



BHAGYANAGAR GAS LIMITED
(A JOINT VENTURE OF HPCL & GAIL)

BID DOCUMENT FOR

**Procurement of SS Ferrule Fittings, SS-Ball Valves,
SS-Tubing for Operations & Maintenance of CNG
Stations in Hyderabad, Vijayawada & Kakinada**

**UNDER OPEN DOMESTIC
COMPETITIVE BIDDING**

Bid Document No.: BGL/571/2023-24

VOLUME-II of II



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SECTION – I

MATERIAL REQUISITION



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SECTION – 7: MATERIAL REQUISITION

Project : CITY GAS DISTRIBUTION PROJECT

Client : BHAGYANAGAR GAS LIMITED

Items : SS Fittings

SCOPE OF SUPPLY

The Scope of supply includes SS Ferrule and SS Fittings, SS Ball Valves of various sizes conforming to design standard ASTM A269 and meeting other technical requirements as specified in bid document (i.e. as per MR, Data Sheets & Technical Specifications), getting approvals from Purchaser/ Consultant, procurement of raw material, manufacturing, testing & inspection, packing & forwarding & transportation to Hyderabad, Vijayawada and Kakinada as per tender terms & conditions. The details of material to be supplied are in Table 1:

TABLE 1

BHAGYANAGAR GAS LIMITED								
HYDERABAD								
Material Requisition								
Sr . N o.	Item Description	Size	Specification	UO M	Hydera bad	Vijayaw ada	Kakina da	Tent ative Quan tity
Group-A : SS Ferrule Fittings								
1	UNION CROSS	3/4"	Tube OD (3/4" x 3/4"X 3/4"X 3/4"), Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	50	0	5	55
2	UNION CROSS	1/2"	Tube OD (1/2" x 1/2"X 1/2"X 1/2"), Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	10	0	5	15



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3	UNION	1"	Tube OD(1"X1"),Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	15	0	0	15
4	UNION	3/4"	Tube OD(3/4"X3/4"), Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	50	0	20	70
5	UNION	1/2"	Tube OD(1/2"X1/2"), Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	20	0	20	40
6	UNION	3/8"	Tube OD(3/8"X3/8"), Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	10	0	20	30
7	UNION	1/4"	Tube OD(1/4"X1/4"), Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	20	0	20	40
8	UNION REDUCER	1" - 3/4"	Tube OD(1"X3/4"), Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	15	0	0	15
9	UNION REDUCER	3/4" - 1/2"	Tube OD(3/4"X1/2"), Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	25	10	10	45
10	UNION REDUCER	1/2" - 1/4"	Tube OD(1/2"X1/4"), Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	10	10	10	30
11	UNION REDUCER	3/8" - 1/4"	Tube OD(3/8"X1/4"), Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	25	10	10	45



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12	UNION REDUCER	3/4" - 3/8"	Tube OD(3/4"X3/8"), Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	25	10	10	45
13	EQUAL TEE	1"	Tube OD(1"X1"X1"), Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	10	2	0	12
14	EQUAL TEE	3/4"	Tube OD(3/4"X3/4"X3/4"), Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	50	5	20	75
15	EQUAL TEE	1/2"	Tube OD(1/2"X1/2"X1/2"), Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	5	0	5	10
16	TEE	3/4" OD X 3/4" MNPT X 3/4" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	10	0	0	10
17	TEE	3/8" OD X 3/8" MNPT X 3/8" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	5	0	0	5
18	REDUCING TEE	1" OD X 3/4" OD X 1" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	5	0	0	5
19	REDUCING TEE	3/4" OD X 1" OD X 3/4" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	10	0	0	10
20	CONNECTOR	3/4" OD X 1/2" MNPT	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	30	5	10	45



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21	CONNECTOR	3/4" OD X 1/2" FNPT	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	5	0	10	15
22	CONNECTOR	3/4" ODX1/ 4" MNPT	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	530	65	5	600
23	CONNECTOR	3/4" OD X 3/4" MNPT	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	20	20	5	45
24	CONNECTOR	3/4"MN PT - 1/2"FN PT	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	0	0	10	10
25	CONNECTOR	1/2" OD X 1/2"FN PT	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	5	0	0	5
26	CONNECTOR	1/2" OD X 1/2" MNPT	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	45	0	0	45
27	CONNECTOR	1/2"OD X 3/8" MNPT	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	10	0	0	10
28	CONNECTOR	3/8"OD - 1/2"MN PT	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	30	0	5	35
29	CONNECTOR	3/8"OD - 3/8"MN PT	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	30	0	0	30
30	CONNECTOR	3/8"OD - 1/4"MN PT	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	20	5	5	30
31	CONNECTOR	1/2"OD - 1/4"MN PT	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	10	0	0	10



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32	CONNECTOR	1/4"OD - 1/4"FN PT	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	15	0	0	15
33	ELBOW	1" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	5	0	0	5
34	ELBOW	3/4" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	0	0	10	10
35	ELBOW	3/8" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	0	3	7	10
36	ELBOW	1/4" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	0	5	10	15
37	CAP	1"OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	10	0	0	10
38	CAP	3/4"OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	10	0	0	10
39	CAP	1/2"OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	10	0	0	10
40	PLUG	1"OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	15	0	0	15
41	PLUG	3/4" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	20	5	15	40
42	PLUG	1/2" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	0	5	10	15



43	NUT	1"	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	30	0	0	30
44	NUT	3/4"	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	60	20	20	100
45	NUT	1/2"	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	20	15	15	50
46	NUT	3/8"	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	30	0	20	50
47	NUT	1/4"	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	60	20	20	100
48	FRONT FERRULES	1" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	15	0	0	15
49	FRONT FERRULES	3/4" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	0	0	50	50
50	FRONT FERRULES	1/2" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	0	0	50	50
51	FRONT FERRULES	3/8" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	30	10	10	50
52	FRONT FERRULES	1/4" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	30	10	10	50
53	BACK FERRULES	1" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	50	0	0	50



