

BHAGYANAGAR GAS LIMITED

(A JOINT VENTURE OF HPCL & GAIL)

BID DOCUMENT FOR

Repairing of 01 Nos 600 SCMH Delta CNG Compressor of Bhagyanagar Gas Ltd, Hyderabad

UNDER OPEN DOMESTIC COMPETITIVE BIDDING

Bid Document No.: BGL/565/2022-23

VOLUME-II of II



Volume II of II

Bid Document No. BGL/565/2022-23

CONTENTS

Volume II of II

Sl. No. DESCRIPTION

SECTION-7 BRIEF SCOPE OF WORK & SPECIFICATIONS

SECTION-8 SPECIAL COMDITIONS OF CONTRACT

SECTION-9 SCHEDULE OF RATES/ PRICE SCHEDUL

Sign & Seal of Bidder Page 2 of 21



Bid Document No. BGL/565/2022-23

Volume II of II

Sign & Seal of Bidder Page 3 of 21



Bid Document No. BGL/565/2022-23

Volume II of II

SECTION - 7 SCOPE OF WORK & SPECIFICATIONS

Sign & Seal of Bidder Page 4 of 21



Volume II of II

Bid Document No. BGL/565/2022-23

REPAIRING OF 600 SCMH DELTA MAKE CNG COMPRESSOR

SCOPE:

1. DETAILED INSPECTION OF ALL THE COMPONENTS

- 1.1 Filter housing and filter elements
- 1.2 Pressure vessels
- 1.3 Actuators, solenoid valves, check valves
- 1.4 Ball valves, needle valves
- 1.5 Instruments (Pressure gauges, Temperature gauges, Pressure transmitters, RTDs, pressure switches, Temperature switches, Level switches, vibration switch
- 1.6 Flow meters
- 1.7 Gas leakage detector
- 1.8 Safety relief valves
- 1.9 Flame detector
- 1.10 PLC based control panel
- 1.11 Priority panel for valves, actuators, solenoid valves, gauges, safety relief valves
- 1.12 Checking of Compressor block including the material in(coupling, pistons, piston rod, cross head, valves, liners)
- 1.13 Motors (Insulation resistance test, no lead or load run test.)
- 1.14 Air Compressor checking and repairing

Bidder shall repair the delta compressor package in accordance with the standard / OEM requirements. All the spare parts specifications shall be of approved make for delta compressor manufacturing. Detailed inspection report is mentioned below for bidders reference . bidder shall repair the compressor package including motor, compressor , air compressor, co2 flooding system, etc , if any. No material shall be supplied by BGL.

2. CALIBRATION OF INSTRUMENTS

- 2.1 All components/ instruments which are found OK as per the enclosed report, they shall be calibrated or tested for their standards.
- 2.2 Any components / instruments which is found faulty is to be replaced with new one as per original required specification.

3. REFURBISHMENT OF CONTROL PANEL

- 3.1 Current PLC HMI models are obsoleted.
- 3.2 Redesigning of control panel with currently available PLC, HMI,
- 3.3 New control panel to be built by stripping current panel wiring.
- 3.4 New application program development according to new control panel, as per the working philosophy of the compressor.
- 3.5 Wiring between remote PLC and field instrument.
- 3.6 The control panel design and selection of components to comply the norms of Zone I, Group II A/ II B as per IS/ IEC

Sign & Seal of Bidder



Volume II of II

Bid Document No. BGL/565/2022-23

- 3.7 FLS-Double Compression, Ni-Cd Plated glands to be used wherever required.
- 3.8 Cables will be 650/1100V, copper conductor, FRLS-XLPE insulated, FRLS-PVC extruded inner sheath armored with overall FRLS-PVC sheath.
- 3.9 All the cables shall be standard approved makes, no local make is acceptable.

4. SUPPLY OF CO2 SYSTEM

4.1 Supply of Common automatic CO2 extinguishing system consisting of two cylinders, piping, valves and control systems as per requirement.

