



GAIL GAS LTD

(A wholly owned subsidiary of GAIL (India) Limited)

CNG AND CITY GAS DISTRIBUTION PROJECT IN VADODARA

BID DOCUMENT FOR INSULATING JOINTS VOLUME – II OF II (TECHNICAL)

(BID DOCUMENT NO: 110304/WGI/GAIL GAS/06-R0)

LIMITED INTERNATIONAL COMPETITIVE BIDDING



DELIVERS. EVOLVES.

WHOLE LIFE SOLUTIONS FOR PIPELINE AND SUBSEA SYSTEMS

ISSUED BY



JP KENNY

**GAIL GAS LIMITED
CITY GAS DISTRIBUTION PROJECT, VADODARA**



**MATERIAL REQUISITION FOR
MONOLITHIC INSULATING JOINT**

CLIENT JOB NO.

-

TOTAL SHEETS

06

DOCUMENT NO

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0290

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A	24/02/10	ISSUED FOR IDC	GV	DDS	PKS

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1.0 SCOPE OF SUPPLY (SOS)

1.1 General

This requisition describes the scope of supply of Monolithic Insulation Joint to be used in the city gas Distribution project of GAIL GAS Ltd.

The scope of supply includes the design, manufacture, inspection, testing, packing, preparation for shipment and documentation requirements of these items in accordance with the requirements of this Requisition and the Vendor Drawing / Data Requirements List (VDR) and those detailed in Specification.

1.2 Material Delivery Requirements

The finished materials are to be delivered by the Supplier at the nominated delivery point, fixed by the Purchaser/ Purchaser Representative.

The Supplier shall be responsible for all handling and transportation between his production plant and the nominated delivery point in accordance with this specification.

1.3 Monolithic insulating joint:

The type and quantities of Monolithic insulating joint are as detailed below:

S.NO	SIZE	Required Quantity
1	10" X 600#	2
2	10" X 300#	2
3	4" X 300#	10
4	2" X 300#	11

2.0 DELIVERY LOCATIONS

All material shall be delivered at Company's designated storage yard at Vadodara,Gujarat.

3.0 GENERAL NOTES

3.1 Monolithic Insulating Joint shall be used for Natural Gas/ R-LNG service. Accordingly, Impact test and hardness tests as per specification shall be applicable.

3.2 All material shall be delivered at Company's designated storage yard. The destination for delivery of the valves shall be at designated GAIL gas store at as per clause 2.0.

3.3 Bidder must submit duly filled up and signed data sheets and QAP along with his offer.

In the absence of this information, Company reserves the right to reject bidder's offer without any reference to Bidder in this regard.

4.0 REMARKS

4.1 Supplier's Compliance
Supplier shall submit his bid in full compliance with the requirements of this MR and attachments.



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Supplier must include following statement in his bid:

We certify that our bid is fully complying with your enquiry dated_____ and reference_____

4.2 Compliance with Specification

The supplier shall be completely responsible of for the design, materials, fabrication, testing, inspection, preparation for shipment & transfer of above material strictly in accordance with the MR & all attachments.

4.3 Supplier's Scope

Supplier's scope of work supply 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.

4.4 Inspection

Supplier shall submit with his bid a list of 3 well known international Third Party inspection Agencies as per enclosed vendor list he intends to use for inspection. This agency will issue all relevant certificates as per specification & codes.

Inspection shall also be performed by a designated Third Party Inspection agency and/or purchaser / Purchaser's representative as set out & specified in the codes & particular documents forming this MR.

5.0 SPECIAL INSTRUCTIONS TO BIDDERS

5.1 Bidder to note that no correspondence shall be entered into or entertained after the bid submission.

5.2 Bidder shall furnish quotation only in case he can supply material strictly as per this Material Requisition and specification/data sheets forming part of Material Requisition.

5.3 If the offer contains any technical deviations or clarifications or stipulates any technical specifications (even if in line with MR requirements) and does not include complete scope & technical/ performance data required to be submitted with the offer, the offer shall be liable for rejection.

5.4 The submission of prices by the Bidder shall be construed to mean that he has confirmed compliance with all technical specifications of the corresponding item(s).

5.5 Bidder must submit all documents as listed in checklist along with his offer.

5.6 Supplier must note that stage wise inspection for complete fabrication, testing including the raw material inspection to be carried out.


