall be limited to ambient + 80 C. Adequate ventilation fans shall be provided to meet the above and also to account heat dissipation of the coolers/ all other components.	Air cooled heat exchanger fan is of forced draught type which throws air out of the enclosure. Hence a separate ventilation fan is not required. Temperature inside the enclosure shall be limited to ambient + 10 degC without the use of additional ventilation fans. Please confirm your acceptance.	Ok Noted.
37	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	131 of 240	11.18	The bidder shall be providing a degree of protection equivalent to IP44 as defined in AS 1939.	Compressor enclosure will be weatherproof.	Ok Noted.
38	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	137 of 240		INSPECTION & TESTING	Inspection and testing shall be as per bidder's standard QAP and the same shall be discussed during detailed engineering.	Ok Noted.
39	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]		14.4	If the equipment is down for more than 4 hours on any day, Penalty would be applicable as follows: · 4 to 12 hours: Rs. 20,000/- · Beyond 12 hours: Rs. 40,000/- per day. In case of daily availability is 20 hrs. but monthly average availability is below 98%. Then penalty @ of 10,000 per % or part	Penalty for breakdown or shutdown shall be as below: up to eight hours: NIL up to 24 hours: INR 10,000/- per day Please note In any case/any situation, total penalty will be limited to 50% of monthly invoice value of concerned package including all penalty clauses	20.0 PENALTY CLAUSE (SCC) A. PENALTY TOWARDS EXCESS GAS LOSS: At the start of O&M period or even at any point of time during the O&M period, cost towards excess gas loss beyond the quoted figure shall be deducted from O&M bills. Following calculations shall be used for deduction



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				<p>thereof shall be applicable</p> <p>ii. If the equipment is down for more than 4 hours & up to 12 hours beyond the time indicated for the agreed schedule maintenance, the party would be penalized Rs. 20,000/- and for more than 12 hours Rs. 40,000/- per day.</p> <p>iii. In any case, the maximum penalty imposed in a month for non-performance of the equipment turns out be 50% or more of the amount of O&M charges to be paid to the party per month per compressor (a complete cost break up of O&M charges need to be furnished by the bidder during bid), OWNER will take necessary actions as per terms and conditions of the contract for such non-performance.</p>	<p>i.e Clause 15.3 PENALTY TOWARDS EXCESS GAS LOSS , Clause 15.4 PENALTY TOWARDS EXCESS ENERGY CONSUMPTION , Clause 15.5. PENALTY TOWARDS PACKAGE EFFICIENCY LOSS and Clause 15.6. Penalty for Non-Performance during Period of Operation & Maintenance.</p>	<p>towards excess gas loss: $F = [G - \{(Q / 1278 \text{ (for 1700 SCM)}\} * D)] * H$ Where, F = Penalty in Rupees to be deducted from O&M bill G = Monthly Vent/Leakage loss observed during O&M period in KG Q = Vent / Leakage loss quoted in Percentage H = Cost of Natural Gas/Kg – Rs. 55/- per Kg D = Production during the month (Discharge Meter) considering: G above shall be taken as (Suction – Discharge) OR Reading from Vent Mass Flow Meter, whichever is higher.</p> <p>Note: - Accuracy of Mass Flow Meter considers as per OEM Guideline and bidder may submit the same.</p> <p>B. PENALTY TOWARDS EXCESS ENERGY CONSUMPTION: At the start of O&M period or even at any point of time during the O&M period, cost towards excess power consumption beyond quoted figure shall be deducted from O&M bills. Following calculations shall be used for deduction towards excess power consumption. $F = (G - Q) * H$ Where, F = Monthly Penalty in Rs. G = Monthly Actual power consumption Q = Guaranteed consumption rate quoted by supplier for every 1278 Kg of CNG 1278 (for 1700 SCM) X CNG produced during the month H = Cost of power Rs. 9/Kwh</p> <p>C. PENALTY TOWARDS PACKAGE EFFICIENCY LOSS</p> <p>This penalty shall be imposed on compressor blocks not capable of delivering rated capacity of 1700 shall SCM Following calculations be used for penalty towards package efficiency loss: $F = 2 * \{(1700 * H * RD * AD) - M\}$ Where, F = Penalty Amount in Rupees H = Hours clocked in a month RD = Average RD for the month using GC Data AD = Air Density = 1.22541 M = Discharge mass flow during the month in Kgs Note:</p>
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					<p>1) Gauge Pressure at Station Inlet shall be used as benchmark for imposition of penalties and not suction pressure being displayed at the PLC.</p> <p>2) Pressure regulator shall not be used to reduce the pressure at the compressor block inlet below 34 Kg/Cm².</p> <p>3) In case pipeline pressure at the station itself is less than 34 Kg/Cm², then the penalty shall be imposed if the package delivery falls below discharge values corresponding to the station pressure.</p> <p>D. Penalty for Non-Performance during Period of Operation & Maintenance</p> <p>Details of Penalty for non-performance of equipments</p> <p>a. On normal day (i.e. the day other than the schedule maintenance day):</p> <p>i. The party has to ensure that the equipments are available for operation for minimum 20 hours per day and on an average the equipment availability has to be 98% in a month.</p> <p>ii. If the equipment is down for more than 4 hours on any day or availability is less than 98% in a month. Penalty would be applicable as follows: upto 12 hours : Rs. 20,000/- Beyond 12 hours: Rs. 40,000/- per day. In case of daily availability is 20 hrs. but monthly average availability is below 98%. Then penalty @ of 10,000 per % or part thereof shall be applicable.</p> <p>b. On schedule maintenance day:</p> <p>i. The party would be required to carry out the recommended schedule/preventive maintenance of the equipments for which the party has to indicate the time required for each type of schedule maintenance.</p> <p>ii. If the equipment is down for more than 4 hours & upto 12 hours beyond the time indicated for the agreed schedule maintenance, the party would be penalized Rs. 20,000/- and for more than 12 hours Rs. 40,000/- per day.</p> <p>iii. In any case, the maximum penalty imposed in a month for non-performance of the equipment turns out to be 50% or more of the amount of O&M charges to be paid to the party per month per compressor (a complete cost break up of O&M charges need to be furnished by the bidder during bid), OWNER will take necessary actions as per terms and conditions of the contract for such non-performance.</p> <p>E. In any case/ any situation, total penalty will be limited to 50% of monthly invoice value of concerned</p>
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						<p>package.</p> <p>F. The calculations for levy of penalty as mentioned above shall be calculated on CNG Compressor wise basis for each locations of Vadodara Gas Ltd.</p> <p>G. Penalty shall be excluding preventive maintenance work and other work like power cut, planned shutdown.</p> <p>H. The wages of all manpower deployed at site should be paid through bank only and the copy of bank statement should be submitted alongwith monthly bills. If the contractor fails to pay the wages through bank will attract penalty Rs. 1000 per person per month and same will be deducted from contractor running bill.</p> <p>I. After the operational of contract, Contractor has to provide the uniforms (as per clause no. 4 of scope of work) & safety shoes within 1 month, Incase not wearing/ providing of Uniform & Safety Shoes by any employee during their shift/duty, the penalty shall be imposed Rs. 500/- Per person deducted from contractor running bill per observed any time during the random/regular inspection by EIC or his authorized representative.</p> <p>J. The contractor has to submit recent police verification for all the persons within a period of 90 days from the date of deployment under this contract for character verification as per TABLE – A of SOW, non-submission of character certificate will attract penalty Rs. 1000 per workmen& will deduct from running bill. Incase authority are unable to issue character certificate, letter to be submitted to VGL. Old police verification will not be considered. Date of police verification shall be after date of award of contract only.</p> <p>K. Mass Flow Meters shall be calibrated through MFM OEM or VGL approved agency once in a year, if not done penalty shall be Rs. 25,000/- per mass flow meter.</p> <p>L. Non calibration of instruments as per SOW, penalty shall be Rs. 25,000/- for yearly instruments & Rs. 15,000/ for half yearly instruments.</p>
40	SECTION – V SCOPE OF WORK COMPRESSOR	147 of 240	9.3.5	ASME / IBR CODE STAMP	Third party inspection reports will be provided in lieu of ASME/IBR code stamps for coolers, volume bottles, separator, oil mist separator, gas recovery vessel.	Ok Noted.



