Indian Institute of Technology Kanpur

Center for Nano Technology

Enquiry No: SCDT/CNT- 6/2012 **Date: 3/12/2012**

Sealed quotations are invited for the given below items for the gas line fittings and 'Swagelok' make. With all the detail technical specifications, quote should reach latest by 5:00 PM on or before 10th December, 2012 to the under mentioned address.

SPECIFICATION OF GAS LINE MATERIALS:

1. Materials are required for Nitrogen, Compressor Air and Argon Lines

Sl.No	**Item Description (Size with part Number)**	QTY
1	SS Union Tee - 1/4"OD (SS-400-3)	90
2	SS 40G Series 2-way Ball Valve with modified PTFE Packing 1/4"OD ends. (SS-42GS4)	60
3	SS- R3A Series Relief Valve, High Pressure - 1/4" OD Ends, with Set Pressure=10 bar.. (SS-4R3A-SETA)	04
4	SS Tube Plug- 1/4" (OD SS-400-P)	36
5	SS Union Cross - 1/4" (OD SS-400-4)	08
6	KHF Series Pr. Reducing Regulator, 316 SS Body, Inlet Pr. 3600 psig(248 bar), Outlet Pr. Range,0 to 250 psig (0-17.2bAIR), 1/2"FNPT Inlet-Outlet Port, PCTFE Seat Material, Cv=1.0, Alloy X-750 diaphragm Sensing Mechanism, No vent, Knob Handle, panel mount. (KHF1GRA818A60000)	06
7	SS Reducing Union - 1/2"OD x 1/4"OD (SS-810-6-4)	08
8	SS Union - 1/4"OD (SS-400-6)	100
9	SS Tube Cap - 1/4"OD (SS-400-C)	20
10	SS Male Connector - 1/2"OD x 1/2"MNPT (SS-810-1-8)	06
11	SS Male Connector - 1/4"OD x 1/2"MNPT (SS-400-1-8)	06
12	PGI Series Industrial Pressure Gauge, B Model, 63mm Dial size, 0 to 40 bar Gauge scale, Lower Mount, 1/4" MNPT End Connection, Liquid Unfilled, (PGI-63B-BG40-LAOX)	04
13	SS Female Connector - 1/2"OD x 1/4"FNPT	06

	(SS-810-7-4)	
14	PGI Series Industrial Pressure Gauge, B Model, 63mm Dial size, 0 to 16 bar Gauge scale, Lower Mount,1/4" MNPT End Connection, Liquid Unfilled, (PGI-63B-BG16-LAOX)	06
15	SS Female Connector - 1/4"OD x 1/4"FNPT (SS-400-7-4)	06
16	SS Ferrule Set - 1/4"OD (SS-400-SET)	100
17	SS Ferrule Set 1/2"OD (SS-810-SET)	100
2. Materials are required for Nitrogen, Compressor Air and Argon Lines		
1.	SS Union Tee - 1/2"OD (SS-810-3)	20
2	SS AFS Series 2-way Ball Valve - 1/2"OD (SS-AFSS8)	08
3	SS R4 Series High Pressure Proportional Relief Valve-1/2"OD Ends, Set Pressure=25 bar. (SS-R4S8-SETB)	03
4	SS Union Cross - 1/2"OD (SS-810-4)	06
5	SS Union - 1/2"OD (SS-810-6)	36
6	SS Reducer - 1/2"OD x 1/4" OD Tube Stub. (SS-810-R-4)	05
7	Core flex X Series PTFE Hose, Fiber braid, SS 304 over braided 1/2" Nominal Hose size, 1/2" OD Ends, 150 CM Overall Length (SS-XT8SL8SL8-150CM)	03
8	SS TF Series Tee Type Filter - 1/2"OD Ends, 7 Microns. (SS-8TF-7)	04
9	SS Female Connector - 1/2"OD x 1/4" FNPT (SS-810-7-4)	08
10	SS Port Connector - 1/2" OD (SS-811-PC)	10
11	SS Male Connector - 1/2"OD x 1/2"MNPT (SS-810-1-8)	04
12	RSH Series Pressure Regulator, SS 316L Body, Inlet Pr. 400 BAIR, Outlet Pr. 0-28 BAIR, 1/2" FNPT Inlet-Outlet Port, 1/4" FNPT Outlet Gauge Port, Diaphragm sensing, Viton O-ring, PCTFE Seat. (RSHN4-02-4-VVK)	02
13	SS Tube Plug - 1/2"OD (SS-810-P)	10
14	PGI Series Industrial Pressure Gauge, B Model, 100mm Dial size, 0 to 250 bAIR Gauge scale, Lower Mount, 1/4" MNPT End Connection, Liquid Unfilled. (PGI-100B-BG250-LAOX)	02