5. SUPPLY AND LAYING OF CABLES

- 5.1 Supply and laying of all interconnecting power and control cables between control panel, remote PLC, junctions boxes etc.
- 5.2 Cables will be 650/1100V, copper conductor, FRLS-XLPE insulated, FRLS-PVC extruded inner sheath armored with overall FRLS-PVC sheath
- 5.3 All the cables shall be standard approved makes, no local make is acceptable.

6. COMISSIONING OF COMPRESSOR

6.1 After successful refurbishment of compressor, the compressor shall be installed and commissioned for its operations.

7. Inspection reports:

JOI	INT INSPECTION OF 600 SCMH DELTA MAKE CNG COMPRESSOR									
Prod Nam		DELTA COMPRESSOR- 600 SCMH-HYDERABAD, Sr.no.:10532 Model No: IODM - 70-3-19								
SR. NO	T A G	DESCRIP TION / SERVICE	MAK E	NOR MAL OPER ATIN G RANG E	CAP ACIT Y (m3/h	OBSERVATION	ACTION REQUIRED			
	FIL	TERS								
	DRY	RY FILTERS								
1	D F- 91	OIL TANK	ASPR O	1 Bar	_	Filter Body OK	Shall replace the filter element			

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Volume II of II

	2						
2	D F- 91 8	COMPRES SOR OIL CARTER	FRA M	5 Bar	_	Filter Body damaged	Shall replace filter body with element
	CO	ALESCENT	FILTER	RS			
3	CF - 93 0	INLET COALESC ENT FILTER	GOPA	80 Bar	800 m3/h	Hydrotested, UT, Found OK	Shall replace the filter element
4	CF - 93 2	INLET COALESC ENT FILTER	GOR A	80 Bar	800 m3/h	Hydrotested, UT, Found OK	Shall replace the filter element
5	CF - 95 8	LAST STAGE COALESC ENT FILTER	GOR A	250 Bar	800 m3/h	Hydrotested, UT, Found OK	Shall replace the filter element
6	CF - 96 0	SAFETY LAST STAGE COALESC ENT FILTER	GOR A	250 Bar	800 m3/h	Hydrotested, UT, Found OK	Shall replace the filter element
	T A G	DESCRIP TION / SERVICE	MAK E	NOR MAL OPER ATIN G RANG E	CAP ACIT Y (m3/h	OBSERVATION	ACTION REQUIRED
		TRUMENTS					
		ESSURE GAI	UGES				
7	P G — 41 8	CRANKSY STEM LUBE OIL	WIKA	5 Bar	0-15 Bar	Pressure gauge damaged	Shall replace with new pressure gauge
8	PC 	COMPRES SOR GAS INLET AFTER REDUCIN G BRIDCE	WIKA	10 Bar	0-50 Bar	Pressure gauge damaged	Shall replace with new pressure gauge
9	P G	1st. STG. CYLINDE	WIKA	65 Bar	0-50 Bar	Pressure gauge damaged	Shall replace with new pressure gauge



Volume II of II

		R OUTLET					
10	P G — 41 0	2nd. STG CYLINDE R OUTLET	WIKA	150 Bar	0-120 Bar	Pressure gauge damaged	Shall replace with new pressure gauge
11	PC - 41 4	LAST STAGE CYLINDE R OUTLET	WIKA	250 Bar	0-350 Bar	Pressure gauge damaged	Shall replace with new pressure gauge
12	P G 	DE— PRESURIZ ATE LINE	WIKA	5 Bar	0-16 Bar	NOT Present, instrument air depressurizing circuit not available	
13	P G 	INLET DRVE CONTROL	WIKA	5 Bar	0-16 Bar	NOT Present, instrument air depressurizing circuit not available	
	THI	ERMOMETE	RS				
23	T M — 52 6	1st. STAGE CYLINDE R GAS OUTLET	WIKA	100— 150°C	0- 200°C	TG dial and capillary damaged	Shall replace with new TG
24	T M — 52 8	2nd. STAGE CYMNDE R GAS OUTLET	WIKA	100— 150'C	0- 200°C	TG dial and capilary damaged	Shall replace with new TG
25	T M 53 8	LAST STAGE COOLER GAS OUTLET (TO STORAGE	WIKA	45— 55"C	0- 100°C	TG dial and capilary damaged	Shall replace with new TG
	TEN	MPERATURE	SWIT	СН			
31	T H — 60 0	3rd. STAGE CYL. GAS OUTLET (THERMO	ASCH ROFT	100— 170°C	_	Not functional	Shall replace with new one temperature gauge with contact