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	DATASHEET]				Kindly confirm your acceptance.	
41	SECTION – V SCOPE OF WORK COMPRESSOR DATASHEET]	151 of 240	13.2	Ultrasonic testing for piston rod, connecting rod, crank shaft, big end bolts, main brg. studs. - YES	Ultrasonic testing will be carried out for connecting rod only. We have used the same philosophy for compressors supplied to various CGD companies in India.	Ok Noted.
42	SECTION – V SCOPE OF WORK COMPRESSOR DATASHEET]	151 of 240	13.3	Magnaflux testing for crankshaft, piston rod, connecting rod - YES	Leak proof test of crank case is not carried out. We have used the same philosophy for compressors supplied to various CGD companies in India.	Ok Noted.
43	SECTION – V SCOPE OF WORK COMPRESSOR DATASHEET]	142 of 240	13.4	Dye penetrant testing for cylinder liners , piston - YES	Dye penetrant testing for cylinders liners, piston is not carried out. We have used the same philosophy for compressors supplied to various CGD companies in India.	Ok Noted.
44	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	135 of 240	14.1	<p><u>14. GUARANTEE, LOADING AND PENALTY CRITERIA</u> 14.1 LOADING AGAINST ENERGY CONSUMPTION</p> <p>For 1700 SCMH Compressor $F = (G-140) \times H \times I \times N$ Where, F = Loading amount in Rs. G = Bidder's Energy consumption rate quoted in KWH for producing 1700SCMH of CNG H = Bidder's energy consumption rate over and above 140 KWH I = Cost of Energy INR 9/Kwh N = Factor towards lifecycle in hours @ 73000 hours N = Number of machines</p> <p>Note: Bidder shall not be given any advantage/credit for quoting power consumption below 140 KWH for 1700 SCMH.</p>	<p>We request you to consider ; Operating Time in hours = 6570 Hrs & discounting factor to arrive at Net Present Value (NPV) based on 5 years i.e. 3.274 instead of 73000 hours.</p> <p>Please note power consumption of 140kWH is for 1200 SCMH when it comes to 1700 SCMH the limit shall be upto 148 kWH.</p> <p>Kindly confirm.</p>	Tender Condition Shall Prevail.
45					<p>Please note, One time transportation from factory to site or store will be considered. Our supply contract ends once the package is transported either at store or site. In case the package is supplied to Client's store, then excludes below scopes :</p> <ol style="list-style-type: none"> 1. Loading onto the trailer from stores. 2. Transportation i.e from stores to site. 3. Unloading on site or nearby due to non-readiness of foundation. 4. In case of non-readiness of compressor 	Ok Noted.



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					foundation re-loading package from nearby to foundation after readiness.	
46					Request you to please share the below distances in order to enable us to consider cable costs: 1. Compressor package to control/electrical room 2. UPS DB to package distance for UPS supply to PLC panel 3. ESD Locations and its distance from Package 4. Air compressor to electrical room 5. CO2 Flooding system to compressor package	1. Compressor package to control/electrical room - Approx. 55 Mtr. 2. UPS DB to package distance for UPS supply to PLC panel - Approx. 55 Mtr 3. ESD Locations and its distance from Package - Approx. 40 Mtr. 4. Air compressor to electrical room - Approx. 25 Mtr. 5. CO2 Flooding system to compressor package - Approx. 8 Mtr.
47	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	142 of 240	10.7	There shall be provision of relay for DO cards between PLC & SOV & barriers/isolators for DI cards between field & PLC. The barriers and isolators should be either single or double channel in place of multichannel for easier replacement.	KPCL has used FLP field instruments for digital inputs. Hence barriers/isolators are not required. In addition to it we have provided glass fuse for each digital input to PLC. KPCL team will demonstrate this on site.	Ok Noted.
48	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	128 of 240	10.18 B)	Out of three ports, from first port there shall be an arrangement to retrieve the data in external storage device such as memory card/ pen drive.	USB port is available on HMI and we can connect pen drive for data logging. KPCL team will demonstrate this on site.	Ok Noted.
49	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	128 of 240	10.18 F)	Redundancy in PLC is required. PLC shall incorporate all process parameters (specified elsewhere) and status of compressor, engine & priority panels and shall be modular in construction with 100% redundancy with respect to CPU, Power supply, Interface.	KPCL shall provide redundancy for CPU and power supply. IO's are non-redundant hence redundancy for interface is not applicable. KPCL team will demonstrate this on site.	Ok Noted.
50	3	108.0	CODES AND STANDARDS The following National & International Codes & Standards of Latest editions shall be applicable. OISD 179, NFPA-52: 1995 or equivalent NFPA – 37: STANDARD FOR THE INSTALLATION AND USE OF	The compressor design is derived from API618/11P/equivalent industry standards. However, the design is enhanced to meet specific CNG application such as pressurized crankcase to avoid gas vent loss etc. Heat exchangers shall be air cooled as per OEM standard	Ok Noted.	



