Oil India Limited
(A Govt. of India Enterprise)
P.O. Duliajan – 786602, Assam

Telephone No. (91-374) 2808724
Fax No: (91-374) 2800533
Email: materials@oilindia.in; erp_mm@oilindia.in

Tender No. : **SDG8267P16/07**
Bidding Type : **SINGLE STAGE COMPOSITE BID SYSTEM**

Bid Closing on : **06.01.2016 (11.00 HRS; IST)**
Bid Opening on : **06.01.2016 (14.00 HRS; IST)**
Tender Fee : **INR 4,500.00 OR USD 100.00**
Bid Security Amount : **INR 51,900.00 OR USD 800.00**

Performance Guarantee : Applicable

OIL INDIA LIMITED invites Global Tenders for items detailed below:

Item No. / Mat. Code	Material Description	QTY.	UOM
1	**Supply of Erection Hardware for Indirect Heaters as per the following:** **a) Detailed specification – Annexure - A** **b) Bid Rejection Criteria (BRC) and Bid Evaluation Criteria – Annexure-B.** **c) Commercial Checklist - Annexure - C**		

General Notes for e-tender :

1. The tender will be governed by "General Terms & Conditions" for e-Procurement as per Booklet No.MM/GLOBAL/E-01/2005 for E-procurement(ICB Tenders) including Amendment and Addendum.
2. The general details of tender can be viewed by opening the RFx [Tender] under RFx and Auctions. The details of items tendered can be found in the Item Data and details uploaded under Technical RFX.
3. Bid must be submitted electronically only through OIL's e-procurement portal. Bid submitted in any other form will be rejected.
4. Please note that all tender forms and supporting documents are to be submitted through OIL's e-Procurement site only except following documents which are to be submitted manually in sealed envelope super scribed with tender no. and due date to The **Head Materials, Materials Department, Oil India Limited, Duliajan- 786602, Assam** on or before the Bid Closing Date and Time mentioned in the Tender.
   a) **Original Bid Security along with two duplicate copies of Bid Security.**
   b) **Details Catalogue and any other document which have been specified to be submitted in original.**

   All documents submitted in physical form should be signed on all pages by the authorized signatory of the bidder and to be submitted in triplicate.
5. Bidders must ensure that their bid is uploaded in the system before the tender closing date and time. Also, they must ensure that above documents which are to be submitted in a sealed envelope are also

submitted at the above mentioned address before the bid closing date and time failing which the offer shall be rejected.

6. Bidders are requested to examine all instructions, forms, terms and specifications in the bid. Failure to furnish all information required as per the bid or submission of offers not substantially responsive to the bid in every respect will be at the bidders risk and may result in the rejection of its offer without seeking any clarifications.
7. All the Bids must be Digitally Signed using "Class 3" digital certificate *(e-commerce application)* with organisation name as per Indian IT Act obtained from the licensed Certifying Authorities operating under the Root Certifying Authority of India (RCAI), Controller of Certifying Authorities (CCA) of India.
8. Please do refer the User Manual provided on the portal on the procedure How to create Response for submitting offer.

(A) GENERAL NOTES FOR BIDDERS:

1. Bidder must quote for all the Items as specified in TECHNICAL SPECIFICATIONS, otherwise the offer will be rejected.
2. Quotations must be accompanied with original relevant catalogue/ literature and drawings; otherwise the offer will not be technically acceptable.
3. All the Items are to be procured from the same source

(B) SPECIAL NOTES :

1. The items shall be brand new, unused & of prime quality. Bidder shall warrant (in the event of an order) that the product supplied will be free from all defects & fault in material, workmanship & manufacture and shall be in full conformity with ordered specifications. This clause shall be valid for 18 months from date of despatch/shipment or 12 months from date of receipt of the items at site whichever is earlier. The defective materials, if any, rejected by us shall be replaced by the supplier at their own expense. Bidders must confirm the same while quoting.

2. Validity of the offers should be 120 days from the date of bid opening. Bids with lesser validity shall be straightway rejected.

3. The items covered by this tender shall be used by Oil India Limited in the PEL/ML areas which are issued/renewed after 01/04/99 and hence Nil Customs Duty during import will be applicable. Indigenous bidder shall be eligible for Deemed Export Benefit against this purchase. Details of Deemed Export are furnished vide Addendum to MM/GLOBAL/01/2005 enclosed. However no Recommendatory letters will be issued to Indian Bidders.