5.7 Vendors for bought out items to be restricted to the approved vendor list attached with MR. Approval of additional vendor if required, for all critical bought out items shall be obtained by the supplier from the purchaser before placement of order. Credentials/ PTR of the additional vendor proposed to be submitted by supplier for review and approval of Purchaser/ Purchaser's representative

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LIST OF RECOMMENDED THIRD PARTY INSPECTION AGENCY

S.NO	ITEM	NAME OF VENDOR	CONTACT PERSON	ADDRESS	PHONE NO	FAX NO	QUALIFIED FOR SIZE	
1	Third Party Inspection Agency	THIRD PARTY INSPECTION AGENCY						
		Tata Projects Ltd.		22,Sarvodaya Society,Nizampura,Bandra-390002	0265-2392863	0265-2785952		
		Indian Register of Shipping						
		Bax counsel Insepection Bureau Pvt. Ltd.		303, Madhava,Bandra Kurla Complex, Bandra(E),Mumbai-400051	022-26591526,022-26590236	022-26591526		
		Bureau VeritasQI		The Leela Galleria,5th floor,Andheri-Kurla Road,Andheri(E),Mumbai-400059	022-26956300	022-26956309		
		Germanischer Lloyd		304-305, Anna Salai,Teyanampet,Chennai-600018	044-24320335	044-24328186		
		Velosi Certification Services,Mumbai		Velosi Certification Services(I)Pvt.Ltd.,212,Shivkrupa Complex Centre,Off Ghokhale Road,Navpada Thane(W)400602	022-25376770	022-25426777		
		ABS Industrial Verification Ltd., Mumbai		404,Mayuresh Chambers,Sector-11,CBD Belapur(E),Navi Mumbai-400614	022-27578780 /1 /2	022-27578784 /5		
		Certification Engineers International Ltd.		EIL Bhavan,5th floor,1,Bhikaji Camma Place,New Delhi-110066	011-26167539,26102121	011-26101419		
		Dalal Mott MacDonald		501, Sakar -II, Ellisbridge,Ahemedabad-380006	079-26575550	079-6575558		
		International Certification Systems		E-7,Chand Society, Juhu Road, Juhu, Mumbai-4000049	022-26245747	022-226248167		
SGS		SGS India Pvt. Ltd.,SGS House,4B,A.S.Marg,Vikhroli(W),Mumbai-	022-25798421 to 28	022-25798431 to 33				

Note: The details of Vendors indicated in this list are based on the information available with GAIL GAS, Contractor shall verify capabilities of each vendor for producing the quantity with proper Quality. Owner does not take any responsibility on the performance of the Vendor

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GAIL GAS Limited
CITY GAS DISTRIBUTION PROJECT, VADODARA



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 FOR
 MONOLITHIC INSULATING JOINTS**

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1.0 SCOPE

This specification covers the basic requirements for design manufacture, testing and supply of carbon steel insulating joints to be installed in onshore cross country pipeline systems used for transporting non-sour hydrocarbon gases including LPG.

This specification does not cover the Insulating joints for sour hydrocarbons (liquid/gas) service as defined in NACE standard MR-01-75.

1.1 Abbreviations

The following definitions shall apply:

- ASME : American Society of Mechanical Engineers.
- ASNT : American Society for Non-destructive Testing.
- ASTM : American Society for Testing and Materials.
- ISO : International Standards Organization.
- NDE : Non-destructive Examination.
- MSS : Manufacturers Standardization Society.
- NPS : Nominal Pipe Size.
- UNS : Unified Numbering System.

1.2 Definitions

- Purchaser : The Company which makes purchase order.
- Manufacturer : Manufacturer who receives the purchase order.
- Shall : This verbal form indicates requirements strictly to be followed in order to conform to the standards and form in which no deviation is permitted.
- Should : This verbal form indicates that among several possibilities one is particularly suitable without mentioning or excluding others or that a certain course of action is preferred but not necessarily required.
- May : This verbal form indicates a course of action permissible within the limits of this standard.
- Can : This verbal form used for statements of possibility & capability , whether material, physical or casual.

1.3 Compliance

Compliance by the MANUFACTURER with this specification shall not relieve him of his responsibilities to supply Monolithic insulating joints suited to meet the specified requirements and/or local codes governing health and safety.