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54	BACK FERRULES	3/4" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	0	0	50	50
55	BACK FERRULES	1/2" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	0	0	50	50
56	BACK FERRULES	3/8" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	0	0	50	50
57	BACK FERRULES	1/4" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	0	0	50	50
58	BLEEDE/VENT VALVE	1/4" MNPT	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	5	0	0	5
59	Quick Connector Body	3/4"	Part no:SSH4-62USA/Equivalent	Nos	25	10	5	40
60	Quick Connector Stem	3/4"	Part no:SSH4-63USA/Equivalent	Nos	25	10	5	40
61	Stainless Steel High Pressure Proportional Relief Valve, 1/4 in. Tube Fitting	1/4"	Material: SS 316 (Rated pressure : 5000 PSIG @ 100°F /413 BAR @ 37°C; seal material : Fluorocarbon FKM	Nos	30	0	0	30
62	Stainless Steel Poppet 5000 psig (344 bar) Check Valve, 3/4 in. Tube Fitting, 1 psig	3/4"	Material: SS 316 (Rated pressure : 5000 PSIG @ 100°F /344 BAR @ 37°C; seal material : Fluorocarbon FKM	Nos	20	0	6	26

Group-B : SS Ball Valves

1	3-Way Trunnion Mounted, Reducer Bore Ball Valve 1/2" OD end Connection and 1/4"	1/2"OD -1/2" OD-1/4" FNPT	Material : SS316 (Rated pressure : 344 BAR Temperature : -40 to 121 DEG C), PEEK SEATS;	Nos	70	0	0	70
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	NPT (F) bottom end connection - Working Pressure : 250 bar g, size : ½" OD-2 Ferrule end connection & ¼" NPT(F) post with Nut, Back & Front Ferrule, Body : SS316 with Peek Seats with additional 1 set of Nuts, Back & Front Ferrule etc.		Trunnion type; Hydrostatic tested					
2	3 WAY BALL VALVE, SS, 3/4" OD X 3/4" OD X 1/4" FNPT; Trunnion type 3-Way Trunnion Mounted, Reducer Bore Ball Valve 3/4" OD end Connection and ¼" NPT (F) bottom end connection - Working Pressure : 250 bar g, size :3/4" OD-2 Ferrule end connection & ¼" NPT(F) post with Nut, Back & Front Ferrule, Body : SS316 with Peek Seats with additional 1 set of Nuts, Back & Front Ferrule etc.	3/4"OD -3/4" OD-1/4" FNPT	Material : SS316 (Rated pressure : 344 BAR Temperature : -40 to 121 DEG C), PEEK SEATS; Trunnion type; Hydrostatic tested	Nos	0	10	0	10
3	2-Way Trunnion / floating Normal Bore Ball Valve ¾" - Working Pressure : 250 bar g, size : ¾" OD, with Nut, Back & Front Ferrule, Nylon Handle, Body : SS316 with Peek Seats with additional 1 set of	3/4"	Material : SS316 (Rated pressure : 344 BAR Temperature : -40 to 121 DEG C), PEEK SEATS; Hydrostatic tested	Nos	0	10	0	10



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	Nuts, Back & Front Ferrule etc.							
4	2-Way Trunnion / floating Normal Bore Ball Valve ½" - Working Pressure : 250 bar g, size : ½" OD, with Nut, Back & Front Ferrule, Nylon Handle, Body : SS316 with Peek Seats with additional 1 set of Nuts, Back & Front Ferrule etc.	1/2"	Material : SS316 (Rated pressure : 344 BAR Temperature : -40 to 121 DEG C), PEEK SEATS; Hydrostatic tested	Nos	25	0	0	25
5	Seal Kit for 3 Way Valve mentioned in SOR 1	1/2"	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	150	0	0	150
6	Seal Kit for 2 Way Valve mentioned in SOR .3	3/4"	Maximum pressure rating: 5000 psig @ 70°F Temperature rating: -40 to 250°F i.e. (-40 to 121°C)	Nos	50	0	0	50
Group-C : SS Tube								
1	SS-tube	1"	Wall thickness - 0.120", Material - SS316L Tolerance - (± 0.005"), Finish - Bright Annealed Seamless, Hardness <= Rb80	Mtr s	500	0	0	500
2	SS-tube	3/4"	Wall thickness - 0.095", Material - SS316L Tolerance - (± 0.005"), Finish - Bright Annealed Seamless, Hardness <= Rb80	Mtr s	800	150	50	1000
3	SS-tube	1/2"	Wall thickness - 0.083", Material - SS316L Tolerance - (±0.005"), Finish – Bright Annealed Seamless, Hardness<= Rb80	Mtr s	180	50	20	250



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4	SS-tube	3/8"	Wall thickness - 0.120", Material - SS316L Tolerance - (± 0.005 "), Finish - Bright Annealed Seamless, Hardness \leq Rb80	Mtr s	100	0	10	110
5	SS-tube	1/4"	Wall thickness - 0.120", Material - SS316L Tolerance - (± 0.005 "), Finish - Bright Annealed Seamless, Hardness \leq Rb80	Mtr s	100	10	10	120



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SECTION-8

TECHNICAL SPECIFICATION FOR SS FERRULE FITTINGS



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Contents of Technical specifications

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3.0	PRECEDENCE
4.0	DEVIATION
5.0	SPECIFICATION
6.0	MARKING, PACKING & SHIPMENT
7.0	DOCUMENTATION



1.0 SCOPE OF WORK

1.1 The scope of this specification covers the requirement of design, manufacture/ inspection/ testing at works/ marking/ packaging/ and supply of high pressure SS Ferrule Fittings.

2.0 CODES & STANDARD

The latest edition of the following standards are referred to in this specification.

Items	Applicable Codes and Standards
Bar Stock	ASME SA-479-316 or DIN 4401 or BS:970-316-S31
Forging	ASME SA-182-316 or DIN 4401 or BS:970-316-S31
Thread	NPT ANSI B 1.20.1

3.0 PRECEDENCE

3.1 In case of any conflict between this job specification and other document, the following order of precedence shall apply :

3.1.1 Job Specification.

3.1.2 International Standards/ Codes Applicable.

4.0 DEVIATION

Deviations if any required by Tenderer shall be separately furnished against each clause giving reasoning for each deviation. Tenderer to note that except the deviations furnished by them, Tenderer's offer shall be deemed to be in total conformity with the enquiry specifications.

5.0 SPECIFICATION

All the items shall be suitable for compressed Natural Gas service and meet following specifications.

5.1 Materials

5.1.1 Fittings shall be manufactured from the following materials :-

- i) Bar stock shall be as per BS: 970-316-S31, DIN 4401 or ASME 479-316 but with carbon content less than 0.05% to provide increased resistance to corrosion.
- ii) Forgings shall be as per BS:970-316-S31, DIN 4401 or ASME SA-182-316.