4. Commercial Check-List vide **Annexure-C** shall be filled-up and submitted along with the offer.

5. To ascertain the substantial responsiveness of the bid OIL reserves the right to ask the bidder for clarification in respect of clauses covered under BRC also and such clarifications fulfilling the BRC clauses in to to must be received on or before the deadline given by the company, failing which the offer will be summarily rejected.

6. Other terms and conditions of the tender shall be as per "General Terms & Conditions" for e- Procurement as per Booklet No. MM/GLOBAL/E-01/2005 for E-procurement (ICB Tenders). However, if any of the Clauses of the Bid Rejection Criteria (BRC) / Bid Evaluation Criteria (BEC) mentioned here contradict the Clauses in the "General Terms & Conditions" for e-Procurement as per Booklet No. MM/GLOBAL/E-01/2005 for E-procurement (ICB Tenders) of the tender and/or elsewhere, those mentioned in this BEC / BRC shall prevail.

ANNEXURE- B

BID REJECTION CRITERIA (BRC)/BID EVALUATION CRITERIA (BEC)

(I) BID REJECTION CRITERIA (BRC)

The bids must conform to the specifications and terms and conditions given in the enquiry. Bids shall be rejected in case the item(s) offered do not conform to the required parameters stipulated in the technical specifications and to the respective international/national standards wherever stipulated. Notwithstanding the general conformity of the bids to the stipulated specifications and terms and conditions, the following requirements shall have to be particularly met by the bidders, without which the offer will be considered as non - responsive and rejected.

[A] Technical:

1.0 The bidder must be the OEM (Original Equipment manufacturer) of the tendered item(s).

OR

The bidder shall be a sole selling agents / authorized supply houses/ authorized dealer / authorized distributor of an original equipment manufacturer (OEM) of the tender item(s).Also, a valid copy of authorization letter / dealership certificate with proper guarantee/warranty back up on the supplied products from the OEM (the principal) shall be submitted along with technical bid.

(B)COMMERCIAL:

1. Commercial Bid Rejection Criteria will be as per Section-D of General Terms & Conditions of Global Tender (MM/GLOBAL/E-01/2005) with following Special Bid Rejection Criteria. Bids are invited under **Single Stage Composite Bid System**. Bidders shall quote accordingly under Single Stage Composite Bid System.

2.0 **Bid security of US $ 800.00 or Rs. 51,900.00** shall be furnished as a part of the TECHNICAL BID (refer Clause Nos.9.0 & 12.0 (Section A) of "General Terms & Conditions" for e-Procurement as per Booklet No. MM/GLOBAL/E-01/2005 for E-procurement (ICB Tenders)).**Any bid not accompanied by a proper bid security in ORIGINAL will be rejected without any further consideration.** A bid shall be rejected straightway if Original Bid Security is not received within the stipulated date & time mentioned in the Tender and/or if the Bid Security validity is shorter than the validity indicated in Tender and/or if the Bid Security amount is lesser than the amount indicated in the Tender.

2.1 For exemption for submission of Bid Security, please refer Clause No. 9.8 (Section A) of "General Terms & Conditions" for e-Procurement as per Booklet No. MM/GLOBAL/E-01/2005 for E-procurement (ICB Tenders).

2.2 The Bid Security shall be valid upto **05.11.2016.**

3. Validity of the bid shall be minimum 120 days from the date of Bid Closing Date. Bids with lesser validity will be straightway rejected.

4. Bidders must confirm that Goods, materials or plant(s) to be supplied shall be new of recent make and of the best quality and workmanship and shall be guaranteed for a period of 18 months from the date of shipment/dispatch or twelve(12) months from the date of receipt of the items at site, whichever is earlier against any defects arising from faulty materials, workmanship or design. Defective goods/materials or

parts rejected by OIL shall be replaced immediately by the supplier at the supplier's expenses at no extra cost to OIL.

5. Successful bidder will be required to furnish a Performance Bank Guarantee @10% of the order value. The Performance Bank Guarantee must be valid for 12 months from the date of receipt/acceptance of goods or 18 months from the date of shipment/despatch. Bidder must confirm the same in their Technical Bid. Offers not complying with this clause will be rejected.