The MANUFACTURER shall notify the CONSULTANT in writing, of any proposed deviation from this Specification. The Consultant's decision in respect of concession requests will be final. The CONTRATOR shall continually verify the quality and fitness for purpose of the Monolithic insulating joint, and shall propose appropriate actions/measures if any aspects of manufacture are found to be unsatisfactory.



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1.4 Quality Conformance

The MANUFACTURER shall demonstrate to the satisfaction of the OWNER / CONSULTANT that his activities within the scope of this document are in accordance with the relevant section of BS EN ISO 9001. The MANUFACTURER shall submit to the CONSULTANT for review and approval, a Quality Plan and procedural specifications prior to commencement of work. The Quality Plan shall define all sub manufacturers' involvement in the work. The review in this Specification shall only indicate a general requirement and shall not relieve the MANUFACTURER of his obligations to comply with the requirements of the Contract.



1.5 Safety

Safety is paramount. All work shall be performed in accordance with the safety requirements listed in the contract documentation.

2.0 REFERENCE DOCUMENTS

2.1 Reference has been made in this specification to the latest edition of, the following Codes, Standards and Specifications.

- API 1104 : Specification for welding pipelines and related facilities.
- ASME B 31.3 : Process piping.
- ASME B 31.4 : Liquid transportation systems for hydrocarbons, LPG, Anhydrous Ammonia and Alcohols
- ASME B 31.8 : Gas Transmission and Distribution piping systems.
- ASME Section VIII
ASME Section IX : Boiler & pressure Vessel Code.
- ASTM A 370 : Standard Test Methods and Definitions for Mechanical Testing of steel Products.
- ASTM B 733 : Auto catalytic Nickel Phosphorous coating on metals.
- ANSI B 16.25 : Butt Welding Ends
- EN 1024 : Metallic Materials-Types of inspection documents.
- MSS-SP-25 : Standard marking systems for valves, Fittings, Flanges and union.
- MSS-SP-53 : Quality standard for steel casting and forging for valves, flanges, fittings and other piping components –Magnetic particle Examination method.
- MSS-SP-75 : Specification for High Test Wrought welding fittings.
- NACE RP 286 : The electrical isolation of cathodically protected pipelines.
- ISO 13623 : Petroleum & Natural Gas industry –Pipeline transportation system.

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ISO 14313 : Petroleum & Natural Gas Industry, Pipeline transportation system –pipeline valves.

SSPC-VIS-I : Steel structures painting council-Visual standard

2.2 In case of conflict between the requirements of this specification and any code, Standard or Specification referred to in this Specification, the requirements of this specification shall govern.

3.0 MATERIALS

3.1 Material for the pressure containing parts of the insulating joints shall be as indicated in the Monolithic insulating joint data sheets. Material for pups shall be equivalent or superior to the material of connecting pipeline, which is indicated in the data sheets. Pup piece material shall be such as to limit the thickness of pup piece to be welded with pipeline. Other part shall be as per Manufacturer's standard suitable for the service condition indicated in Insulating Joint Data Sheets and shall be subject to approval by purchaser / Purchaser's representative.
All process wetted parts, metallic and non-metallic shall be suitable for the commissioning fluids and service specified by the company. Manufacturer shall confirm that all wetted parts are suitable for treated water/sea water environment, which may be used during field testing.

3.2 Insulating joints which are subjected to field welding by purchaser shall have carbon equivalent (CE) not exceeding 0.43 based on check analysis for each heat of steel calculated according to the following formula:

$$CE = C + Mn/6 + (Cr+Mo+V)/5 + (Ni +Cu)/15$$

3.3 Charpy V-notch test shall be conducted on each heat of base material, weld metal and heat affected zone of all pressure containing parts such as body, welding ends in accordance with the impact test provisions of ASTM A 370 at a temperature of 0 °C. The charpy impact test specimens shall be taken in the direction of principal grain flow and notched perpendicular to the original surface of the plate of forging. Average impact energy value of three full sized specimens shall be 35 joules. Minimum impact energy value of individual specimen shall be 27 joules. No specimen shall exhibit less than 80% shear area.