5.1.2 The fittings end connections shall be compatible to tube of hardness \leq Rb80.



5.1.3 All component parts of the fittings shall be of the same material.

5.1.4 The ferrule material shall be able to withstand an atmosphere of Natural Gas, oil and moisture without rusting.

5.2 Design & Manufacture

5.2.1 All fittings shall be designed in conformance with the requirements of ASME B31.3 and applicable standards. Area classification applicable for all items shall be Class-1, Division-1, Group-D as per NEC or Zone-1 Group- IIA/ IIB as per IS/ IEC specification or equivalent specification. All fittings shall be designed so that all parts/ components meet the requirements for the specified area classification.

5.2.2 The SS fittings shall be of flareless design and four piece construction, consisting of front and rear ferrules, nut and body suitable for use on SS tubes conforming to ASTM A269 TP316.

5.2.3 Fittings shall be rated for at least the design pressure as stipulated in the material requisition. The design of fittings shall ensure that they shall be capable of holding full tube burst pressure after only one and a quarter turn pull up of the nut.

5.2.4 The threaded ends of fittings shall be NPT as per ANSI B1.20.1.

5.2.5 The fittings shall hold the tube with gripping action producing a firm grip on the tube without substantially reducing the tube wall thickness.

5.2.6 Fittings shall not torque the tubing during original or subsequent make-up of the connection and should use geometry for inspection before and after make up the fittings shall not require disassembly for inspection before or after makeup.

5.2.7 All tube fittings shall be gaugeable for sufficient pull up after one and a quarter turn. All tube fittings shall have a gaugeable shoulder and there will be no radius at the point where the shoulder meets the neck of the fitting body.

5.2.8 The gap inspection gauge shall be easily insertable at finger tight position of nut. The gap inspection gauge shall not be insertable between the nut and shoulder of the fitting after completing only one and a quarter turn pull up of the nut.

5.2.9 The tube seat counter bore in the body shall be faced flat 90° to the axis of the tubing to minimize tube expansion and subsequent galling.

5.2.10 The sealing and gripping power of the fitting shall be controlled such that the action between ferrules will overcome commercial variations in tubing wall thickness, hardness, diameter and installer skill.

5.2.11 The seal contact areas of the fittings body shall have a machined finish of 32 Ra or better.



- 5.2.12 The fittings body shall have no machined stop or shoulder to preclude additional tightening in subsequent make-up.
- 5.2.13 Front Ferrule
- i) The front ferrule shall effect along, smooth repeatable seal by contact with body and a grip hold on the tube surface.
 - ii) The front ferrule shall always remain in a sprung condition to compensate for thermal stresses and to accomplish repeated make and break.
- 5.2.14 Rear Ferrule
- i) The rear ferrule shall collect the tubing surface, improving the performance of the tubing in systems of high impulse or vibration.
 - ii) The rear ferrule shall have a machine recess on the inside diameter and shall have complete surface hardening so as to substantially reduce the required pull up torque. Both the requirements i.e. complete surface hardness and machined recess shall be met for all rear ferrules.
- 5.2.15 Nuts shall have silver plated threads to act as a lubricating agent to avoid galling and to reduce tightening torque.

5.3 Inspection and Testing

The manufacturer shall submit typical type test reports for the following test carried out on random samples of two ferrule fittings :-

- i) Hydraulic burst pressure test.
- ii) Helium leak test under 0.0002 PSIA negative pressure, leaks into assembly greater than 4.0×10^{-9} atm-cc/sec being unacceptable.
- iii) Gas pressure test for 25 remarks at 5000 Psig. No leakage should be detectable even after 25 remarks.
- iv) Impulse & vibration testing by “rotary beam method” for 5,00,000 impulse cycles and 20 million vibration cycles with no detectable leakage at full working pressure throughout till the end of the test.

5.4 Test Reports and Certificates

- 5.4.1 The manufacturer shall supply material compliance certificates conforming that the raw material for fittings conforms to the requirements of ASME Section-II and ASME Section-III sub section NB, NC and ND.
- 5.4.2 The manufacturer shall furnish test procedure and typical test reports of all tests conducted on fittings as per the requirements of clause 5.3.

6.0 MARKING, PACKING & SHIPMENT

- 6.1 Heat code traceability numbers shall be stamped or etched on both body and nut of each fitting.



- 6.2 Replacement nuts and ferrules shall be packaged in a manner so as to allow safe and simple replacement.
- 6.3 All the items shall be suitably wrapped and packaged to withstand rough handling during ocean shipment and inland journey.
- 6.4 Item shall be properly tagged and packaged separately to facilitate easy identification.
- 6.5 Items shall be wrapped and packaged in such-a-way that they can be preserved in original as new condition.

7.0 DOCUMENTATION

- 7.1 All documents shall be furnished in English language only.
- 7.2 At the time of bidding, bidder shall submit following documents :
- i) Reference list of previous supply for similar item, giving following details :
- a) Name of the customer.
- b) Specification of the item i.e., size and pressure & temperature rating.
- c) Service
- d) Quantity
- e) Year of supply
- ii) Test procedure and typical certificates to be submitted as per clause 5.3 and 5.4 of this specification.
- iii) Manufacturer Quality Control Plan and sampling plan.
- iv) Copy of ISO:9000 certification for supplier/ manufacturer.
- 7.3 Following test certificates shall be furnished along with shipment.
- i) Test certificate of chemical, mechanical testing.
- ii) Manufacturer's standard shop inspection & test report.
- iii) The procedure and certificates to be submitted as per requirements of clause 5.4 of this specification.



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SECTION-9

TECHNICAL SPECIFICATION FOR SS BALL VALVES

-2-



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1.0 SCOPE OF WORK

- 1.1 The scope of this specification include design, manufacture/ supply, inspection/ testing/ marking/ packaging/ handling and dispatch of SS Ball Valves as per relevant codes.
- 1.2 Purchaser reserves the right to delete or order additional quantities during execution of order, based on unit rates and other terms & conditions in the original order.

2.0 CODES & STANDARD

Items	Applicable Codes and Standards
Valves	MSS-SP-99

3.0 PRECEDENCE

- 3.1 In case of any conflict between this job specification and other document, the following order of precedence shall apply :
 - 3.1.1 Job Specification.
 - 3.1.2 International Standards/ Codes Applicable.

4.0 DEVIATION

Deviations if any required by Vendor shall be separately furnished against each clause giving reasoning for each deviation. Vendor to note that except the deviations furnished by them, Vendor's offer shall be deemed to be in total conformity with the enquiry specifications.

5.0 MATERIALS

- 5.1 The valve body shall be made of material conforming to ASTM A479 Type 316.
- 5.2 Material of construction of ball shall conform to ASTM A276 Type 316.
- 5.3 Material of construction of seat springs shall be Alloy X-750.