6. Bidders are required to submit the summary of the prices in their price bids as per bid format (Summary), given below :

i) <u>Price Bid Format (SUMMARY) for Foreign Bidders :</u>

(A) Total Material Value :
(B) Packing & FOB Charges :
(C) Total FOB Port of Shipment value, (A + B) above :
(D) Overseas Freight Charges upto Kolkata, India :
(E) Insurance Charges :
(F) Total CIF Kolkata value, (C + D + E) :
(G) Total CIF Kolkata Value in words :
(H) Gross Weight :
(I) Gross Volume :

ii) <u>Price Bid Format (SUMMARY) for Indigenous Bidders:</u>

(A) Total Material Value
(B) Packing and Forwarding Charges
(C) Total Ex-works value, (A + B) above
(D) Excise Duty (Please indicate applicable rate of Duty)
(E) Sales Tax, (Please indicate applicable rate of Tax)
(F) Total FOR Despatching station price, (C + D + E) above
(G) Road Transportation charges to Duliajan
(H) Insurance Charges
(I) Assam Entry Tax
(J) Total FOR Duliajan value, (F + G + H + I) above
(K) Total FOR Duliajan value in words :
(L) Gross Weight :
(M) Gross Volume :

<u>NOTE:</u>

(i) Cost of Individual items must be quoted separately.

7 The prices offered will have to be firm through delivery and not subject to variation on any account. A bid submitted with an adjustable price will be treated as non-responsive and rejected.

8 Bids received after the bid closing date and time will be rejected. Similarly, modifications to bids received after the bid closing date & time will not be considered.

9 Bids containing incorrect statement will be rejected.

(II) BID EVALUATION CRITERIA (BEC) :

Bids conforming to the specifications, terms and conditions stipulated in the tender and considered to be responsive after subjecting to the Bid Rejection Criteria will be considered for further evaluation as per the Bid Evaluation Criteria mentioned in Section D of "General Terms & Conditions" for e-Procurement as per Booklet No. MM/GLOBAL/E-01/2005.

(i) All materials as indicated in the indent should be offered. If any of the items are not offered by the bidder , the offer will not be considered for evaluation.

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ANNEXURE-C

(A) COMMERCIAL CHECK-LIST

Sl. No.	PARAMETERS/REQUIREMENTS	BIDDER RESPONSE	REMARKS IF ANY
1.	Whether Original Signed quotation submitted?	YES/NO	
2.	Whether quoted as manufacturer?	YES/NO	
3.	Whether quoted as authorized dealer? [To Specify]	YES/NO	
4.	If quoted as authorized dealer,		
5.	(a)Whether submitted valid and proper authorization letter from manufacturer IN ORIGINAL confirming that bidder is their authorized dealer for the product offered?	YES/NO	
6.	(b)Whether manufacturer's back-up Warranty/Guarantee certificate submitted?	YES/NO	
7.	Whether ORIGINAL Bid Bond (not copy of Bid Bond) enclosed with the offer? If YES, provide details	YES/NO	
	(a) Amount :		
	(b) Name of issuing Bank :		
	(c) Validity of Bid Bond :		
	(d)Whether Bid Bond submitted as per Revised Format		
8.	Whether offered firm prices?	YES/NO	
9.	Whether quoted offer validity of 120 days from the date of closing of tender?	YES/NO	
10.	Whether quoted a firm delivery period?	YES/NO	
11.	Whether quoted as per NIT (without any deviations)?	YES/NO	
12.	Whether any deviation is there in the offer?	YES/NO	
13.	Whether deviation separately highlighted?	YES/NO	
14.	Whether agreed to the NIT Warranty clause?	YES/NO	
15.	Whether Price Bid submitted as per Price Schedule?	YES/NO	
16.	Whether indicated the country of origin for the items quoted?	YES/NO	
17.	Whether all the items of tender quoted?	YES/NO	
18.	Whether technical literature/catalogue/drawings enclosed?	YES/NO	
19.	For Foreign Bidders - Whether offered FOB/FCA port of dispatch including sea/air worthy packing & forwarding?	YES/NO	
20.	For Foreign Bidders – Whether port of shipment indicated? [To specify]	YES/NO	
21.	For Foreign Bidders only - Whether indicated ocean freight up to C&F Kolkata port (Excluding marine insurance)?	YES/NO	
22.	Whether Indian Agent applicable?	YES/NO	
	If YES, whether following details of Indian Agent provided?		
	(a) Name & address of the agent in India – To indicate		
	(b) Amount of agency commission – To indicate		
	(c) Whether agency commission included in quoted material value?	YES/NO	
23.	Whether weight & volume of items offered indicated?	YES/NO	
24.	Whether confirmed to submit PBG as asked for in NIT?	YES/NO	
25.	Whether agreed to submit PBG within 30 days of placement of order?	YES/NO	
26.	For Indian bidders – Whether place of dispatch indicated in the offer? [To specify]	YES/NO	
27.	For Indian bidders – Whether road transportation charges up to Duliajan quoted?	YES/NO	
28.	For Indian Bidders only - Whether offered Ex-works price including packing/forwarding charges?	YES/NO	
29.	For Indian Bidders only - Whether offered Deemed Export prices?	YES/NO	
30.	Whether quoted prices are exclusive of Excise duty?	YES/NO	
31.	For Indian bidders only – whether import content indicated in the offer?	YES/NO	
32.	For Indian Bidders only - whether all Taxes have been indicated categorically?	YES/NO	
33.	Whether all BRC/BEC clauses accepted?	YES/NO	