When Low Temperature carbon steel (LTCS) materials are specified in data sheet or offered by manufacturer, the charpy V-notch test requirements of applicable material standard shall be complied with.

3.4 Carbon steel used for the manufacture shall be fully killed.

3.5 Hardness test shall be carried out as per ASTM A370 for each heat of steel used. The maximum hardness of base metal, weld metal and heat affected zone of all pressure parts shall be 248 HV₁₀, unless specified otherwise.

3.6 Insulation material shall be minimum 20 mm thick and shall comply section 5, NACE RP 0286.

4.0 DESIGN & CONSTRUCTION REQUIREMENTS

4.1 Mechanical

4.1.1 Insulating joints shall be of integral type fabricated by welding and with suitable pups on either side. A corrosion allowance as indicated in data sheet shall be considered in design. Bolted and threaded joints are not acceptable.



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- 4.1.2 All materials used for the manufacture of the insulating joint shall be in accordance with clause 4.0 of this Specification.
- 4.1.3 Insulating joints shall be designed using the design principles of ASME Section-VIII Div. 1.
- 4.1.4 Insulating joint design and materials shall be capable of being vacuum tested to 1 millibar.
- 4.1.5 The joint between pipe pup pieces and main forging shall be full penetration butt weld type. Weld design shall be such as resulting in a weld joint factor of 1.0.
- 4.1.6 Butt weld ends shall have ends as per ASME B16.25. However, end preparation for butt welding ends having unequal thickness with respect to connecting pipe, shall be as per ASME B31.4/ B31.8 as applicable.
- 4.1.7 The reinforcement of inside weld seam, in case pups fabricated from LSAW pipes, shall be removed for a distance of at least 50mm from each end to facilitate welding.
- 4.1.8 Insulating joints shall allow free passage of scraper/ instrumented pigs. The internal bore shall be same as that of connecting pipe including its tolerances.
- 4.1.9 The insulating joint shall be formed by sandwiching and locking in positions the insulating material in a bell and spigot type of joint. The joint shall be assembled in such a way that its various components are firmly locked in position and the completed joint is capable of withstanding stresses due to designed operating conditions and field hydrostatic testing.
- 4.1.10 Insulating joints shall be suitable for aboveground installations as indicated in the data sheets.
- 4.1.11 All welds shall be made by welders and welding procedures qualified in accordance with the provisions ASME section IX. The procedure qualification shall include impact test and hardness test and shall meet the requirements of clause 3.3 & 3.5 of this specification.
- 4.1.12 Repair welding on parent metal is not allowed. Purchaser's representative for each repair shall carry out repair of welds only after specific approval. Welders shall carry out the repair welding and welding procedures duly qualified as per ASME section IX and records for each repair shall be maintained.
- 4.1.13 Internal diameter at the welding end shall not vary more than + 1, -3 mm from the nominal internal diameter.
- 4.1.14 Out of roundness measured at the root face of the welding ends shall not be more than 0.5% of the specified inside diameter.

4.2 Electrical

- 4.2.1 The average dielectric strength of the insulating joint shall be minimum 15 kilo Volts.
- 4.2.2 Two cleats as shown in data sheet shall be provided on the pups on either side of the insulating joint for connecting 10 mm² and 50 mm² cables for measurement/ shorting purposes. Cleats shall be attached to the insulating joint by welding.

5.0 INSPECTION & TESTING

- 5.1 The manufacture shall perform all inspection and tests as per the requirements of this specification and the relevant codes, prior to shipment at his works. Inspection & tests shall be performed to ascertain the requirements of this specification & not limited to the following:
 - 5.1.1 All insulating joints shall be visually inspected.

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- 5.1.2 Dimensional checks shall be carried out as per the purchaser approved drawings.
- 5.1.3 Chemical composition and mechanical properties including hardness shall be checked as per relevant material standards and this specification, for each heat of steel used.
- 5.1.4 Non-destructive inspection of insulating joints shall be carried out as given below:
- a) 100% radiography shall be carried out on all butt & repair welds of pressure containing parts. Acceptance limits shall be as per API 1104.