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			<p>STATIONARY COMBUSTION ENGINES AND GAS TURBINES NFPA – 12: STANDARD ON CO2 EXTINGUISHING SYSTEM IS: 325/ IEC or International standards. : THREE PHASE INDUCTION MOTORS - SPECIFICATION IS: 6382: CODE OF PRACTICE FOR DESIGN AND INSTALLATION OF FIXED CO2 FIRE EXTINGUISHING SYSTEM Applicable ANSI, ASTM, NEC, NEMA code. API – 618: RECIPROCATING COMPRESSORS FOR PETROLEUM, CHEMICAL AND GAS INDUSTRY SERVICES API – 11P 2nd edition: SPECIFICATION FOR PACKAGED RECIPROCATING COMPRESSORS FOR OIL AND GAS PRODUCTION SERVICES API – 661: SPECIFICATIONS FOR AIR COOLED EXCHANGERS ASME Section –</p>			
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			VIII Div – 1/2: DESIGN CODES FOR PRESSURE VESSELS. Gas Cylinder Rules 2016. Standard Specifications of Bureau of Indian Standards (BIS). Specifications/ Recommendations of IEC. Indian Electricity Rules. Indian Explosives Act. TEMA – C - Water cooled heat exchangers ASME / ANSI – B-31.3 Code for Process Piping			
51	3	108.0	2. Technical Specification 3. International standards/codes as applicable 4. Indian Standards / codes as applicable		Ok Noted.	
52	4 ii	110	3 nos. mass flow meters to measure the Natural Gas consumption at packages inlet, package discharge (both Coriolis type) and package loss / venting (thermal type) with spool piece for online test arrangement. All 3 no. of mass flow meters should be of same make and should have local display and should be weather proof. The flow meters should	Venting of gas to atmosphere is not applicable due to Pressurised crankcase design, hence mass flow meter at vent line not considered	You are advised to provide drain vent MFM.	



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			be enabled with MODBUS/RS 485 communications.			
53	4 iv.	110	Common structural steel skid for the compressor- Motor combination and for all auxiliary systems	As per our standard package offering all auxiliaries like CO2 system, PRS skid will be supplied loose & to mounted apart from package.	Ok Noted.	
54	4 vii.	110	All interconnecting oil, gas, water, air piping within the compressor package.	Piping/ tubing at 3rd stage diacharge will only be in SS-316, with SS fittings, rest all piping /tubing will be Combination of Flanged & screwed connections with CS material (pipes, Fittings & Flanges) as per application requirement & standard design. Piping between PRV Skid to Inlet of Compressor Package shall be done by VGL as site to site location is not fixed, hence request to consedered same.	Ok Noted.	
55	4 ix.	110	Separate junction boxes for different type of signals like intrinsically safe signals, alarm, shutdowns, thermocouples, RTDs etc. for interfacing to local panel.	LCP (With PLC) is mounted on package itself hence separate JB's are not required.LCP (With PLC) is mounted on package itself Separate JB for solenoid valve used. For transmitters being intrinsically safe these are routed thru barriers for additional safety	Ok Noted.	
56	4 xii.	110	One no. relief valve at each stage discharge, first (1st) stage suction and Blow Down Vessel.	Relief valve at first stage suction is not required in addition to one on blow down vessel as suction line and blow down vessel are connected. Also note that as 3rd discharge is connected with priority panel common SRV is provided. This is our standard design & running in all our packages.	Ok Noted.	
57	4 xxii.	111	An oil drain pot outside of the package shall be provided to collect all drains from packing, distance pieces, processes etc. The capacity of the drain pot should not be more than 2.5 Litres.	All the drain is collected in the Oil Recovery Vessel. ORV will be provided mounted inside the package, with a capacity of 20lts for uninterrupted operation of machine.	Ok Noted.	
58	4 xxiii.	111	Only air cooled and lubricated compressor with suction/discharge volume bottles	Suction and discharge volume bottles will be as per manufacturer standard. Considering safety hazards manual drains for suction and discharge volume bottles not considered, manual drains considered only	Ok Noted.	