6.0 DESIGN & MANUFACTURE

- 6.1 All ball valves shall be designed in conformance with the requirements of ASME B31.3, MSS-SP-99 and other applicable codes and standards. Area classification applicable for all items shall be Class-1, Division-1, Group-D as per NEC or Zone -1 Group-IIA/ IIB as per IS/ IEC specification or equivalent specification. All fittings shall be designed so that all parts/ components meet the requirements for the specified area classification.
- 6.2 Valves shall be rated for a maximum working pressure of 5000 psig and shall be capable of operation between a temperature range of (-40)° to 250°F.
- 6.3 Valves shall have spring loaded PEEK seats allowing seal-ability over the full pressure range at any port and low operating torque over the full range of pressures and temperatures.



- 6.4 Elastomeric seals, which require no packing adjustment, shall be used.
- 6.5 Valves stem shall be of bottom loaded and blow out proof design.
- 6.6 Ball shall be blow out proof and trunnion mounted or floating .
- 6.7 Valves shall have positive wrench/ handle stops, Phenolic black wrench/ handle shall be provided. Wrench/ hand le shall indicate the direction to flow. IN the case of three way valves the stem shall also provided a visualindication of flow direction if the handle is removed.

7.0 INSPECTION AND TESTING

- 7.1 The valve manufacturer shall submit typical type test reports for thefollowing test carrier out on similar valves:-
- i) Hydrostatic seat leak test shall be carried out with de-ionised water. There shall be no detect able set leakage at 1.1 times therated pressure of the valve.
- ii) Gas pressure test for seat and shell shall be carried out with nitrogen at 1000 psig. There shall be no detectable external leakage. The maximum allowable seat leakage shall be 0.1 atm-cc/min.

8.0 OTHER REQUIREMENTS

- 8.1 Manufacturer should confirm that valves are approved by Rail RoadCommission of Texas, LP Gas Divisi on under regulation for compressed natural gas or ANSI/ AGA NGV 3.1 1995, CAN/ C GA-12.3-M95 “FuelSystems Components for Natural Ga s Powered Vehicles” by “CanadianStandard Association”.
- 8.2 Spares and Accessories
- i) If required, manufacturer shall furnish a list of recommendedspares and accessories for valves required during start up and commissioning.
- ii) If required, manufacturer shall furnish a list of recommendedspares and accessories required for two years of manual operationand maintenance of valves.
- iii) Manufacturer shall quote for spares and accessories as per the material requisition.

9.0 TEST REPORTS & CERTIFICATES

- 9.1 The manufacturer shall supply material compliance certificates.
- 9.2 The valve manufacturer shall provide test procedure and valve inspectionand test report for type tests carried out on similar valves as per the requirements of clause 7.0.

10.0 MARKING, PACKING & SHIPMENT

- 10.1 Heat code shall be marked on valve body to facilitate tractability.
- 10.2 All the items shall be suitably wrapped and packaged to with stand rough handling during



ocean shipment and inland journey.

- 10.3 Each item shall be properly tagged and package separately to facilitate easy identification.
- 10.4 All items shall be wrapped and packaged in such-a-way that they can be preserved in original as new condition.

11.0 DOCUMENTATION

- 11.1 All document shall be furnished in English language only.
- 11.2 At the time of bidding, bidder shall submit following documents :
- i) Reference list of previous supply for similar item, giving following details :
 - a) Name of the customer.
 - b) Specification of the item i.e., size and pressure & temperature rating.
 - c) Service
 - d) Quantity
 - e) Year of supply
 - ii) Test procedure and typical certificates to be submitted as per clause 5.3 and 5.4 of this specification.
 - iii) Copy of ISO:9000 certification for supplier/ manufacturer.
 - iv) Manufacturer Quality Control Plan and sampling plan.
 - v) Technical descriptive catalogue of manufacturer.
 - vi) General arrangement/ assembly drawing of valve showing all features.
 - vii) Sectional drawing showing major parts with reference number and material specification.
- 11.3 Prior to shipment, manufacturer shall submit following test certificates and documents.
- i) Test certificate of chemical, mechanical testing.
 - ii) Manufacturers standard shop inspection test.
 - iii) Manufacturers standard shop inspection and test reports.
 - iv) The procedure and certificates to be submitted as per the requirements of clause 8.0 of this specification.
 - v) Manual for installation, erection, maintenance and operating instructions including a list of recommended spares for valves.



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SECTION-10

**TECHNICAL SPECIFICATION OF
SS TUBES**



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6.0	SPECIFICATION
7.0	DOCUMENTATION
8.0	PACKING & SHIPMENT



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1. SCOPE OF WORK

- 1.1. The scope of the tenderer will include manufacture/ supply, inspection/testing/ marking/ packaging/ handling and dispatch of SS tubes, as indicated in the Bill of Quantities meeting all the requirements as per ASTM A269.
- 1.2. All codes and standards for manufacture, testing, inspection etc. shall be of latest edition.
- 1.3. Purchaser reserves the right to delete or order additional quantities during execution of order, based on unit rates and other terms & conditions in the original order.

2. CODES & STANDARD

Items	Applicable Codes and Standards
Tubes	ASTM A269, ANSI B31.3

3. PRECEDENCE

In case of any conflict between this job specification and other document, the following order of precedence shall apply: -

- i. Job Specification
- ii. International Standards/ Codes Applicable

4. DEVIATION

Deviations if any required by Tenderer shall be separately furnished against each clause giving reasoning for each deviation. Tenderer to note that except the deviations furnished by them, Tenderer's offer shall be deemed to be in total conformity with the enquiry specifications.

5. SAFETY

- 5.1. All tubes shall be designed as per applicable code & standards.
- 5.2. All part/ component shall meet the requirement for the specified area's Classification.
- 5.3. Area classification shall be Class-I, Division-I; Group-D as per NEC or Zone-I Group IIA/ IIB as per IS/ IEC Specification or equivalent specifications.

6. SPECIFICATION

All the items shall be suitable for compressed natural gas service and meet following specifications.

- 6.1. Tube material shall be stainless steel as per ASTM A269 (Grade TP 316).
- 6.2. Tubing material shall have minimum molybdenum content 2.5%, carbon content of max. 0.030%.