Welds, which in purchaser's Representative opinion cannot be inspected by radiographic methods, shall be checked by ultrasonic or magnetic particle methods. Acceptance criteria shall be as per ASME Section VIII Appendix-12 and Appendix-6 respectively.
 - b) All finished weld ends shall be 100% ultrasonically tested for lamination type defects for a distance of 50mm from the ends. Any lamination larger than 6.35 mm shall not be acceptable.
 - c) All forgings shall be wet magnetic particle inspected on 100% of forged surfaces. Method and acceptance shall comply MSS-SP-53.
 - d) All fillet weld of thickness < 6mm shall be examined 100% by magnetic particle inspection and ≥ 6mm shall be examined 100% by UT. Acceptance criteria for MPI & UT shall be as per ASME Sec.VIII Appendix-6 & Appendix-12 respectively.
- 5.1.5 Insulating joint shall be hydrostatically tested to a pressure as indicated in data sheet. The test duration shall be of 15 minutes.
- 5.1.6 After the hydrostatic test insulating joints shall be tested with air at 5 kg/cm² for 10 minutes. The tightness shall be checked by immersion or with a frothing agent. No leakage shall be acceptable.
- 5.1.7 Dielectric Test**
- a) Insulation resistance of each insulating joint shall be at least 50 mega-ohms when checked with 1000 V DC.
 - b) Insulating joint before and after the hydrostatic test, shall be tested for dielectric integrity for one minute at 5000 V A.C., 50 cycles and the leakage current before and after hydrostatic test shall be equal. Testing time voltage and leakage shall be recorded and certified. No repair shall be permitted to the insulating joints failed in the above mentioned tests.
- 5.2 Purchaser reserves the right to perform stage wise inspection and witness test as indicated in Para 5.1 at Manufacturer's works prior to shipment. Manufacturer shall give reasonable notice of time and shall provide without charge reasonable access and facilities required for inspection to the purchaser's Representative.
Owner's approved Third Party Inspection Agency (TPIA) shall be deputed by the MANUFACTURER for inspection at manufacturer premises to witness / review material Tests certification as per EN-10204 type 3.2C certification at manufacturer's cost.

Inspection and tests performed/witnessed by the Purchaser's Representative shall in no way relieve the Manufacturer's obligation to perform the required inspection and test.
- 6.0 TEST CERTIFICATES**
- 6.1 Manufacturer shall submit following certificates to Purchaser's Representative.

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- a) Test certificates relevant to the chemical analysis and mechanical properties including hardness of the materials used for construction of insulating joint as per this specification and relevant standards.
- b) Test reports on non-destructive testing.
- c) Test certificates for hydrostatic and air tests.
- d) Test certificate for electrical resistance test.
- e) Test report for dielectric strength test.

7.0 PAINTING, MARKING AND SHIPMENT

7.1 Insulating joint surface shall be thoroughly cleaned, freed from rust and grease and applied with sufficient coats of corrosion resistant paint. Surface preparation shall be carried out by shot blasting to SP-6 in accordance with "steel structures painting council - Visual standard SSPC-VIS-I.". External surfaces of buried insulating joints shall be painted with three coats of suitable coal tar epoxy resin with a minimum dry film thickness of 300 microns.

Manufacturer shall indicate the type of corrosion resistant paint used, in the drawings submitted for approval.

7.2 Insulating joints shall be marked with indelible paint with the following data:-

- a. Manufacturer's name
- b. Suitable for- inch nominal diameter pipeline
- c. End thickness in mm
- d. Material
- e. Design Pressure/ Hydrostatic Test Pressure
- f. ANSI Class Rating
- g. Tag No.
- h. Year of Manufacture
- i. PO No.

7.3 Insulating joints shall be suitably protected to avoid any damage during transit. Metallic bevel protectors shall be provided to weld ends.