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			(dampers) for each stage (separators) with manual drains and automatic drain system, lube oil system, closed circuit cooling water system (console type)/Air cooled as required.	for Oil Removal Vessel. Automatic drain valves are provided in each stages, however providing Manual drain valve in pressurised gas system is safety hazard & can cause operational issues. Manual drain valve is provided for draining oil in depressurised circuit for draining oil when compressor is in stop condition.		
59	4 xxix.	111	Wires mesh type guard for heat exchanger fan.	Cooling fan chamber is isolated from working area and is not exposed to working person.	Ok Noted.	
60	4 xxx..	112	Secondary lubrication system with check valve protector, HP (High Pressure) Filter (for all lubricating points) & DNFT (Digital No Flow Timer) flow switches with standby pump. Secondary lubrication system with divider block shall be provided.	As per our standard & proven design primary lubrication system which is sufficient. Divider block type Lubrication system as per manufacturer's standard design with Brass check valves of Parker make will provided. Kindly accept.	Ok Noted.	
61	4 xxxiv.	112	Supply and laying of all required cable (Main cable, UPS cable, PLC cable, Panel cable, ESD cable, Air compressor cable, instrument cable) in bidder scope.	All field piping & cabling will not be considered in bidder scope as site to site location condition change, kindly accept. All type of cabling, piping, tubing for the accessories (i.e. CO2 system, PRS skid, Air Compressor, UPS, ETC) beyond Compressor package skid limits shall be excluded from scope of Supplier. This also includes piping between PRS skid up to Compressor Suction flange. Supplier is not aware about the site location / distances hence the request.	1. Compressor package to control/electrical room - Approx. 55 Mtr. 2. UPS DB to package distance for UPS supply to PLC panel - Approx. 55 Mtr 3. ESD Locations and its distance from Package - Approx. 40 Mtr. 4. Air compressor to electrical room - Approx. 25 Mtr. 5. CO2 Flooding system to compressor package - Approx. 8 Mtr.	
62	4 ii.	112	Exclusions All piping beyond battery limits except from air compressor & air piping for air and piping from CO2 cylinders up to the enclosure.	All field piping & cabling will not be considered in bidder scope as site to site location condition change, kindly accept. All type of cabling, piping, tubing for the accessories (i.e. CO2 system, PRS skid, Air Compressor, UPS, ETC) beyond Compressor package skid limits shall be excluded from scope of Supplier. This also includes piping between PRS skid up to Compressor Suction flange. Supplier is not aware about the site location / distances hence the request.		
63	5.3	111	All drains from different process	All the drain is collected in the Oil Recovery Vessel. ORV will be provided mounted	Ok Noted.	



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			equipment, distance piece and packing shall be manifolded and terminated as single point for customer interface duly flanged with isolation valve. Drains should be through a common header and discharge to be allowed in a pit to avoid spillage around compressor package.	inside the package, with a capacity of 20lts for uninterrupted operation of machine. For all drains single point threaded connection with isolation valve will be provided.		
64	6.0	111	UTILITIES Bidder shall make his own provision for Instrument air if required with an electric motor driven air compressor with a suitably sized receiver & Refrigerant type air drier system. Air Compressor motor should be 415 V squirrel cage motor L&T make DOL / star delta starter having overload protection, single phase preventer.	Request to accept Bharat Bijlee make motor for air compressor.	Ok Noted.	
65	7.0	114	Performance curves and tables i.e. Flow versus suction pressure and temperature and power curves i.e. absorbed power versus suction pressure and temperature at specified discharge conditions shall be furnished. In addition to above, flow capacity and	Not feasible to submit performance curves	Tender Condition Shall Prevail.	



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			absorbed power values for suction conditions from 34 Kg/Cm2 g to 40 Kg/Cm2 g in steps of 0.5 Kg/Cm2 shall also be given in tabular form. The graph shall be plotted at various suction pressures ranging from 34 Kg/Cm2g to 40 Kg/Cm2g and at various suction temperatures ranging from 20o to 40o C. Similarly the graphs shall be plotted at various discharge pressures ranging from 200 Kg/Cm2g to 255 Kg/Cm2g, however at 52 0 C (max) discharge conditions.			
66	8.0		Bidder needs to submit the copy of valid type approval for compressor packages from PESO. The PESO certificate should be valid as on due date of Tender. It will be the responsibility of the successful bidder to keep the PESO approval valid throughout the contract execution period.	As per PESO circular dated 9th Nov 2023 type approval of compressor package is not required hoever individual electrical part/instruments used in package will be PESO approved, document will be provide along with fibal dossier.	Ok Noted. You are advised to submit PESO Circular along with tender documents.	
67	8.0	115	Carbon Dioxide (CO2) Flooding System	The CO2 system panel is integral with main control panel.	Ok Noted.	
68	9.8	116	The inter stage and final stage cooler tube material shall be carbon steel. Bidder to submit	The Gas cooler design shall be such that suitable to the application as per manufacturer's design. Cooler sizing calculation is proprietary, so not feasible to submit.	Ok Noted.	



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			cooler sizing calculation for review.			
69	9.17	119	All package flow meters should have isolation valve in upstream and NRV/Valve at downstream of flow meter. Flow meters which are on piping should be connected with flexible hoses and should have proper clamping support to avoid vibration so that correct reading are observed.	Isolation valve and NRV shall be as per manufacturer's standards. Installation and supports for Mass flow meter shall be as per recommendation from flowmeter OEM.	Ok Noted.	
70	9.21	119	Direction of flow should be marked on the pipe line and nomenclature of all vessel (e.g. 1st stage discharge dampener etc.) should be written on them. Cross head inspection windows should be transparent for easy of inspection during running. Set values should be prominently marked on the gauges.	Arrow mark will be provided for flow directions. Nameplate & tagging will be provided for vessels. Transparent cross head inspection window will not considered.	Ok Noted.	
71	9.22 u)	119	Thermal Mass flow meter for vent loss	Not applicable since zero packing losses due to pressurized crankcase. Hence not considered for supply.	You are advised to provide drain vent MFM.	
72	9.27	121	Framework shall be mounted on a suitable skid type base, external-lifting lugs shall be provided at each corner. For 1700 scmh, bidder should quote their most optimized footprint area package. PLC can be placed separately (outside	Foot print will be 3.5m Length x 2.5m. Width	Ok Noted.	