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ANNEXURE- A

Item No.	MATERIAL DESCRIPTION	QTY.	UOM
10	MALE CONNECTOR (¼" X ¼") 1.0 SCOPE This specification covers the purchaser's requirements (as a minimum) for design, material of construction, marking, testing and supply of high pressure stainless steel ferrule fittings. 2.0 ITEM DESCRIPTION MALE CONNECTOR Size : ¼ inch NPT (M) X ¼ inch OD(T) Material : SS316 3.0 MATERIALS 3.1 Fittings shall be manufactured from the following materials i. Bar stock (Straight fittings and tube adapters)shall be as ASTM A276 / ASME SA 479. ii. Forgings shall be (Elbows, crosses, and tees.) ASTM A182 / ASME SA182. 3.2 The fitting end connections shall be compatible to tube of hardness <= Rb80. 3.3 All parts shall be made of SS 316. 3.4 The ferrule material shall be able to withstand an atmosphere of natural gas, oil and Moisture without rusting. 4.0 DESIGN AND MANUFACTURE 4.1 The SS fittings shall be of flare less design and four piece construction, consisting of, front and rear ferrules, nut and body suitable for use on SS tubes conforming to ASTM A 269. 4.2 Fittings shall be rated for at least the operating pressure of 200 Kg/cm2 of Oil and Gas application. 5.0 PRODUCT TYPE TEST REPORTS & CERTIFICATES The Manufacturer shall provide Valid (valid for at least 1 year from Bid Closing Date) Product Type Test Reports for all the following tests mentioned below along with their offer. These Product Test Reports should be approved by leading approval agencies like TUV, DNV, ABS, LR, US Navy & Wyle. 5.1 Hydrostatic Pressure Test: should undergo testing up to 3.5 times working pressure without hydraulic leakage. 5.2 Helium Proof/ Nitrogen Re-make Test: should undergo testing conducted to evaluate the performance of tube fittings with 1.5 times the working pressure with Helium and at rated working pressure with Nitrogen after every re-make for 25 such re-makes. 5.3 Thermal Cycle Test: should undergo testing conducted at tubing working pressure with Nitrogen at 1,000 ° F and allowed to air cool every time for such 10 cycles. 5.4 Tensile Pull Test: should undergo testing conducted to evaluate the grip of tube fittings on tubing under tensile load, should pass the tensile test conducted using the tensile test stand where the shear load exceeded the force exerted on the tube by the system fluid at 4 times working pressure as calculated by the following equations: Tube Calculated burst pressure = working pressure x 4 Minimum allowable force = tube calculated burst pressure x tube cross-sectional area. 5.5 Vibration Test: should undergo testing conducted to evaluate the amount of cantilever deflection that can be applied to a tube and fitting assembly and still pass through10, 000,000 cycles without failure.	400	Nos.