7.4 Only those insulating joints, which have been inspected and certified by Purchaser, shall be shipped.

8.0 SPARES AND ACCESSORIES

Not Applicable

9.0 DOCUMENTATION

9.1 All documents shall be in English Language.

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- 9.2 At the time of bidding, Bidder shall submit the following documents:-
- a) General arrangement drawing along with cross sectional view, overall dimensions and details of insulating materials recommended.
 - b) Reference lists of previous supplies of insulating joint of similar specification.
 - c) Clause wise list of deviation from this specification, if any.
- 9.3 Within two weeks of placement of order, the Manufacturer shall submit four copies of but not limited to the following drawings, documents and specifications for approval.
- a) Fabrication drawings and relevant calculations for pressure containing parts.
 - b) Welding procedure and method of manufacture for all phases of manufacture.
 - c) Quality Assurance Plan (QAP)
- Once the approval has been given by purchaser any changes in design, material and method of manufacture shall be notified to the Purchaser whose approval in writing of all changes shall be obtained before the insulating joint are manufactured.
- 9.4 Within four weeks from the approval date Manufacturer shall submit one reproducible and six copies of the approved drawings, documents and specifications as listed in 9.3 of this specification.
- 9.5 Prior to shipment, the manufacturer shall submit one reproducible and six copies of the test certificates as listed in Clause 6.0 of this specification.

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GAIL GAS LIMITED
CITY GAS DISTRIBUTION PROJECT ,VADODARA



DATA SHEET

FOR MONOLITHIC INSULATING JOINT (300#)

CLIENT JOB NO.

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PROCESS DATA:

PIPE CLASS	3A1	RATING: 300 #
FLUID	R.L. NATURAL GAS	FLUID SYMBOL RLNG

DESIGN CONDITIONS:

PRESSURE	49	Barg
TEMPERATURE	0 to 60	° C

OPERATING CONDITIONS:

PRESSURE		Barg
TEMPERATURE		° C

CORROSION ALLOWANCE: 0.5 MM

CONSTRUCTION DATA:

DESIGN AND CONSTRUCTION CODE
ALLOWABLE STRESS VALUE
CONSTRUCTION MATERIAL
BODY

ASME VIII, DIV. 1 APP.2, ASME IX AND
 : ANSI B31.8

: 50 % SMYS (Design factor : 0.4)

MSS SP-75, WPHY Gr. 52/ ASTM A 694
 Gr. F 52.

PIPE PUPS

: API 5L Gr. X -52 (PSL-2) For 10"

: API 5L Gr. X -42 (PSL-2) For 4"

: ASTM A 106 Gr. B for 2"

INSULATION

: AS PER MANUFACTURER'S STANDARD

SEALING GASKETS

: (*)

SPACING RING

: (*)

FILLING MATERIAL

: (*)

EXTERNAL COATING

Epoxy Resin (*)

INTERNAL LINING

Epoxy Resin (*)

TESTING INSPECTION AND CERTIFICATES:

HYDROTEST : 1.5 X Design pressure
 5 000 VAC, 50 Hz Holding time at least one minute > 50M ohm

ELECTRICAL RESISTANCE TEST : (1000VDC)

DIMENSIONAL STANDARD : ANSI B 16.5

END CONNECTION : BUTT WELDED ENDS AS PER ANSI B 16.25
 Machined True round

MARKING : Manufacture name

Note:

(*) To be selected by Vendor in his bid and submitted for approval.

- For the welding end, the out of roundness shall be 5 mm and tolerance on internal diameter at pipe ends shall be Same as diameter tolerance for the pipe ends indicated in API 5L Table 8

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DATA SHEET

FOR
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DATA SHEET

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PROCESS DATA:

PIPE CLASS	6A1	RATING: 600 #
FLUID	R.L. NATURAL GAS	FLUID SYMBOL RLNG

DESIGN CONDITIONS:

PRESSURE	98	Barg
TEMPERATURE	0 to 60	° C

OPERATING CONDITIONS:

PRESSURE		Barg
TEMPERATURE		° C

CORROSION ALLOWANCE: 0.5 MM**CONSTRUCTION DATA:****DESIGN AND CONSTRUCTION CODE**ASME VIII, DIV. 1 APP.2, ASME IX AND
: ANSI B31.8**ALLOWABLE STRESS VALUE**

: 50 % SMYS (Design factor : 0.4)

CONSTRUCTION MATERIAL**BODY**MSS SP-75, WPHY Gr. 52/ ASTM A 694
Gr. F 52.**PIPE PUPS**

: API 5L Gr. X -52 (PSL-2) For 10"

INSULATION

: AS PER MANUFACTURER'S STANDARD

SEALING GASKETS

: (*)

SPACING RING

: (*)

FILLING MATERIAL

: (*)

EXTERNAL COATING

Epoxy Resin (*)

INTERNAL LINING

Epoxy Resin (*)

TESTING INSPECTION AND CERTIFICATES:**HYDROTEST**: 1.5 X Design pressure
5 000 VAC, 50 Hz Holding time at least one minute > 50M ohm**ELECTRICAL RESISTANCE TEST**

: (1000VDC)

DIMENSIONAL STANDARD

ANSI B 16.5

END CONNECTION: BUTT WELDED ENDS AS PER ANSI B 16.25
Machined True round**MARKING**

: Manufacture name

:

Note:

(*) To be selected by Vendor in his bid and submitted for approval.