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			<p>of the canopy) for optimization of the foot print area. Maximum footprint of compressor Package shall be as under, a) For 1700 SCMH, the foot print of the package shall be limited to 10m2.</p>			
73	9.29	122	<p>The compressor shall be vented into BDV before restarting in order to avoid overload to the main drive. In any case venting of gas to atmosphere is not allowed. There is need to have a blow down vessel so that gas is vented to vessel. The size of the BDV should be the sufficient to allow main drive to start. BDV volume to be designed in such a way that gas accumulated in the process should not be vented out in any case of stopping/ emergency push of package. Calculation for BDV volume shall be considering 20% higher than calculated volume and it should be calculated on higher range (40 bar) of the operating pressure (35 bar to 40 bar). Bidder shall submit calculation for same at the time of designing/drawing approval to client.</p>	<p>Being proprioretory design, submitting calculations is not possible. As per standard design BDV shall be placed inside the canopy in horizontal position, this is as per our past supplied package design, with proven functionality. Kindly accept</p>	<p>OK Noted but Bidder should ensure that, the compressor shall be vented into BDV before restarting in order to avoid overload to the main drive. In any case venting of gas to atmosphere is not allowed. There is need to have a blow down vessel so that gas is vented to vessel. The size of the BDV should be the sufficient to allow main drive to start. BDV volume to be designed in such a way that gas accumulated in the process should not be vented out in any case of stopping/ emergency push of package.</p>	



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			BDV should be preferably placed on top of package and if placed inside package, it should be in vertical position.			
74	9.30	122	<p>Prime mover (Electric Motor) The motor shall be flame proof/explosion proof and confirm to IS: 2148 suitable for zone 1 group II area as per IS/IEC. The Motor shall be of standard frame size as per IS/IEC and rated for continuous duty with high efficiency and shall be designed for VFD/ Soft Starter starting. The Motor shall be provided with class 'F' insulation, however, temperature rise shall be limited to the temperature specified for class 'B' insulation as per IS and shall be suitable for voltage variation of 415V+10%. The bidder shall indicate the guaranteed total power requirement in KW. The motor rating shall be 110% of the greatest BKW required by the compressor. Motor shall be three phase, AC, asynchronous, flameproof, high efficiency (IE# or better, as per IEC60034-30),</p>	We will provide motor driven package with soft starter starting	Ok Noted.	



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			Ex'd' rated, continuous duty, service factor 1.1, on IEC standard type. Designing shall be done on basis of 50 degrees package ambient temperature. Motor shall be suitable for VFD starter. Service factor shall not play any role in finalizing the rating of motor. Main Motor Starter: Variable Frequency Drive (Heavy Duty) with input line and DC choke, along with other safety measures.			
75	9.32	123	The ingress of oil into CNG adversely effects vehicle emission and storage system. Only lubricated cylinder compressors are allowed and vendor shall supply oil separators after cooler at each stage with automatic and manual drain. The maximum permissible oil content in CNG is 5 PPM.	Suction and discharge volume bottles will be as per manufacturer standard. Considering safety hazards manual drains for suction and discharge volume bottles not considered, manual drains considered only for Oil Removal Vessel. Automatic drain valves are provided in each stages, however providing Manual drain valve in pressurised gas system is safety hazard & can cause operational issues. Manual drain valve is provided for draining oil in depressurised circuit for draining oil when compressor is in stop condition.	Ok Noted.	
76	9.34	124	Piping & Appurtenances	Gas piping/ tubing at 3rd stage diacharge after duplex filter will only be in SS-316, with SS fittings, Rest all piping /tubing will be Combination of Flanged & screwed connections with CS material (pipes, Fittings & Flanges) as per application requirement & standard design. This is as per manufacturing standard design.	Ok Noted.	
77	9.35	125	The power factor (PF) of the whole electrical system should not be below	Customer to maintain power factor as per requirement.	Ok Noted.	



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			0.95. Motor feeder shall be provided with energy meter, heavy duty switch, HRC link type with single phase presenter fuses, contactor (AC-3 Duty), bi-metal relay switch fuse unit, voltmeter, push buttons, earth leakage relays, indication lamps for start/stop/trip/ etc.			
78	10.4	126	The temperature gauge shall be generally mercury in steel field type. Capillary tubing shall be min. SS304 with SS flexible armouring. The gauge shall have an accuracy of +/-1% FSD and 100mm dial size.	Due to smaller size packages being demanded by CGD companies it is feasible only to provide 63 mm dial size gauges. The constraints are highlighted to concerned dept during detail engg stages. Practically the gauges should be at normal height for ease of monitoring and keeping in view the no of gauges, only 63 mm gauges can be accomodated in one gauge panel, Our packages have a single gauge panel wherein all gauges are installed.	Ok Noted.	
79	10.9	126	Separate junction boxes shall be provided for each type of signal i.e. analog, digital, solenoids RTD, thermocouple, intrinsic safe and for power supply. No cable shall share power & signal.	LCP (With PLC) is mounted on package itself hence separate JB's are not required.LCP (With PLC) is mounted on package itself & also separate guage box will be used for intrinsically safe signals.	Ok Noted.	
80	10.11	126	Compressor package shall be provided with the following indicators: ii. Oil pressure indicator on each pressure lubrication system iv. Hour meter vi. Compressor jacket water coolant temperature	As our standard offering compressor package shall not be provided with the following indicators considering space constraint on display panel: ii. Oil switch and no flow switch on lubrication system shall be provided. iv. Hour meter shall be available at HMI. Separate hardware not considered vi. Not applicable as compressor is air cooled type. e. Coolant flow not applicable as heat exchanger is air cooled type. xiv. e. Coolant flow not applicable as heat	Ok Noted.	



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			<p>indicator on local gauge panel</p> <p>e. Coolant flow low devices</p> <p>xiv. The Compressor package shall be provided with the following trip devices:</p> <p>e. On coolant flow low</p>	<p>exchanger is air cooled type.</p>		
81	10.18	1248	<p>Redundancy in PLC is required. PLC shall incorporate all process parameters (specified elsewhere) and status of compressor, engine & priority panels and shall be modular in construction with 100% redundancy with respect to CPU, Power supply, Interface. PLC components/ system shall be tropicalized, MIL standard adopted with complete wiring and necessary terminals. Wiring to be color coded with cross ferruling in position. PLC shall be capable of carrying out on line routines for at least ten separate loops without affecting the scan, cycle & updating time etc. PLC shall be configured as a remote terminal unit of supervisory computer and data acquisition system</p>	<p>SCADA is not considered in bidder's scope. Ethernet port is provided for customer SCADA communication. SCADA compatibility is provided for remote monitoring. GPRS & SCADA system not considered. 100% redundancy shall be provided only for CPU. Kindly accept.</p>	Ok Noted.	