Volume II of II

		METER W/ELECT.					
		CONTACT					
	VID) RATION SW	/ITCIIE	C C			
	VID	VIBRATION SW	TICHE	<u> </u>			
32	S 	N SENSOR HIGH LEVEL	MUR PHY			Visual Inspection done	calibration required
	T A G	DESCRIP TION / SERVICE	MAK E	SET POIN T	VAL VE RAN GE	OBSERVATION	ACTION REQUIRED
		LVES – FILTI	ERS				
	SAF EF	TETY/RELI VALVES					
	CO	MPRESSOR					
	V	LAST			2.42		
38	G	STAGE GAS	ASPR	289	242- 289	Tested NOT OK	Shall replace with
	01	OUTLET -	O	Bar	Bar	residu ivo i oik	same pressure range
	8	(Ø1/2")					
	V G	REDUCIN G BRIDGE			242-		
39	<u> </u>	GAS	ASPR	242	289	NA in both P& ID and in	
	00	INLET -	O	Bar	Bar	actual	
	4 V	(Ø1/2") BY—PASS					
	G G	SYSTEM					
40	_	GAS	ABA C	7 Bar	0-25 Bar	Not available, there is change as per P& ID	
	02	CONTROL			שמו	change as per 1 & 1D	
		- (Ø1/4") ESSURE					
		GULATING					
	VAI	LVES —					
	CO	MPRESOR					
		PRV before blow down	ASPR				required replacement/
44		tank -	O			Tested and found leaking	repair
		(Ø1_1/2")					1
		PHRAGM					
	VAI DE-	LVES —					
		- ESSURIZIN					
		YSTEM					
59	V	DE—	ASPR	250		Visial Inspection Done	Shall repair/



Volume II of II

	- z	PRESSURI ZING	О	Bar			replacement of parts
	1 1	VALVE - (Ø3/8")					
		ENOID					
	VAL						
		PRESSOR					
60	$\begin{bmatrix} V \\ G \\ - \\ 35 \\ 2 \end{bmatrix} \begin{bmatrix} F \\ Z \\ V \\ C \end{bmatrix}$	DE— PRESSURI ZING VALVE CONTROL (Ø1/4")	JEFFE RSON	4-8 Bar	_	NOT OK	Shall be replaced
61	35 I	GAS NLET - Ø1/4")	JEFFE RSON	4-8 Bar	_	NOT OK	Shall be replaced
		ENOID					
	VALV						
	SYST	NAGE FM					
62	V K G II - 7 36 II	KNOCK DOWN FANK DRAIN - Ø1/4")	JEFFE RSON	4-8 Bar	0-10 Bar	Not available as per P & ID, its manual operation	
63	V II G T — A 35 II 8 N	BLOW DOWN FANK AUTO DRAIN MAINT	JEFFE RSON	4-8 Bar	0-10 Bar	NOT OK	Shall be replaced
64	V G 7 7 1 37 N	LAST STG COND/FIL FER AUT DRAIN MAINT Ø1/4")	JEFFE RSON	4-8 Bar	0-10 Bar	NOT OK	Shall be replaced
65	I I S S	BLOW DOWN FANK TO SECOND STAGE -				Not available in P&ID, but present in actual, OK	
	CHE(VALV						