- For the welding end, the out of roundness shall be 5 mm and tolerance on internal diameter at pipe ends shall be Same as diameter tolerance for the pipe ends indicated in API 5L Table 8

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DATA SHEET

FOR
MONOLITHIC INSULATING JOINT
(600#)



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 		PROJECT: CITY GAS DISTRIBUTION PROJECT,VADODARA CLIENT: GAIL GAS LIMITED CONSULTANT: WGI VENDOR:				QAP NO: 11-0304-02-09-10-002 REV NO: B ITEM DESCRIPTION/ QUANTITY: MIJ JOB NO.: 110304 <small>PAGE NO: 1 of 2</small>			
QUALITY ASSURANCE PLAN									
SR. NO.	COMPONENTS & OPERATIONS	TYPE OF CHECK	QUANTAM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORD	INSPECTION		
							P	W	R
1 RAW MATERIAL									
1.1	Pipe	Physical & chemical properties	1 sample per lot	ASTM A 370	ASTM A 370	Test certificate	4		1,2
1.2	Forged Rings	Physical & chemical properties	1 sample per lot	ASTM A 370	ASTM A 694 F52	Test certificate	4		1,2
1.3	Epoxy Laminated Glass Fabric Base	Physical & Electrical Properties	1 sample per lot	ASTM D 709	Company Standard	Test certificate	3		1,2
2 NDT									
2.1	Forged Ring welded with pipe(w1 & w2)	Dye Penetration Test & Radiography Test	100%	API1104	API 1104	Test certificate	2,3	1,2	
2.2	Final Weld (W 3)	Dye Penetration Test	100%	API1104	API 1104	Test certificate	2	1,2	
		M.P.I	100%	ASME Sec V	ASME Sec VIII Div.01	Test certificate	3	1,2	1,2

NOTE: 1. Qualified welders & procedure will be used as per ASME Sec. IX for all welds.
2. In case Mill certificates are not available test certificates from approved laboratory shall be furnished.
3.TPI to issue 3.2 certificate as per EN1 10204 format.

P - Performing Test
R - Review of Test Report
W - Witnessing Report

1 - Client/Third Party
2 - Vendor
3 - Sub Vendor
4 - Outside Laboratory

 		PROJECT: CITY GAS DISTRIBUTION PROJECT,VADODARA CLIENT: GAIL GAS LIMITED CONSULTANT: WGI VENDOR:				QAP NO: 11-0304-02-08-10-002 REV NO: B ITEM DESCRIPTION/ QUANTITY: MIJ JOB NO.: 110304 <small>PAGE NO: 2 of 2</small>			
QUALITY ASSURANCE PLAN									
SR. NO.	COMPONENTS & OPERATIONS	CONDITION	TYPE/METHOD OF CHECK	QUANTAM OF CHECK	ACCEPTANCE NORMS	FORMAT OF RECORD	INSPECTION		
							P	W	R
3	FINAL INESPECTION								
3.1	Dimensional Report	Normal	Measurement	100%	Appd.Drg.	Report	2	1	1,2
3.2	Hydro Test	74 Bar for 15 Min.	Testing	100%	Appd.Drg.	Test Certificate	2	1	1,2
3.3	Pneumatic Test	5 Bar for 10 min	Testing	100%	Appd.Drg.	Test Certificate	2	1	1,2
3.4	Insulation Electrical Resistance	1000 V DC for 1 min	Testing	100%	Min. 25 MΩ	Test Certificate	2	1	1,2
3.5	Di-Electric Strength	5000V AC for 1 min.	Testing	100%	No breakdown	Test Certificate	2	1	1,2
3.6	COATING Inespection	Inner & Outer	Testing	Random		Report	3	1,2	1,2

P - Performing Test
R - Review of Test Report
W - Witnessing Report

1 - Client/Third Party
2 - Vendor
3 - Sub Vendor
4 - Outside Laboratory



**GAIL GAS LIMITED
CITY GAS DISTRIBUTION PROJECT, VADODARA**



**INSTRUCTIONS TO VENDOR FOR
QUALITY DATA REQUIREMENTS**

CLIENT JOB NO.