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			complete with GPRS and Ethernet connectivity. One card for transferring and accessing data from minimum twenty devices with RS485 port shall be provided. In case of failure of master/active controller/CPU, standby controller/ CPU should take over the control in bump less manner. All values & data should be available through both the controllers immediately, i.e. there should be no data loss.			
82	10.20	130	Documents e. Bill of Material with Tag No & Technical Specifications	e) Providing BOM will not be possible, instead ASL shall be provided which is our standard offering. Kindly accept.	Ok Noted.	
83	11.0	130	SKID AND ENCLOSURE Each compressor module shall be housed within a purpose built SS 304 acoustic enclosure or in case of mild steel the surface shall be treated with anti-rust coatings followed by UV resistant epoxy paint for durability and rust protection. The units shall incorporate a rigid framework with a combination of fixed and removable panels. Filling of Class A melamine self-extinguishing	The structural members of enclosure shall be provided with two coats of primer and two coats of epoxy paints duly applied after mentioned surface treatment. The package unit shall be provided with doors for easy access during maintenance and similar activities. As per standard design we shall use Rockwool instead of PU which is provided for our large fleet of compressors supplied previously.	Ok Noted.	



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			polyurethane (PU) foam specifying the maximum burn extent, with UL certification or better shall be used in acoustic enclosure.			
84	11.4	130	The maximum temperature within the enclosure shall be limited to ambient + 8 deg C. Adequate ventilation fans shall be provided to meet the above and also to account heat dissipation of the coolers/ all other components.	The approach above ambient would be 10°C. (max. discharge temp. 42°C + 10°C = 52°C).	Ok Noted.	
85	11.11	131	Adequate fixed flameproof lighting (minimum at 2 locations) shall be provided inside the enclosure.	Adequate fixed flameproof lighting shall be provided inside the enclosure.	Ok Noted.	
86	11.14	131	For handling of all heavy parts for maintenance purpose suitable lifting arrangement shall be provided i.e. beam fitted with chain hoist arrangement. The chain hoist arrangement i.e. chain pulley block shall be removable type, which can be disassembled and shifted onto the other machines. 1no. each shall be provided for tendered quantity of compressors. Eye bolt arrangement shall be provided on heavier components like electric motor,	Beam fitted with chain hoist not considered due to space constarints, instead suitable lifting arrangement provision shall be offered. Kindly accept.	Ok Noted.	



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			cylinder crankcase, and wherever felt necessary for lifting during maintenance.			
87	11.18	131	The bidder shall be providing a degree of protection equivalent to IP44 as defined in AS 1939.	Degree of protection equivalent to IP54 shall be provided as per our standard offering, kindly accept.	Ok Noted.	
88	12	132	<p>Painting and protection:</p> <p>Packing shall be sufficiently robust to withstand rough handling during ocean shipment & inland journey.</p> <p>Sling points shall be clearly indicated on crates.</p> <p>Painting of Internal process piping should be as per international color coding standard, e.g.- Gas line- Yellow, Water line- green, Airline-Blue, Fire suppressing system – Red etc. The paint shall be chosen, primed and applied to have a service life of ten years the exterior of equipment and enclosure is required to be corrosion free for ten years.</p>	<p>Painting shall be as per manufacturer's standard procedures. Package enclosure shall be Powder Coated ensuring longer durability in all weather out door installation conditions. Piping color code for package shall be as per manufacturer standard i.e Red color- Discharge/hot gas line. Blue color-Suction gas line This also helps in identification for hot gas line from safety point of view</p> <p>The canopy is weather proof so no separate packing considered.</p>	Ok Noted.	
89	13.1	133	<p>Mechanical Running Test (MRT)</p> <p>The MRT for the 25% compressors block of the lot shall be carried out with job or shop driver including</p>	<p>MRT will be carried out as per manufacturer's std.</p> <p>Following not feasible during FAT:</p> <p>-Bearing temperature</p> <p>-Sound level • -Not feasible to unavailability of free field. To be demonstrated at site.</p> <p>As it is not possible to disassemble any part of the compressor package after assembly &</p>	Ok Noted. Factory Acceptance test certified by approved TPIA .	



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		<p>complete job driving system i.e., job driven V-belt, job pulleys etc., for 2 hours continuously at the premises of compressor block OEM. The compressor need not be pressure loaded for MRT test. During this test following shall be recorded at agreed intervals (as applicable).-</p> <ul style="list-style-type: none">Vibration levels measured on cylinders and framei. Vibration levels measured on cylinders and frameii. Bearing temperatureiii. Oil cooler inlet and outlet tempiv. Subsequent to satisfactory run the compressor shall be examined as per standard procedure & following shall be examined as minimum:<ul style="list-style-type: none">v. Bore & other parts by opening a valvevi. Piston & cylinder clearancevii. Visual examination of position rod, cylinder guide bore without dismantling. <p>If any of part found damaged, all similar components shall be stripped for inspection.</p>	<p>testing strip test is not feasible.</p>		
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			The MRT test shall be repeated after replacement of such parts.			
90	13.2	133	<p>Mechanical String Test</p> <p>Mechanical String Test for 4 hrs is a mandatory requirement to be performed at packager's shop before dispatch in presence of Owner's representatives (or a third party as arranged by Bidder and approved by Owner). This test can be clubbed up with the Mechanical Run Test of compressor as specified above, provided the job driver & lube Oil system is used for the test. At least 25% of the package lot ordered shall be string tested. String test on N2 or air is not acceptable. It shall be on natural gas.</p>	Mechanical string test will be carried out on CNG as per manufacturer's standards.	Ok Noted.	
91	-	168	<p>SPECIFICATIONS FOR DISCHARGE FILTER</p> <p>Filter Designed : Paint Compatible CE mark in accordance with European Directive for Pressure Equipment, PED (97 / 23 / EC) Are Designed to meet the ATEX European Directive for Explosion Protection , (94 / 9</p>	Kindy approve manufacturer's standard filter with parker make filter cartridge (Borosilicate Microfibre Fabric). Our standard filter is proven is CNG application.	Ok Noted.	