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- 6.3. Tube shall be bright annealed.
- 6.4. Tube shall be seamless.
- 6.5. Tube hardness shall be less than Rb 80. Tubes shall be NACE MR 0175 certified for hardness. Hardness test shall be carried out on each tube.
- 6.6. All S.S.tubes shall be online 100% eddy current Tested as per ASTM A1016. In lieu of eddy current Test / non-destructive electric examination, each tube shall be hydrotested as per requirement of ASTM A1016 clause no.26, at a hydro test pressure of 350 kg/cm²(g). However, it shall be ensured that the test pressure does not result in stresses exceeding the yield strength at test pressure.
- 6.7. Tolerance on outer diameter shall be ± 0.08 mm.
- 6.8. Tube shall be of minimum 5 to 6 meter in length.
- 6.9. Minimum thickness shall be as per following table.

Tube OD	Minimum Wall Thickness	Maximum Allowable Working Pressure psig
1"	0.120"	4700
3/4"	0.095"	4700
1/2"	0.083"	4700
3/8"	0.065"	4800
1/4"	0.035"	4800

Note: Bidder to reconfirm maximum allowable working pressure for each tube size.

- 6.10. Following documents/ certificates to be submitted.
- Chemical composition for heat
 - Chemical composition for products
 - Tensile test
 - Hardness test
 - Flaring test
 - Leak test
 - Visual inspection and dimensional check
- 6.11. Tubing should be clearly marked with the specifications given in the inspection certificate with heat code, lot code, outer diameter and wall thickness with inspection certificate no.,
- 6.12. Tubes should be supplied with both ends plugged.



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7. DOCUMENTATION

Following test certificates shall be furnished along with shipment.

- 7.1. Test certificate of visual, chemical, mechanical testing (incl. tensile, hardness, flaring and leak test).
- 7.2. Manufacturer's standard shop inspection & test report for all items.
- 7.3. The test report for specified tests.
- 7.4. Third party inspection report as applicable to meet the requirements of specified codes & standards as applicable.

8. PACKING & SHIPMENT

- 8.1. All the items shall be suitably wrapped and packaged to withstand rough handling during ocean shipment and inland journey. Tubes should be supplied with both ends plugged.
- 8.2. The item shall be properly tagged and packaged separately to facilitate easy identification.
- 8.3. Items shall be wrapped and packaged in such-a-way that they can be preserved in original as new condition.



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SECTION-11

SPECIAL CONDITIONS OF CONTRACT



SPECIAL CONDITIONS OF CONTRACT (SCC)

GENERAL

- 1.1 Special Conditions of Contract shall be read in Conjunction with the General Conditions of Contract, Specification of work, Drawing and any other documents forming part of this Contract wherever the context so requires.
- 1.2 Notwithstanding the sub-division of the documents into these separate sections and volumes ever part of each shall be deemed to be supplementary to and complementary of every other part and shall be read with in the Contract so far as it may be practicable to do so.
- 1.3 Where any portion of the General Conditions of Contract is repugnant to or at variance with any provisions of the Special Conditions of Contract, unless a different intention appears, the provisions of the Special Conditions of Contract shall be deemed to over-ride the provisions of the General Conditions of Contract and shall be the extent of such repugnancy, or variations, prevail.
- 1.4 Wherever it is mentioned in the specification that the Contractor shall perform certain work or provide certain facilities, it is understood that the Contractor shall do so at his cost and the **Value of Contract** shall be deemed to have included cost of such performance and provisions, so mentioned.
- 1.5 The materials, design, and workmanship shall satisfy the relevant Indian Standard, the Job Specifications contained herein and Codes referred to where the job specification stipulate requirements in addition to those contained in the standard codes and specifications, these additional requirements shall also be satisfied.
- 1.6 In case of an irreconcilable conflict between Indian or other applicable standards, General Conditions of Contract, Special Conditions of Contract, Specification, Drawings or Schedule of Rates, the following shall prevail to the extent of such irreconcilable conflict in order of precedence:
 - i) Letter of Acceptance/ FOI along with Statement of Agreed Variations.
 - ii) Schedule of Rates as enclosures to Letter of Acceptance
 - iii) Special Conditions of Contract
 - iv) Drawings
 - v) Technical/ Material Specifications
 - vi) Instruction to Bidder
 - vii) General Conditions of Contract
 - viii) Indian Standards
 - ix) Other applicable standards
- 1.7 It will be the Contractor's responsibility to bring to the notice of Engineer-in-charge any irreconcilable conflict in the contract documents before starting the work(s) or making the supply with reference which the conflict exists.
- 1.8 In the absence of any Specifications covering any material, design of work(s) the same shall be performed/ supplies/ executed in accordance with Standard Engineering Practice as per the instructions/ directions of the Engineer-in-charge, which will be binding on the Contractor.



2.0 SCOPE OF SUPPLY

General

- 2.1 The scope of supply covers Supply of SS Ferrule Fittings, SS Ball Valves, SS tubing for CNG Stations in Hyderabad , Vijayawada & Kakinada.
- 2.2 The Scope of Supply shall be as set out at Material Requisition, Data Sheets and supplemented by all stipulation in the entire tender document.
- 2.3 All the specifications for the work shall be as per scope of work & schedule of rates which are self explanatory. However, whenever required Modifications / Alterations will be done as per the Site / Operation requirement and the decision of the Engineer-In-Charge shall be final and binding on the Contractor
- 2.4 **REMARKS**
- 2.4.1 **Supplier's Compliance**
Supplier shall submit his bid in full compliance with the requirements of this MR and attachments. Bidder shall include the following statement in his bid:
Compliance with this material Requisition in any instance shall not relieve the Vendor of his responsibility to meet the specified performance.
- 2.4.2 **Compliance with Specification**
The supplier shall be completely responsible for the design, materials, fabrication, testing, and inspection, preparation for shipment & transfer of above material to nominated delivery point strictly in accordance with the MR & all attachments thereto.
- 2.4.3 **Supplier's Scope**
Supplier's scope of work includes the equipment with all internals & accessories shown on the data sheets, specifications and all unmentioned parts necessary for a satisfactory operation & testing except those which are indicated to be out of Supplier's supply.

3.0 CONTRACT PRICE

The contract price shall be deemed to be firm and valid for the entire duration of the contract till the completion of work and shall not be subject to any adjustment due to increase in price of materials, utilities, or any. other input for performance of work and the contract except for increase/decrease in taxes and duties on account of subsequent legislation.

4.0 QUANTITY VARIATION

The tendered quantity may vary depending upon the project requirement. BGL reserves the right to decrease/ increase the quantity depending upon its requirement.