15	PGI Series Industrial Pressure Gauge, B Model, 100mm Dial size, 0 to 40 bAIR Gauge scale, Lower Mount, 1/4" MNPT End Connection, Liquid Unfilled. (PGI-100B-BG40-LAOX)	02
3.Materials are required for Oxygen (O2)Line:		
1	SS Union Tee - 1/4"OD ASTM G93 Level C (BQ) Cleaning. (SS-400-3BQ)	25
2	SS 40G Series 2-way Ball Valve with modified PTFE Packing 1/4"OD ends, SC-11 Cleaned (SS-42GS4-SC11)	20
3	SS R3A Series Relief Valve, High Pressure - 1/4"OD, SC-11 Cleaned, Set Pressure = 10 bar (SS-4R3A-SC11-SETA)	01
4	SS Tube Plug - 1/4"OD (SS-400-P)	10
5	SS Union Cross - 1/4"ODASTM G93 Level C (BQ) Cleaning. (SS-400-4BQ)	04
6	KHF Series Pr. Reducing Regulator, 316 SS Body, ASTM G93Level E-cleaned, Inlet Pr. 3600 psig(248 bAIR), Outlet Pr. Range0 to 250 psig (0-17.2bAIR), 1/2"FNPT Inlet-Outlet Port, PCTFE Seat Material, Cv=1.0, Alloy X-750 diaphragm Sensing Mechanism, No vent, Knob Handle, panel mount. (KHFAGRA818A60000)	01
7	SS Male Connector - 1/2"OD x 1/2"MNPT ASTM G93 Level C (BQ) Cleaning.(SS-810-1-8BQ)	03
8	SS Male Connector - 1/4"OD x1/2"MNPTASTM G93 Level C (BQ) Cleaning. (SS-400-1-8BQ)	03
9	SS Reducing Union - 1/2"OD x 1/4"ODASTM G93 Level C (BQ) Cleaning. (SS-810-6-4BQ)	04
10	SS Union - 1/4" ODASTM G93 Level C (BQ) Cleaning. (SS-400-6BQ)	36
11	SS Port Connector - 1/4"OD (SS-401-PC)	15
12	SS Tube Cap - 1/4"OD ASTM G93 Level C (BQ) Cleaning. (SS-400-CBQ)	15
13	PGI Series Industrial Pressure Gauge, B Model, 63mm Dial size, 0 to 40 bar Gauge scale, Lower Mount, 1/4" MNPT End Connection, Liquid Unfilled, Cleaned to ASME B40.1 Level IV. (PGI-63B-BG40-LAOX-A)	01
14	SS Female Connector - 1/2"OD x 1/4" FNPT ASTM G93 Level C (BQ) Cleaning. (SS-810-7-4BQ)	02
15	PGI Series Industrial Pressure Gauge, B Model, 63mm Dial size, 0 to 16 bar Gauge scale, Lower Mount, ¼" MNPT End Connection, Liquid Unfilled, Cleaned to ASME B40.1 Level IV.(PGI-63B-BG16-LAOX-A)	01
16	SS Female Connector - 1/4"OD x 1/4" FNPTASTM G93 Level C (BQ) Cleaning. (SS-400-7-4BQ)	02

4.Materials are required for Oxygen (O2)Line:		
1	SS Union Tee - 1/2"ODASTM G93 Level C (BQ) Cleaning. (SS-810-3BQ)	08
2	SS AFS Series 2-way Ball Valve - 1/2"OD SC-11 Cleaned(SS-AFSS8-SC11-14065)	03
3	SS R4 Series High Pressure Proportional Relief Valve-1/2"OD Ends, SC-11 Cleaned, Set Pressure=25 bar. (SS-R4S8-SC11-SETB)	01
4	SS Union Cross - 1/2" ODASTM G93 Level C (BQ) Cleaning. (SS-810-4BQ)	02
5	SS Union - 1/2" ODASTM G93 Level C (BQ) Cleaning. (SS-810-6BQ)	10
6	SS Reducer - 1/2"OD x 1/4" OD Tube Stub. ASTM G93 Level C (BQ) Cleaning. (SS-810-R-4BQ)	03
7	Coreflex X Series PTFE Hose, Fiber braid, SS 304 over braided 1/2" Nominal Hose size, 1/2" OD Ends, 150 CM Overall Length (SS-XT8SL8SL8-150CM)	01
8	SS TF Series Tee Type Filter - 1/2"OD Ends, 7 Microns. SC-11 Cleaned (SS-8TF-7-SC11)	02
9	SS Female Connector - 1/2"OD x 1/4" FNPT ASTM G93 Level C (BQ) Cleaning. (SS-810-7-4BQ)	02
10	SS Port Connector - 1/2"OD(SS-811-PC)	10
11	SS Tube Plug - 1/2" OD(SS-810-P)	05