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			/ EC) All natural gas filters in accordance to CE Eex 2GD IIB T6.			
92			UPS	We understand UPS will supply by VGL	Ok Noted.	
93	ANNEXURE-VI	169	ANNEXURE-III RECOMMENDED VENDOR LIST	Kindly approve the following make. SUCTION FILTER- R S Instrumentation DISCHARGE FILTER- manufacturer's (Atlas Copco) make with Parker element. Actuator- El-O-Matic Two way valve- PHBB CO2 FLOODING SYSTEM- CP approved make (It consists of parts from VTI) Fittings (Instrument Manifold) : Baumer	Ok Noted.	
94	ANNEXURE-XII	192	QUALITY ASSURANCE PLAN	Inspection & Testing will be as per Approved QAP by VGL	Ok Noted.	
			HYDROTEST OF - CYLINDER, PRESS. VESSELS, HEAT EXCHANGERS	Inspection by owner/Owner's representative not considered	Ok Noted.	
			HYDROTEST OF - CYLINDER HEADS	Hydrotest for cylinder head not considered.	Ok Noted.	
			LEAK PROOF TEST OF CRANK CASE (4 Hours . with Kerosene)	Hydrotest TC for crankcase shall be submitted Inspection by TPI, owner/Owner's representative not considered	Ok Noted.	
			BARRING OVER TO CHECK CYLINDER END CLEARANCE AND PISTON ROD RUNOUT	Not feasible to check piston rod runout As it is not possible to disassemble any part of the compressor Package after assembly & Testing same is not feasible.	Ok Noted.	
			No load mechanical run test of the comp. with rated (or more) speed and shop driver. (4 hrs. min.)	Shall be combined with Factory Acceptance Test (FAT) at full load on CNG fuel. Inspection by TPI, owner/Owner's representative not considered	Ok Noted. Same inspected by approved TPI and owner.	
			STRIP CHECK AND INTERNAL INSPECTION AFTER "NLMRT" OF ALL Refer COMPRESSORS	As it is not possible to disassemble any part of the compressor Package after assembly & Testing same is not feasible. Inspection by TPI, owner/Owner's representative not considered	Ok Noted.	
			Canopy structure painting inspection at work. Surface preparation to be	Canopy will be powder coated. Inspection by TPI, owner/Owner's representative not considered	Ok Noted.	



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			inspected after cleaning and before application of first coat of primer.			
			FUNCTIONAL / HV / CONTINUTY TEST FOR CONTROL PANEL(AT SUB VENDOR'S WORKS.)	Functional / hv / continuity check for control panel shall be done during Factory Acceptance Test (FAT) at full load on CNG fuel. HV test will not considered.	Ok Noted.	
			PERFORMANCE ACCEPTANCE TEST (AT SITE) AT GUARANTEED PARAMETERS.	TPI inspection is not considered at site test	Ok Noted.	
			FIELD TRIAL RUN AT SITE FOR EACH PACKAGE AFTER COMMISSIONING	TPI inspection is not considered at site test	Ok Noted.	
95	Page-13	26.1.1	26.1.1 Deductions shall apply as per following formula: In case of delay in delivery of equipment/ materials or delay in completion, total contract price shall be reduced by ½% (half percent) of the total contract price per complete week of delay or part thereof subject to a maximum of 5% (five percent) of the total contract price.	LD Should be on Individual Equipment basic price, not on Total contract price	Ok Noted.	
96	Page-71	20	C. PENALTY TOWARDS PACKAGE EFFICIENCY LOSS This penalty shall be imposed on compressor blocks not capable of delivering rated capacity	Request to please remove this penalty.	Tender Condition Shall Prevail.	



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			<p>of 1700 shall SCMH Following calculations be used for penalty towards package efficiency loss: $F = 2 \times \{(1700 \times H \times RD \times AD) - M\}$ Where, F = Penalty Amount in Rupees H = Hours clocked in a month RD = Average Relative Density for the month using GC Data AD = Air Density = 1.22541 M = Discharge mass flow during the month in Kgs</p>			
97	Page-72		<p>D. Penalty for Non-Performance during Period of Operation & Maintenance Details of Penalty for non-performance of equipments a. On normal day (i.e. the day other than the schedule maintenance day): i. The party has to ensure that the equipment is available for operation for minimum 20 hours per day and on an average the equipment availability has to be 98% in a month. ii. If the equipment is down for more than 4 hours on any day, Penalty would be applicable as follows: · 4 to 12 hours: Rs.</p>	<p>As the CNG compressor is specific machine hence we requested to VGL for not keeping stringent penalty clause and requested to replace these clause as per below. i. The party has to ensure that the equipments are available for operation for minimum 16 hours per day and on an average the equipment availability has to be 97% in a month. ii. If the equipment is down for more than 8 hours on any day or availability is less than 97% in a month. Penalty would be applicable as follows: Up to 12 hours: ₹ 5,000/- Beyond 12 hours: ₹ 10,000/- per day. In case of daily availability is 16 hrs but monthly average availability is below 97%. Then penalty @ of 5,000 per % or part thereof shall be applicable.</p>	Tender Condition Shall Prevail.	



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			<p>20,000/- · Beyond 12 hours: Rs. 40,000/- per day. In case of daily availability is 20 hrs. but monthly average availability is below 98%. Then penalty @ of 10,000 per % or part thereof shall be applicable.</p>			
98	Page-72		<p>In any case, the maximum penalty imposed in a month for non- performance of the equipment turns out be 50% or more of the amount of O&M charges to be paid to the party per month per compressor (a complete cost break up of O&M charges need to be furnished by the bidder during bid), OWNER will take necessary actions as per terms and conditions of the contract for such non- performance.</p>	<p>We cannot understand the clause, hence VGL is requested to clarify the same and request for total penalty will be limited to 20% of monthly invoice value of concerned package.</p>	Tender Condition Shall Prevail.	
99	Page-72		<p>F. In any case/ any situation, total penalty will be limited to 50% of monthly invoice value of concerned package.</p>	<p>We requested to VGL, In any case/ any situation, total penalty will be limited to 20% of monthly invoice value of concerned package.</p>	Tender Condition Shall Prevail.	
100	Page-110	4.0	<p>3 nos. mass flow meters to measure the Natural Gas consumption at packages inlet, package discharge (both Coriolis type) and package loss / venting (thermal</p>	<p>As our compressor crankcase being pressurized hence Vent MFM is not applicable and we will not supply.</p>	You are advised to provide drain vent MFM.	