5.0 QUALITY ASSURANCE/QUALITY CONTROL:

- 5.1. The Bidder shall prepare a detailed quality assurance plan for the execution of Contract for various facilities, which will be mutually discussed and agreed to.
- 5.2. The Bidder shall establish document and maintain an effective quality assurance system outlined in recognized codes.



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5.3. The Purchaser, while agreeing to a quality assurance plan shall mark the stages where they would like to witness the tests; review any or all stages of work at shop/site as deemed necessary for quality assurance.

6.0 DISPATCH INSTRUCTIONS

- 6.1 Seller shall obtain dispatch clearance from the Purchaser prior to each dispatch.
- 6.2. Copy of Inspection Release Certificate, Dispatch Clearance and statement showing the name of the Vessel/Trailers description and weight of material and shipping marks etc. to be submitted along with the documents.

7.0 REJECTION

- 7.1. Any materials/goods covered under scope of supply, which during the process of inspection by appointed third party, at any stage of manufacture/fabrication, and subsequent stages, prior to dispatch is found not conforming to the requirements/specifications of the Purchase Requisition /Order, shall be liable for immediate rejection.
- 7.2. Supplier shall be responsible and liable for immediate replacement of such material with acceptable material at no extra cost or impact on the delivery schedule to EMPLOYER

8.0 TERMS OF PAYMENTS

The Payment shall be made in the following manner subject to completion of all contractual requirements as per tender document.

The following shall be read in conjunction with Clauses of GCC (Goods)

- **100 % (Hundred percent) payment of the supplied portion along with freight including taxes & duties will be paid on receipt & acceptance of goods at FOT site after adjustment of PRS, if any along with submission of delivery challans, Warranty / Guarantee Certificates along with duly certified by EIC / OIC.**

ii. MODE OF PAYMENT

All payments payable in Indian rupees against the contract shall be released by Owner through account payee cheque payable at par or by electronic transfer.

iii. DEDUCTION AT SOURCE

Purchaser will release the payment to the Seller after effecting deductions as per applicable law in force. Purchaser will release payments by F&A Dept, BGL to the Contractor after offsetting all dues to the Purchaser payable by the Contractor under the Contract.

9.0 COMPENSATION FOR DELAY (PRICE REDUCTION /LIQUIDATED DAMAGES)

In case of delay in delivery of materials beyond contractually agreed delivery schedule, price reduction schedule will be applicable @0.5% of material value for the unsupplied portion per week of delay or part thereof, subject to ceiling of 5% (FIVE PERCENT) of the total order value. For details, please refer relevant clause of GCC-Goods.

The value referred in PRS clause is excluding taxes & duties.

10.0 PERFORMANCE BANK GUARANTEE/ SECURITY DEPOSIT/ CONTRACT PERFORMANCE SECURITY:



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Bidder will provide Performance Guarantee @ 10 % of annualized order value within 30 days of receipt of Fax of Acceptance (FOA) / Work Order (WO) from the Owner. The contract performance bank guarantee shall be valid 3 months beyond the Guarantee/ Warrantee period.

The Performance Guarantee shall be in form of either Demand Draft or Banker's Cheque or bank transfer through NEFT/RTGS/IMPS into BGL account, or irrevocable Bank Guarantee and shall be in the currency of Contract (issued by any Indian Scheduled bank or a branch of an International Bank situated in India and registered with Reserve Bank of India as Scheduled Foreign Bank).The Terms also to be read in line with Section Information to Bidders (ITB) (Vol I of II)of Bid Document.

There is no exemption to MSEs including SSI units from submission of Security Deposit/ Contract Performance Bank Guarantee (CPBG).

11.0 DELIVERY

The delivery of the items location wise is as per the Material Requisition.

The Vendor to arrange transportation of these materials from the vendor shop to designated locations of BGL yard in respective cities. No extra payment shall be made for the transportation and deemed to be included in the quoted price.

Bidder to deliver the materials at all locations as per the quantity estimated.

12.0 DELIVERY PERIOD

Delivery of the total order quantity will be completed within 10 weeks for the supply of all materials as per SOR (applicable to all awarded groups), from the date of receipt of LOI/PO from the date of Fax of Acceptance (FOA)/Purchase Order (PO).

13.0 INDEPENDENT SELLER

It is expressly understood and agreed that Seller is an independent party and that neither the Seller/ its personnel are servants, agents or employees of Purchaser nor the Seller has any kind of interest in other sellers.

14.0 LIEN

Seller shall ensure that the Scope of Supply supplied under the Agreement shall be free from any claims of title/liens from any third party. In the event of such claims by any party, Seller shall at his own cost defend, indemnify and hold harmless Purchaser or its authorized representative from such disputes of title/liens, costs, consequences etc.

15.0 LIMITATION OF LIABILITY

Notwithstanding anything contrary contained herein, the aggregate total liability of Supplier under the Contract or otherwise shall be limited to 100% of contract value. However, neither party shall be liable to the other party for any indirect and consequential damages, loss of profits or loss of production.

16.0 GOVERNING LAW

Laws of India will govern the Agreement and Hyderabad courts will have exclusive jurisdiction on all matters related to Agreement.

17.0 OWNER'S RIGHTS AND REMEDIES

Without prejudice to Owner's right and remedies under Agreement, if SUPPLIER fails to



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commence delivery as per agreed schedule and/or in reasonable opinion of the OWNER, CONTRACTOR is not in a position to make up the delay to meet the intended purpose, the OWNER may terminate the AGREEMENT in full or part at SUPPLIER's default and may get supplies from other sources at SUPPLIER's risk and cost.

18.0 TRANSIT INSURANCE (addtnl to Clause no. 16.0 of GCC)

Bidder shall arrange Transit Insurance and the cost of which shall be borne by bidder. Quoted price shall be inclusive of the same.

19.0 WARRANTY PERIOD:

Manufacturer shall guarantee that the design, materials, manufacturing and testing of tubes conform to the requirement of this specification. Manufacturer shall replace all tubes free of costs which fail during field pressure testing or do not perform satisfactorily due to inadequate engineering, substandard material and poor workmanship.

The manufacturer shall guarantee against any defect, failure or malfunctioning occurring during 12 months from the date of commissioning or 24 months from the date of supply whichever is earlier.

20.0 General Conditions:

- (i) When the materials are dispatched to the consignee intimation must also be given to this effect. Reference to the supply order should invariably be given in all the relevant correspondence.
- (ii) The tender is liable to be rejected in case the tender does not comply with tender stipulations or the goods, works and services offered do not conform to the required specifications indicated their in.
- (iii) Any other terms and conditions offered by the firm and not included in the order/contract, are not acceptable to BGL.