	5.6 Tube Burst Test: should undergo testing conducted to evaluate the grip of tube fittings on tubing at the burst pressure of the tubing. 5.7 High Impact Shock Test: should undergo testing conducted to evaluate the performance when subjected to shock test conducted as per ASTM F1387-99 standards. 5.8 Manufacturer should provide valid ISO 9001:2008 certificate. 5.9 The fittings shall have valid product approval certificates from Lloyds Registrar of shipping. 5.10 Certificates conforming to all ASTM/ASME standards mentioned in the Specification from one of the auditing agency like TUV/ BSI/ DNV/ BV or PED. 6.0 MARKINGS, PACKING AND SHIPMENT 6.1 Heat code traceability number shall be stamped or etched on both body nut and ferrules (front and back) 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 items shall be suitably wrapped and packaged to withstand rough handling during shipment and inland journey. 6.4 Items 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.		
20	TECHNICAL SPECIFICATION FOR ¼" OD SS TUBE 1.0 SCOPE This specification covers the purchaser's requirements (as a minimum) for design, material of construction, marking, testing and supply of high pressure stainless steel tubes. 2.0 ITEM DESCRIPTION SEAMLESS FULLY ANNEALED SS TUBE Size : ¼ " OD Material : SS316 Wall thickness : 0.039" 3.0 DESIGN AND MANUFACTURE 3.1 The tubes should be seamless fully annealed, as per ASTM A269. 3.2 Tubes shall be free of scratches, draw marks and with a maximum hardness of 80 Rb. 3.3 Tubes shall be rated for operating pressure of 200 kg/cm2 minimum and shall be suitable for Oil and Gas application. 4.0 PRODUCT TYPE TEST REPORTS & CERTIFICATES Supplier to provide Following test certificates : 4.1 Hardness test: Tubes should be certified as per NACE MR0175 for Hardness. 4.2 Hydraulic test: Hydraulic test should be typically done at 1.5 times the rated pressure. 4.3 Ball test: Final test before delivery shall include ball test to ensure clear opening of the tube for SS tubes. The OD of the ball shall be standard as applicable for ¼ " OD tubes. 4.4 NDT: Online Eddy Current test on 100% of the tube as per ASTM A450. 4.5 Sample material test certificate from manufacturer confirming hardness of 80Rb. 5.0 SHIPMENT 5.1 The following information shall be marked on the tube. a. Name of the manufacturer	500	Nos.

	b. Type and material grade of tube c. Tube OD and wall thickness. 5.2 Tubes shall be supplied in minimum length of 6 meters without brazing in between. 5.3 The tubes shall be plugged at both ends to avoid entry of any foreign matter. 5.4 All items shall be adequately packed to withstand shipping conditions without damage. 6.0 GUARANTEE 6.1 The manufacturer shall guarantee that the design, materials, manufacturing and testing of fittings comply with the requirements of this specification and applicable codes and standards. Manufacturer shall replace all fittings, which are defective or fail during field pressure testing or fail to perform satisfactorily due to inadequate engineering, sub standard material and workmanship.		
30	Erection Hardware for Indirect Heaters Needle valve 1/4" OD(T) Material of construction : SS316 Pressure rating : 80 Kg/Cm2	20	Nos.
40	Nipple Size : 1/2" NPT(M) Length - 4 Inch Material of Construction : SS316 Pressure rating : 80 Kg/Cm2	200	Nos.
50	TECHNICAL SPECIFICATION FOR ½" OD SS TUBE 1.0 SCOPE This specification covers the purchaser's requirements (as a minimum) for design, material of construction, marking, testing and supply of high pressure stainless steel tubes. 2.0 ITEM DESCRIPTION SEAMLESS FULLY ANNEALED SS TUBE Size : ½" OD Material : SS316 Wall thickness: 0.049" 3.0 DESIGN AND MANUFACTURE 3.1 The tubes should be seamless fully annealed, as per ASTM A269. 3.2 Tubes shall be free of scratches, draw marks and with a maximum hardness of 80 Rb. 3.3 Tubes shall be rated for operating pressure of 200 kg/cm2 minimum and shall be suitable for Oil and Gas application. 4.0 PRODUCT TYPE TEST REPORTS & CERTIFICATES Supplier to provide Following test certificates : 4.1 Hardness test: Tubes should be certified as per NACE MR0175 for Hardness. 4.2 Hydraulic test: Hydraulic test should be typically done at 1.5 times the rated pressure. 4.3 Ball test: Final test before delivery shall include ball test to ensure clear opening of the tube for SS tubes. The OD of the ball shall be standard as applicable for ½" OD tubes. 4.4 NDT: Online Eddy Current test on 100% of the tube as per ASTM A450. 4.5 Sample material test certificate from manufacturer confirming hardness of 80Rb.	100	Nos.