Volume II of II

	(NR	(V) — MPRESSOR					
81	V G 	INLET LINE VENT - (Ø1/4")		200 Bar	0-413 Bar	NOT present in both P & ID and in actual	
82	V G — Z8 8	DE— PRESSURI ZING LINE VENT - (Ø1/8")		4-8 Bar	0-100 Bar	NOT present in both P & ID and in actual	
83	V G 27 8	SOLENOI D VENT - (Ø1/4")		4-8 Bar	0-100 Bar	NOT present in both P & ID and in actual	
84	V G 29 2	LAST STAGE GAS OUTLET (NRV) - (Ø1")		250 Bar	0-413 Bar	Tested Found Leaking	Shall repair/ Replacement
85	V G — 29 6	PACKAGE VENT - (Ø3/8")		_	0-100 Bar	As per P&ID its not present	
		DESCRIP TION / SERVICE	Make	Qty	Rang e		
	PRI	ORITY PANI	EL				
92		PRESSUR E GUAGES (P.G)		1	0-400 Bar	PT calibrated found OK	Shall replace with new one pressure gauge
95		AIR REGULAT OR (0-16 BAR 3/8 FITTING)		1		Need replacement	
96		AIR FILTER (3/8 FITTING		1		Need replacement	
97		AIR PRESSUR E GUAGES		1		Need replacement	



Volume II of II

	(1/4					
99	FITTING) NRV		14		Not tested	
	NEEDLE					
100	VALVES		6		Not tested	
	ELECTRIC PAN	EL				
101	Soft Starter				OK Tested with Motor	
102	RELAY SWITCH		04 Nos			
103	FAN MPCB		02 Nos			
104	FAN CONTACT ORS		02 Nos			
105	TRANSFO RMER		01 Nos			
106	SOFT STARTER		01 Nos			
107	LIGHTNIN G ARRESTO R		01 Nos		There are conflict with wiring diagram and actual wiring The current model of the PLC being absolute, the entire control panel shall	
108	BARRIER ZENNER		09 Nos			
109	SFU				be redesigned, and re	
110	POWER FACTOR CORRECT ION SYSTEM				wired	
111	PLC					
112	S.I. TOP					
113	3 PHASE PREVENT OR					
114	HMI		01 Nos			
	POWER CABLE	· · · · · ·				
115	3.5C X 120 SQ MM COPPER CABLE - MAIN MOTOR	90 Mtrs.			To be supplied by bidder	
116	4C X 2.5 SQMM COPPRE CABLE (EXHAUS	180 Mtrs				



Volume II of II

	T FAN			
	FOR			
117	COOLER) 4C X 2.5 SQMM ALUMINI UM CABLE FOR AIR COMPRES SOR	90 Mtrs.		
118	4C X2.5 SQMM ALUMINI UM CABLE FOR UPS SUPPLY TO PLC	90 Mtrs		
119	4C X 1.5 SQMM ALUMINI UM CABLE FOR CO2 FLOOTIN G SYSTEM	90 Mtrs.		
120	4C X 2.5 SQMM ALUMINI UM CABLE FOR HOOTER	90 Mtrs.		
	CONTROL CAB	LE		
121	19C X 1.5 SQMM YFY CABLE	90 Mtrs.		
122	12C X 1.5 SQMM 2XFY CABLE	90 Mtrs.	All control wiring shall replacement, according to the new proposed drawing	
123	1.5 SQMM CABLE	90 Mtrs.	araw mg	
124	4C X 1.5 SQMM 2XFY	90 Mtrs.		



Volume II of II

	CABLE	
	22AWG	
	SHIELDED 90	
125	CONTROL Mtrs.	
	CABLE	
	DESCRIPTION / SERVICE	
	FOUNDATION INSTALLATION	
126	YELLOW	N
126	INDICATION	Not available
127	VIBRATION	N. 4. 11.11
127	DAMPER	Not available
	INTERFACE CONNECTIONS	
	MEASUREMENT SYSTEM	
	GENERAL	
128	INSTRUMENT	Rusted, need rework
	PANEL	
	EQUIPMENT ALARMS AND	
	STOP SYSTEM	
129	EMERGENCY	need replacement
12)	PUSH BUTTON	need reprocession
130	START AND STOP	need replacement
150	PUSH BUTTON	nood representation
	GENERAL OPERATION AND	
	MAIN CHARACTERISTICS	
	(GEAR PUMP)	
122	CRANKCASE OIL	Rusted, need
132	REFILLING	replacement
	NOZZLE	<u> </u>
		Not hydro tested as
134	OIL COOLER	operating pressure is very low, but during
134	OIL COOLER	small run of compressor
		did not find any leakages
	OIL'S	did not find any leakages
	DISTRIBUTOR	
	OIL TANK	
137	REFILLING	rusted
/	NOZZLE	
120	OIL LEVEL	1 111 1
138	INDICATOR	shall be cleaned
	CYLINDER'S	
	LUBRICATION	
	(CHOICE)	
120	OIL SIGHT	OV shall be also a d
139	GLASSES	OK, shall be cleaned
140	LUBRICATION	On sustinuel
140	PUMP	Operational
141	OIL DISTRIBUTOR	Rusted, need cleaning