21.0 Location/Site Information:

Location of site will be informed by BGL Engineer-In-charge.



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SECTION – 9

SCHEDULE OF RATES (SOR)

REFER E-TENDER NO.: BGL/571/2023-24 IN

E-TENDERING WEBSITE /PORTAL -

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

FOR SCHEDULE OF RATES



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SCHEDULE OF RATES (SOR)

Financial Bid / Priced Bid

Bid Document ref: BGL/571/2023-24, dtd.30.05.2023

Item: Procurement of SS Ferrule Fittings, SS-Ball Valves, SS-Tubing for Operations & Maintenance of CNG Stations in Hyderabad, Vijayawada & Kakinada

Name of Bidder:

Sr. No	Item Description	Size	Specification	HSN/SAC Code	Unit	Quantity			Unit Price (INR)	Total Price (INR)
						Hyderabad	Vijayawada	Kakinada	Unit Price incl. FOT site & all taxes & duties, excl. GST	Total Price incl. FOT site & all taxes & duties, excl. GST
									(INR) (figures)	(INR) (figures)

GROUP-A (SS Ferrule Fittings) as per Technical Specification(SECTION-8) of Vol II of II

1	UNION CROSS	3/4"	Tube OD (3/4" x 3/4"X 3/4"X 3/4"), Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	50	0	5		
2	UNION CROSS	1/2"	Tube OD (1/2" x 1/2"X 1/2"X 1/2"), Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	10	0	5		
3	UNION	1"	Tube OD(1"X1"),Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	15	0	0		
4	UNION	3/4"	Tube OD(3/4"X3/4"), Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	50	0	20		



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5	UNION	1/2"	Tube OD(1/2"X1/2"), Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	20	0	20	
6	UNION	3/8"	Tube OD(3/8"X3/8"), Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	10	0	20	
7	UNION	1/4"	Tube OD(1/4"X1/4"), Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	20	0	20	
8	UNION REDUCER	1" - 3/4"	Tube OD(1"X3/4"), Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	15	0	0	
9	UNION REDUCER	3/4" - 1/2"	Tube OD(3/4"X1/2"), Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	25	10	10	
10	UNION REDUCER	1/2" - 1/4"	Tube OD(1/2"X1/4"), Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	10	10	10	
11	UNION REDUCER	3/8" - 1/4"	Tube OD(3/8"X1/4"), Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	25	10	10	
12	UNION REDUCER	3/4" - 3/8"	Tube OD(3/4"X3/8"), Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	25	10	10	
13	EQUAL TEE	1"	Tube OD(1"X1"X1"), Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	10	2	0	
14	EQUAL TEE	3/4"	Tube OD(3/4"X3/4"X3/4"), Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	50	5	20	
15	EQUAL TEE	1/2"	Tube OD(1/2"X1/2"X1/2"), Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	5	0	5	

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16	TEE	3/4" OD X 3/4" MNPT X 3/4" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	10	0	0	
17	TEE	3/8" OD X 3/8" MNPT X 3/8" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	5	0	0	
18	REDUCING TEE	1" OD X 3/4" OD X 1" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	5	0	0	
19	REDUCING TEE	3/4" OD X 1" OD X 3/4" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	10	0	0	
20	CONNECTOR	3/4" OD X 1/2" MNPT	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	30	5	10	
21	CONNECTOR	3/4" OD X 1/2" FNPT	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	5	0	10	
22	CONNECTOR	3/4" ODX1/4" MNPT	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	530	65	5	
23	CONNECTOR	3/4" OD X 3/4" MNPT	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	20	20	5	
24	CONNECTOR	3/4"MNPT - 1/2"FNPT	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	0	0	10	
25	CONNECTOR	1/2" OD X 1/2"FNPT	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	5	0	0	
26	CONNECTOR	1/2" OD X 1/2" MNPT	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	45	0	0	

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27	CONNECTOR	1/2"OD X 3/8" MNPT	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	10	0	0	
28	CONNECTOR	3/8"OD - 1/2"MNPT	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	30	0	5	
29	CONNECTOR	3/8"OD - 3/8"MNPT	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	30	0	0	
30	CONNECTOR	3/8"OD - 1/4"MNPT	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	20	5	5	
31	CONNECTOR	1/2"OD - 1/4"MNPT	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	10	0	0	
32	CONNECTOR	1/4"OD - 1/4"FNPT	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	15	0	0	
33	ELBOW	1" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	5	0	0	
34	ELBOW	3/4" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	0	0	10	
35	ELBOW	3/8" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	0	3	7	
36	ELBOW	1/4" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	0	5	10	
37	CAP	1"OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	10	0	0	
38	CAP	3/4"OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)	Nos	10	0	0	



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39	CAP	1/2"OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	10	0	0	
40	PLUG	1"OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	15	0	0	
41	PLUG	3/4" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	20	5	15	
42	PLUG	1/2" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	0	5	10	
43	NUT	1"	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	30	0	0	
44	NUT	3/4"	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	60	20	20	
45	NUT	1/2"	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	20	15	15	
46	NUT	3/8"	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	30	0	20	
47	NUT	1/4"	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	60	20	20	
48	FRONT FERRULES	1" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	15	0	0	
49	FRONT FERRULES	3/4" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	0	0	50	
50	FRONT FERRULES	1/2" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	0	0	50	



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51	FRONT FERRULES	3/8" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	30	10	10	
52	FRONT FERRULES	1/4" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	30	10	10	
53	BACK FERRULES	1" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	50	0	0	
54	BACK FERRULES	3/4" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	0	0	50	
55	BACK FERRULES	1/2" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	0	0	50	
56	BACK FERRULES	3/8" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	0	0	50	
57	BACK FERRULES	1/4" OD	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	0	0	50	
58	BLEEDE/VENT VALVE	1/4" MNPT	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	5	0	0	
59	Quick Connector Body	3/4"	Part no:SSH4-62USA/Equivalent		Nos	25	10	5	
60	Quick Connector Stem	3/4"	Part no:SSH4-63USA/Equivalent		Nos	25	10	5	
61	Stainless Steel High Pressure Proportional Relief Valve, 1/4 in. Tube Fitting	1/4"	Material: SS 316 (Rated pressure : 5000 PSIG @ 100°F /413 BAR @ 37°C; seal material : Fluorocarbon FKM		Nos	30	0	0	



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62	Stainless Steel Poppet 5000 psig (344 bar) Check Valve, 3/4 in. Tube Fitting, 1 psig	3/4"	Material: SS 316 (Rated pressure : 5000 PSIG @ 100°F /344 BAR @ 37°C; seal material : Fluorocarbon FKM		Nos	20	0	6	
Total (Excl GST) in Rs.									
GST @									
Total amount inclusive of all applicable taxes & duties in Rs.									