	5.0 SHIPMENT 5.1 The following information shall be marked on the tube. a. Name of the manufacturer b. Type and material grade of tube c. Tube OD and wall thickness. 5.2 Tubes shall be supplied in minimum length of 6 meters without brazing in between. 5.3 The tubes shall be plugged at both ends to avoid entry of any foreign matter. 5.4 All items shall be adequately packed to withstand shipping conditions without damage. 6.0 GUARANTEE 6.1 The manufacturer shall guarantee that the design, materials, manufacturing and testing of fittings comply with the requirements of this specification and applicable codes and standards. Manufacturer shall replace all fittings, which are defective or fail during field pressure testing or fail to perform satisfactorily due to inadequate engineering, sub standard material and workmanship. 6.2 The manufacturer shall guarantee the fittings against any defect, failure or malfunctioning occurring during 12 months from the date of commissioning or 18 months from the date of supply, whichever is earlier.		
60	MALE CONNECTOR (½" X ½") 1.0 SCOPE This specification covers the purchaser's requirements (as a minimum) for design, material of construction, marking, testing and supply of high pressure stainless steel ferrule fittings. 2.0 ITEM DESCRIPTION MALE CONNECTOR Size : ½ inch NPT (M) X ½ inch OD(T) Material : SS316 3.0 MATERIALS 3.1 Fittings shall be manufactured from the following materials i. Bar stock (Straight fittings and tube adapters)shall be as ASTM A276 / ASME SA 479. ii. Forgings shall be (Elbows, crosses, and tees.) ASTM A182 / ASME SA182. 3.2 The fitting end connections shall be compatible to tube of hardness <= Rb80. 3.3 All parts shall be made of SS 316. 3.4 The ferrule material shall be able to withstand an atmosphere of natural gas, oil and Moisture without rusting. 4.0 DESIGN AND MANUFACTURE 4.1 The SS fittings shall be of flare less design and four piece construction, consisting of, front and rear ferrules, nut and body suitable for use on SS tubes conforming to ASTM A 269. 4.2 Fittings shall be rated for at least the operating pressure of 200 Kg/cm2 of Oil and Gas application. 5.0 PRODUCT TYPE TEST REPORTS & CERTIFICATES The Manufacturer shall provide Valid (valid for at least 1 year from Bid Closing Date) Product Type Test Reports for all the following tests mentioned below along with their offer. These Product Test Reports should be approved by leading approval agencies like TUV, DNV, ABS, LR, US Navy & Wyle. 5.1 Hydrostatic Pressure Test: should undergo testing up to 3.5 times working pressure without hydraulic leakage. 5.2 Helium Proof/ Nitrogen Re-make Test: should undergo testing	100	Nos.

	conducted to evaluate the performance of tube fittings with 1.5 times the working pressure with Helium and at rated working pressure with Nitrogen after every re-make for 25 such re-makes. 5.3 Thermal Cycle Test: should undergo testing conducted at tubing working pressure with Nitrogen at 1,000 ° F and allowed to air cool every time for such 10 cycles. 5.4 Tensile Pull Test: should undergo testing conducted to evaluate the grip of tube fittings on tubing under tensile load, should pass the tensile test conducted using the tensile test stand where the shear load exceeded the force exerted on the tube by the system fluid at 4 times working pressure as calculated by the following equations: Tube Calculated burst pressure = working pressure x 4 Minimum allowable force = tube calculated burst pressure x tube cross-sectional area. 5.5 Vibration Test: should undergo testing conducted to evaluate the amount of cantilever deflection that can be applied to a tube and fitting assembly and still pass through10, 000,000 cycles without failure. 5.6 Tube Burst Test: should undergo testing conducted to evaluate the grip of tube fittings on tubing at the burst pressure of the tubing. 5.7 High Impact Shock Test: should undergo testing conducted to evaluate the performance when subjected to shock test conducted as per ASTM F1387-99 standards. 5.8 Manufacturer should provide valid ISO 9001:2008 certificate. 5.9 The fittings shall have valid product approval certificates from Lloyds Registrar of shipping. 5.10 Certificates conforming to all ASTM/ASME standards mentioned in the Specification from one of the auditing agency like TUV/ BSI/ DNV/ BV or PED. 6.0 MARKINGS, PACKING AND SHIPMENT 6.1 Heat code traceability number shall be stamped or etched on both body nut and ferrules (front and back) 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 items shall be suitably wrapped and packaged to withstand rough handling during shipment and inland journey. 6.4 Items 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 GUARANTEE 7.1 The manufacturer shall guarantee that the design, materials, manufacturing and testing of fittings comply with the requirements of this specification and applicable codes and standards. Manufacturer shall replace all fittings, which are defective or fail during field pressure testing or fail to perform satisfactorily due to inadequate engineering, sub standard material and workmanship.		
70	UNION ¼" 1.0 SCOPE This specification covers the purchaser's requirements (as a minimum) for design, material of construction, marking, testing and supply of high pressure stainless steel ferrule fittings. 2.0 ITEM DESCRIPTION	100	Nos.