Volume II of II

	Pneumatic FRL		
142	FRL (AIR FILTER REGULATOR LUBRICATION) - AIR LINE	Need replacement	
	KNOCK DOWN TANK		
144	OIL COLLECTION	not tested	
	INTRINSIC SAFETY (ONLY CE)		
145	TERMINAL BOX (BLUE COLOR)	need rewiring	
	DESCRIPTION / SERVICE		
147	COMPRESSOR STRUCTURE OR COMPRESSOR UNIT ASSEMBLY.	Dirty and Rusted	
148	MAIN MOTOR	Megger, IR Test, and run test carried out through soft starter for very short duration	bearing lubrication required
149	MAIN MOTOR TRANSMISSION.	not tested	
150	AIR COOLING SYSTEM.	Radiator fan motor Run test OK	
151	DRAINAGE SYSTEM (KDT AUTOMATIC DRAIN VALVE)	not tested	
152	COMPRESSOR	Compressor external & internal body is slightly rusted, Bore ID found OK, need cleaning, NRV leakage test done leakage found	NRV plate and spring replacement required
160	GAS DETECTOR (2QTY)	Not ok, need replacement	
162	MASS FLOW METER SECTION	Powered up, tested for flow rate, found variation in both	need calibration
163	MASS FLOW METER DISCHARGE	Powered up, tested for flow rate, found variation in both	need calibration
164	DELTA COMPRESSOR BODY SS SHEET	Dents, rusted,	



Volume II of II

Bid Document No. BGL/565/2022-23

165	Hoses		not tested	All repla	hoses cement	need
166	GASKET		not tested		nopy gask cement.	et need

SECTION 8: SPECIAL CONDITIONS OF CONTRACT

The special conditions of contract shall be read in conjunction with Schedule of rates, scope of work and any other document forming part of contract, wherever Context so requires. In case of any contradictions the Decision of the Engineer-I In-Charge will be final and binding on the Vendor. In case of contradiction between Indian or other applicable Standards, Special Conditions of Contract, Specifications, drawings, Schedule of Rates, the following shall prevail in order of precedence:

- i) Letter of acceptance along with statement of Agreed variations.
- ii) Fax / Letter of Intent / Fax of Acceptance
- iii) Schedule of Rates as enclosures to letter of acceptance
- iv) Job / Particular Specifications
- v) Technical / Material Specifications
- vi) Special Conditions of Contract.

It will be Vendor's responsibility to bring to the notice of Engineer-in-charge any irreconcilable conflict in the contract documents before starting the work(s) of providing the service with reference which the conflict exists.

1. Manpower:

a. Vendors shall depute resources within 01 week after intimation from EIC to lift the compressor from the M/s. Sopan O&M company pvt ltd, Pune factory as mentioned below:

Compressor Location:

M/s Sopan O&M Company Pvt. Ltd 201-A, A.G. Trade Centre, NDA-Pashan Road,

Bavdhan, Pune – 411021

Sign & Seal of Bidder



Volume II of II

Bid Document No. BGL/565/2022-23

Maharastra

- **b.** It will be the sole responsibility of the Vendor to perform the refurbishment and run the machinery by the experienced manpower having the hands-on experience on refurbishment / manufacturing of delta compressors.
- **c.** After refurbishment compressor shall be delivered to BGL, Hyderabad as per the location confirmed by the EIC/ BGL representative.
- **d.** Bidder shall submit the quote including the repairing, commissioning, lifting, transportation, etc if any works involved for commissioning of package at site.