Bhagyanagar Gas Limited

SCHEDULE OF RATES (SOR)

Financial Bid / Priced Bid

Bid Document ref: BGL/571/2023-24, dtd.30.05.2023

Item: Procurement of SS Ferrule Fittings, SS-Ball Valves, SS-Tubing for Operations & Maintenance of CNG Stations in Hyderabad, Vijayawada & Kakinada

Name of Bidder:

Sr. No	Item Description	Size	Specification	HSN/AC Code	Unit	Quantity			Unit Price (INR)	Total Price (INR)
						Hydera bad	Vijaya wada	Kakina da	Unit Price incl. FOT site & all taxes & duties, excl. GST	Total Price incl. FOT site & all taxes & duties, excl. GST
									(INR) (figures)	(INR) (figures)
GROUP-B (SS Ball Valves) as per Technical Specification(SECTION-9) of Vol II of II										



Bhagyanagar Gas Limited

Procurement of SS Ferrule Fittings, SS-Ball Valves, SS-Tubing for Operations & Maintenance of CNG Stations in Hyderabad, Vijayawada & Kakinada

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1	3-Way Trunnion Mounted, Reducer Bore Ball Valve ½" OD end Connection and ¼" NPT (F) bottom end connection - Working Pressure : 250 bar g, size : ½" OD-2 Ferrule end connection & ¼" NPT(F) post with Nut, Back & Front Ferrule, Body : SS316 with Peek Seats with additional 1 set of Nuts, Back & Front Ferrule etc.	1/2"OD-1/2" OD-1/4" FNPT	Material : SS316 (Rated pressure : 344 BAR Temperature : -40 to 121 DEG C), PEEK SEATS; Trunnion type; Hydrostatic tested	Nos	70	0	0	
2	3 WAY BALL VALVE, SS, 3/4" OD X 3/4" OD X 1/4" FNPT; Trunnion type 3-Way Trunnion Mounted, Reducer Bore Ball Valve 3/4" OD end Connection and ¼" NPT (F) bottom end connection - Working Pressure : 250 bar g, size :3/4" OD-2 Ferrule end connection & ¼" NPT(F) post with Nut, Back & Front Ferrule, Body : SS316 with Peek Seats with additional 1 set of Nuts, Back & Front Ferrule etc.	3/4"OD-3/4" OD-1/4" FNPT	Material : SS316 (Rated pressure : 344 BAR Temperature : -40 to 121 DEG C), PEEK SEATS; Trunnion type; Hydrostatic tested	Nos	0	10	0	
3	2-Way Trunnion / floating Normal Bore Ball Valve ¾" - Working Pressure : 250 bar g, size : ¾" OD, with Nut, Back & Front Ferrule, Nylon Handle, Body : SS316 with Peek Seats with additional 1 set of Nuts, Back & Front Ferrule etc.	3/4"	Material : SS316 (Rated pressure : 344 BAR Temperature : -40 to 121 DEG C), PEEK SEATS; Hydrostatic tested	Nos	0	10	0	
4	2-Way Trunnion / floating Normal Bore Ball Valve ½" - Working Pressure : 250 bar g, size : ½" OD, with Nut, Back & Front Ferrule, Nylon Handle, Body : SS316 with Peek Seats with additional 1 set of Nuts, Back & Front Ferrule etc.	1/2"	Material : SS316 (Rated pressure : 344 BAR Temperature : -40 to 121 DEG C), PEEK SEATS; Hydrostatic tested	Nos	25	0	0	



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5	Seal Kit for 3 Way Valve mentioned in SOR 1	1/2"	Material: SS 316 (Rated pressure : 5000 PSI @ 70°F Temperature : 0°F to 400°F)		Nos	150	0	0	
6	Seal Kit for 2 Way Valve mentioned in SOR .3	3/4"	Maximum pressure rating: 5000 psig @ 70°F Temperature rating: -40 to 250°F i.e. (-40 to 121°C)		Nos	50	0	0	
Total (Excl GST) in Rs.									
GST @									(in Rs.)
Total amount inclusive of all applicable taxes & duties in Rs.									

Bhagyanagar Gas Limited

SCHEDULE OF RATES (SOR)

Financial Bid / Priced Bid

Bid Document ref: BGL/571/2023-24, dtd.30.05.2023

Item: Procurement of SS Ferrule Fittings, SS-Ball Valves, SS-Tubing for Operations & Maintenance of CNG Stations in Hyderabad, Vijayawada & Kakinada

Name of Bidder:

Sr. No	Item Description	Size	Specification	HSN/SAC Code	Unit	Quantity			Unit Price (INR)	Total Price (INR)
						Hyderabad	Vijayawada	Kakinada	Unit Price incl. FOT site & all taxes & duties, excl. GST	Total Price incl. FOT site & all taxes & duties, excl. GST
									(INR) (figures)	(INR) (figures)
GROUP-C (SS Tubing) as per Technical Specification(SECTION-10) of Vol II of II										
1	SS-tube	1"	Wall thickness - 0.120", Material - SS316L Tolerance - (± 0.005"), Finish - Bright Annealed Seamless, Hardness <= Rb80		Mtrs	500	0	0		



Bhagyanagar Gas Limited

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2	SS-tube	3/4"	Wall thickness - 0.095", Material - SS316L Tolerance - (± 0.005 "), Finish - Bright Annealed Seamless, Hardness \leq Rb80		Mtrs	800	150	50	
3	SS-tube	1/2"	Wall thickness - 0.083", Material - SS316L Tolerance - (± 0.005 "), Finish - Bright Annealed Seamless, Hardness \leq Rb80		Mtrs	180	50	20	
4	SS-tube	3/8"	Wall thickness - 0.120", Material - SS316L Tolerance - (± 0.005 "), Finish - Bright Annealed Seamless, Hardness \leq Rb80		Mtrs	100	0	10	
5	SS-tube	1/4"	Wall thickness - 0.120", Material - SS316L Tolerance - (± 0.005 "), Finish - Bright Annealed Seamless, Hardness \leq Rb80		Mtrs	100	10	10	
Total (Excl GST) in Rs.									
GST @									(in Rs.)
Total amount inclusive of all applicable taxes & duties in Rs.									