SPECIFICATIONS FOR SWAGELOK PRODUCTS

1. 1.The Quality Assurance programme of the manufacturer shall have been audited and ISO 9001:2000 certification achieved by the manufacturer through any one of the following auditing / inspection agencies.,ASME,British Standard Institute (BSI),Det Norske Veritas (DNV). Lloyds Registrar of Shipping.TUV

2. The fittings shall have type approval certificates from Lloyds Registrar of Shipping.

   i. All fittings should be type approved against ASTM F13 87 : 93 or certified in compliance with PED (97/23/EC) or to METI /KHK to demonstrate safety of fittings in high pressure systems.

   ii. The manufacturer shall provide material compliance certificates confirming the material standards, mechanical properties and chemical analysis for all the components.

   iii. The fittings shall be of "Flareless" design and consist of primarily four components, i.e. body, front ferrule, rear ferrule and nut.

   iv. Fittings will be of mechanical grip type compression tube fittings. Bite type design are excluded from the scope of this specification.

   v. The fittings shall hold the tube with a colleting action, producing a firm grip on the tube without substantially reducing the tube wall thickness.

   vi. It shall not torque the tubing during original or subsequent make-up of the connection and should use geometry for inspection before or after make-

up.

vii. All tube fittings shall be guageable for sufficient pull up after one and a quarter turn.

viii. 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.

ix. The fittings shall be capable of holding full tube burst pressure after only one and a quarter turn pull up of the nut.

x. 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.

3. The tube seat counter bore in the body shall be faced flat 90^{o} to the axis of the tubing to minimize tube expansion and subsequent galling.

4. 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, and diameter and installer skill.

i. The fittings body shall have no machined stop or shoulder to preclude additional tightening in subsequent make up. No deviations to such a design shall be used as remake capability of the fittings is compromised.

ii. Based on manufacturers installation instructions the fittings shall be guaranteed for 25 remakes.

iii. The front ferrule shall always remain in a sprung condition to compensate for thermal stresses and to accomplish repeated make and break.

iv. Nuts shall have silver plating on threads to act as a lubricating agent to avoid galling and to reduce tightening torque.

v. All the fittings end connections shall be compatible to tube of hardness $\leq$ Rb80.

vi. All fitting components shall be roll stamped with manufacturers name, Heat code and material.

vii. The manufacturer shall furnish only test procedure and type test reports for the following tests :-

5. Tensile Pull test.
6. Hydraulic burst pressure test.
7. Gas pressure test for 25 remakes at 5000 Psig. No leakage should be detectable even after 25 remakes
8. Impulse & vibration testing by “rotary bean method” for 500,000 impulse cycles and 20 million vibration cycles with no detectable leakage at full working pressure throughout till the end of the test.
9. Sodium Chloride stress test as per ASTM B117-95.

i. Replacement nuts and ferrules shall be packaged in manner to allow safe and simple replacement.

ii. Manufacturer or his authorized Sales and Service Partner should be capable of providing at least two installation training for "Certified Fitting Installation Trainer" to the buyers / contractors installers and should provide evidence of having conducted 12 such installation training programme in the past two years

10. Manufacturer of his authorized Sales and Service Partner should be capable of conducting at least two leak audits in the lab premises and shall provide evidence of having conducted 12 leak audits in the past two Years.

Terms & conditions for supply of above mentioned articles

1. Prices (FOB/High Sea Sales) should include delivery upto nearest airport
2. Clearly state the CIF charges to IIT Kanpur and other taxes as applicable
3. Quotations should have a validity of a minimum of 60/90 days.
4. The delivery time should be clearly mentioned. Shorter delivery time may be given a preference.
5. Maximum educational discount, if any applicable, should be clearly mentioned
6. The terms of Warranty should be clearly mentioned, those providing longer warranty, better sales service and support, with written evidence will be given preference.
7. The rate quoted should be inclusive of sales tax and other taxes including freight charges .
8. Terms and conditions for the payment, including the banker's name of the principal and the account number, if any, for electronic transfer.
9. Include proprietary item certificate if applicable
10. Technical literature and catalog to support your product
11. Indian agency commission if applicable (should be certified by the principal if no agency Commission is applicable).
12. **Only those supplying All of the items shall be considered**

Kindly send your quotation before respected date on the following address:

Dr. Y.N Mohapatra
Samtel Center for Display Technologies
Indian Institute of Technology Kanpur
Kanpur, Uttar Pradesh, PIN 208 016
India
Tel.: +91 512 259 6626, 6675