	UNION Size : ¼ inch OD(T) Material : SS316 3.0 MATERIALS 3.1 Fittings shall be manufactured from the following materials i. Bar stock (Straight fittings and tube adapters)shall be as ASTM A276 / ASME SA 479. ii. Forgings shall be (Elbows, crosses, and tees.) ASTM A182 / ASME SA182. 3.2 The fitting end connections shall be compatible to tube of hardness <= Rb80. 3.3 All parts shall be made of SS 316. 3.4 The ferrule material shall be able to withstand an atmosphere of natural gas, oil and Moisture without rusting. 4.0 DESIGN AND MANUFACTURE 4.1 The SS fittings shall be of flare less design and four piece construction, consisting of, front and rear ferrules, nut and body suitable for use on SS tubes conforming to ASTM A 269. 4.2 Fittings shall be rated for at least the operating pressure of 200 Kg/cm2 of Oil and Gas application. 5.0 INSPECTION AND TESTING The Manufacturer shall submit factory test reports for the following tests carried out on random samples along with the material: i. Hydrostatic Pressure Test: should undergo testing up to 3.5 times working pressure without hydraulic leakage. ii. Helium Proof/ Nitrogen Re-make Test: should undergo testing conducted to evaluate the performance of tube fittings with 1.5 times the working pressure with Helium and at rated working pressure with Nitrogen after every re-make for 25 such re-makes. iii. Thermal Cycle Test: should undergo testing conducted at tubing working pressure with Nitrogen at 1,000 ° F and allowed to air cool every time for such 10 cycles. iv. Tensile Pull Test: should undergo testing conducted to evaluate the grip of tube fittings on tubing under tensile load, should pass the tensile test conducted using the tensile test stand where the shear load exceeded the force exerted on the tube by the system fluid at 4 times working pressure as calculated by the following equations: Tube Calculated burst pressure = working pressure x 4 Minimum allowable force = tube calculated burst pressure x tube cross-sectional area. v. Vibration Test: should undergo testing conducted to evaluate the amount of cantilever deflection that can be applied to a tube and fitting assembly and still pass through10, 000,000 cycles without failure. vi. Tube Burst Test: should undergo testing conducted to evaluate the grip of tube fittings on tubing at the burst pressure of the tubing. vii. High Impact Shock Test: should undergo testing conducted to evaluate the performance when subjected to shock test conducted as per ASTM F1387-99 standards. 6.0 CERTIFICATES Following valid certificates are to be provided along with the offer. 6.1 Manufacturer should provide valid ISO 9001:2008		

	certificate. 6.2 The fittings shall have valid product approval certificates from Lloyds Registrar of shipping. 6.3 Certificates conforming to all ASTM/ASME standards mentioned in the Specification from one of the auditing agency like TUV/ BSI/ DNV/ BV or PED. 6.4 The manufacturer shall supply sample Wyle test report conducted as per ASTM F1387 standards. 6.5 The manufacturer shall supply sample Helium Leak Test certificate to ensure that leakage is not in excess of 1.0 x 10-9 atm-cc/sec. 7.0 MARKINGS, PACKING AND SHIPMENT 7.1 Heat code traceability number shall be stamped or etched on both body nut and ferrules (front and back) of each fitting. 7.2 Replacement nuts and ferrules shall be packaged in a manner so as to allow safe and simple replacement. 7.3 All items shall be suitably wrapped and packaged to withstand rough handling during shipment and inland journey. 7.4 Items shall be properly tagged and packaged separately to facilitate easy identification. 7.5 Items shall be wrapped and packaged in such a way that they can be preserved in original as new condition.		