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			type) with spool piece for online test arrangement. All 3 no. of mass flow meters should be of same make and should have local display and should be weather proof. The flow meters should be enabled with MODBUS/RS 485 communications.			
101	123		The gas temperature after after-cooler shall not exceed 52 degree C.	The approach would be above ambient temperature 12°C. The Gas cooler design shall be such that suitable to the application as per manufacturers design. Gas coolers of the design shall be designed as per ASME-SEC-VIII, as per manufactures satndard design approach same is proven for earlier supplied packages.	Ok Noted. ΔT = 12°C	
102	126		10.11 Compressor package shall be provided with the following indicators:	Instruments selection / Alarm and Trip condition as per OEM Operation Philosophy and design Logic.	Ok Noted.	
103	128		10.18 Local Control Panel	SCADA is not considered in our scope. Ethernet port is provided for customer SCADA comminication. SCADA compatibility is provided for remote monitoring. GPRS & SCADA system not considered. 100% redundancy shall be provided only for CPU. Kindly accept.	Ok Noted.	
104	131		11.15 The bidder shall also provide 1 nos. monkey ladder for safe climbing on the top of the canopy along with hand railing on the top for ease of maintenance and operation.	As per standard design we shall provide 1 nos. incline ladder, kindly accept.	Ok Noted.	
105	133		13.2 Mechanical String Test	Mechanical String Test for 2 hrs, kindly accept.	Ok Noted. Factory acceptance test is 4 hr.	
106	137		Details of Penalty for non-performance of equipments	If machine is not down in privious month the uptime carryover in next month by OEM. The minimum permisable downtime shoud be 8 Hrs and penalty shall be calculated after 8	Tender Condition Shall Prevail.	



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				Hrs only.		
107	169		ANNEXURE – VI: VENDOR LIST	As CP/Atlas Copco is OEM Hence, Please consedred OEM Make. Kindly approve the following make. SUCTION FILTER- Filtration Technik / R S Instrumentation DISCHARGE FILTER- manufacturer's (Atlas Copco) make with element. VIBRATION TRANSMITTER-Masibus AIR COMPRESSOR-CP Make. Instruments Manifold-Baumer Safety Valve - LESER SOLENOID VALVES- Parker FLAME DETECTOR- ESP Safety GAS DETECTOR- ESP Safety VENT MASS FLOW METERS THERMAL-PCD CO2 FLOODING SYSTEM- CP approved make (It consists of parts from VTI) PLC : Phoenix / Rockwell Fittings : Parker / Swagelok / Hylok / SSP	Ok Noted. But Fittings: Parker/Swagelok only.	
108	11	1.4	Similar Work Definition: - The bidder should have Designed, Engineered, Manufactured, Tested, Supplied and Commissioned to any CGD firm including Operation & Comprehensive Maintenance for Electric Motor Driven Compressors package of 1700 SCMh capacity.	We will provide a letter for supply of 1700 SCMh, whereas we will provide you with a Comprehensive O&M letter for any Motor/Engine driven block kindly accept.	Ok Noted.	
109	GCC-13	26	26. Price Reduction Schedule For Delayed Delivery 26.1 Subject to Article-29, if the SELLER fails to deliver any or all of the GOODS or performance the services within the time period (s) specified in the CONTRACT, the	Request to modify clause as under ::::::::::: 26.1.1 Deductions shall apply as per following formula: In case of delay in delivery of equipment/ materials or delay in completion, total contract price shall be reduced by ½% (half percent) of the total contract price per complete week of delay or part thereof subject to a maximum of 5% (five percent) of INDIVIDUAL INVOICE VALUE.	Ok Noted.	



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			<p>PURCHASER shall, without prejudice to his other remedies under the CONTRACT, deduct from the CONTRACT PRICE, a sum calculated on the basis of the CONTRACT PRICE, including subsequent modifications.</p> <p>26.1.1 Deductions shall apply as per following formula: In case of delay in delivery of equipment/ materials or delay in completion, total contract price shall be reduced by ½% (half percent) of the total contract price per complete week of delay or part thereof subject to a maximum of 5% (five percent) of the total contract price.</p>			
110	2.4	64	<p>CNG Compressor package: The CNG compressor package include the CNG compressor, all other associated equipment like Air Compressor, Air Volume bottle, Co2 Flooding System, Gas filter, Interconnecting pipes, UPS etc.</p>	<p>We understand UPS will supply by Vadodara Gas Ltd.</p>	<p>Ok Noted.</p>	
111	1)	72	<p>Gauge Pressure at Station Inlet shall be used as benchmark for imposition of</p>	<p>Gauge Pressure at Compressor after PRV of Inlet SKID shall be used as benchmark for imposition of penalties.</p>	<p>Tender Condition Shall Prevail.</p>	



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			penalties and not suction pressure being displayed at the PLC.			
112	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	135	14.1 LOADING AGAINST ENERGY CONSUMPTION:	I = Factor towards lifecycle in hours @ 73000 hours	We request you to consider the Factor towards lifecycle in hours = 6570 Hrs & discounting factor to arrive at Net Present Value (NPV) based on 5 years i.e. 3.274 instead of 73000 hours for both Power consumption and Gas loss.	VGL consider the life cycle in hours @ 36500 hours (Considering 10 Years)
113	SECTION – V SCOPE OF WORK [SOW] & TECHNICAL SPECIFICATION [TS]	135	14.2 LOADING AGAINST PACKAGE GAS LOSS:	I = Factor towards lifecycle in hours @ 73000 hours	We request you to consider the Factor towards lifecycle in hours = 6570 Hrs & discounting factor to arrive at Net Present Value (NPV) based on 5 years i.e. 3.274 instead of 73000 hours for both Power consumption and Gas loss.	VGL consider the life cycle in hours @ 36500 hours (Considering 10 Years)

Note: This Replies to Bidder's Queries as uploaded on n-Procure & VGL's Website. Please upload the same duly Sign and Seal with Techno-Commercial Bid as this is an Integral Part of the Tender.