2. Time Schedule:

i. Refurbishment / repairing of Delta compressor shall be completed within 3 months from the date of FOA and commissioning shall be done within 15 days of repairing or intimation of EIC / BGL representative.

3. Location/Site Information:

BGL reserves the right to change the delivery locations within the city of Hyderabad & Vijayawada at the time of dispatch.

Location of dispatch of delta compressor will be informed by BGL Engineer-In-charge

4. Payment Terms:

- i) 80% Payment against the Refurbishment & Commissioning of the compressor and the remaining 20% shall be against the completion of performance test at site.
- ii) Submission of bills in triplicate subject to carrying out refurbishment, commissioning, performance guarantee test as per the scope of the work. Payment shall be made from the F&A Dept. of BGL, within 30 days from the date of receipt of the bill. The bill should be submitted along with the copies of all reports as necessary duly certified by station In-Charge/Engineer-In-Charge.

5. Contract performance security:

The Contractor shall furnish to the Employer, within 30days from the date of notification (FOI, LOI, LOA, WO) of award, a security of 3% of Total Order/Contract value in case contract period is less than one year or 3% of Annualized order/Contract value in case contract period is more than one year. The Performance security shall be in the form of Demand Draft (DD)/ Banker's Cheque/ Contract Performance Bank Guarantee/Letter of Credit) / through online banking transaction i.e. IMPS/NEFT/RTGS etc. Defect Liability Period (DLP) is 3 months from the date of completion of services/ contract period

6. CONTRACT VALUE: -

The value of work under this contract shall be as per quantities mentioned in the **SOR**. Actual work may vary to any extent plus or minus to the attached quantities and the contractor must do so as per BGL's requirement.

7. Contract Price:

The Quoted prices shall be deemed to be inclusive of all taxes including all taxes & duties and other charges as applicable till the completion of the contract and contractor shall not be eligible for any compensation on this account.

8. PRICE REDUCTION SCHEDULE (PRS): The vendor shall perform the refurbishment / repairing of the delta compressor as specified in SOR / tender document & any additional services over and above normal number of services as per the instructions of EIC. In case the contractor fails to provide the proposed services as per the time schedule specified by the EIC, The Contractor shall be liable to pay compensation to BGL @ 0.5% of the contract Price of the services per week for the delayed period.

Sign & Seal of Bidder Page 17 of 21



Volume II of II

Bid Document No. BGL/565/2022-23

However, the total liquidation damage charged on account of the above shall not be more than 5% of the total contract value. The LD amount is not a penalty but a pre-determined compensation for Delay in work.

9. PROGRESS OF WORK:

The Contractor shall proceed with the Work under the Contract with due expedition and without delay. The EIC may direct in what order and at what time the various stages or parts of the work under the Contract shall be performed. If the Contractor can reasonably comply with this direction, the Contractor shall do so. If the Contractor cannot reasonably comply, the Contractor shall notify the EIC in writing giving reasons.

10. TERMINATION

If in the opinion of Engineer-In-Charge the performance of Party is not found satisfactory, the contract will be terminated by giving 15 (Fifteen) days' notice. Any loss incurred by the Company on this account shall be recovered from the Party. BGL shall also have the right to complete pending jobs under this contract by engaging any other agency at the risk and cost of original Party.

SECTION - 9

Sign & Seal of Bidder Page 18 of 21



Bid Document No. BGL/565/2022-23

Volume II of II

SCHEDULE OF RATES (SOR)

Sign & Seal of Bidder Page 19 of 21



Bid Document No. BGL/565/2022-23

Volume II of II

REFER E-TENDER NO.: <u>BGL/565/2022-23</u> IN E-TENDERING WEBSITE /PORTAL -

(https://petroleum.euniwizarde.com/)

FOR SCHEDULE OF RATES

Sign & Seal of Bidder Page 20 of 21



Bid Document No. BGL/565/2022-23

Volume II of II