TOTAL SHEETS

8

DOCUMENT NO

11

0304

02

09

05

002

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B	24/02/10	ISSUED FOR CLIENT'S REVIEW	AS	DDS	PKS
A	24/02/10	ISSUED FOR IDC	AS	DDS	PKS
REV	DATE	DESCRIPTION	PREP	CHK	APPR

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**INSTRUCTIONS TO VENDOR FOR
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1.0 INTRODUCTION

1.1 As a part of services rendered to the Client, WGI purchases Products/Services for Projects on behalf of Client (including in house projects) from various vendors.

2.0 PURPOSE

2.1 The purpose of this standard is to describe the vendor Quality Data Requirements which shall form a part of every Material Requisition (MR)/Purchase Requisition (PR) released by WGI, so as to ensure that all purchased products/services consistently conform to planned Quality and project's stated and implied needs are met to Client's total satisfaction.

3.0 SCOPE

The requirements of this standard are applicable to all Vendors for supply of Packages, Equipments and Materials which are:

- a) purchased on behalf of Clients for Projects handled by WGI.
- b) Purchased for WGI's in house projects.

4.0 INSTRUCTIONS

4.1 Quality Assurance Plan

Vendor during bidding stage, shall confirm compliance to his QUALITY ASSURANCE (QA) Plans (consisting of relevant Procedures covering various activities like design and engineering, material procurement, manufacture, inspection and testing, documentation, dispatch to site, erection and commissioning where applicable and maintenance of Quality records) which have already been approved at the time of vendor enlistment. In the post order stage, the vendor shall confirm the validity of their QA Plans and submit only revisions/deviations if any to these plans, to the concerned WGI Inspection office/Third Party Inspection Agency for approval within 2 weeks from the date of receipt of PR.

4.2 Inspection & Test Plan

Vendor shall submit Inspection and Test plan for approval within 2 weeks of PR and before commencement of manufacture to concerned WGI Inspection Office/Third Party Inspection Agency. The Inspection and Test Plan shall also cover "bought out" items from sub-vendors.

4.3 Drawing Schedule

Vendor shall submit index of drawings and documents required for review/records based on the Vendor Data Requirement given in the PR along with the scheduled date of submission of each drawing/document within 2 weeks from Telefax /Letter of Intent. The Drawing schedule shall be specific with regard to drawing/document No., the exact title and the size of the drawings/documents.

4.4 Progress Report and Schedule

Vendor shall submit Monthly Progress Report and updated procurement, engineering and Manufacturing Schedule every month, beginning within 2 weeks from Telefax/Letter of Intent.

4.5 Waiver & Deviation

Vendor shall strictly comply with PR stipulations and no deviations shall be permitted. However, if the need for deviation arises under exceptional circumstances, on the post-order stage, such deviation shall be subjected to the approval of WGI/PURCHASER and shall be submitted through WGI Inspection Office in the prescribed "WAIVER/DEVIATION REQUEST" format.



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4.6 Procurement of Bought out Materials

All critical materials such as casting, forging, fittings, pressure holding parts, electrical and instrument accessories, etc. shall be purchased by the Vendor from WGI approved suppliers meeting Qualification Criteria stipulated if any. Vendor shall submit a list of bought out materials and sub-vendors for these bought out materials for WGI approval within 2 weeks from Telefax/Letter of Intent.

4.7 Calibration Records

Vendor shall use only calibrated measuring and test instruments and maintain calibration records. Vendor shall furnish records of calibration of measuring and test instruments including recalibration records to concerned WGI Inspection Office/Third Party Inspection Agency.

4.8 Inspection Test Status

Inspection and Test status of products shall be identified by using markings, authorized stamps, tags. Route cards, inspection records etc. during the course of manufacture to clearly indicate acceptance/rejection of tests/stages of inspection performed during its manufacturing cycle. The identification of inspection and test status shall be maintained and records thereof shall be submitted as and when demanded by WGI Inspection Engineer or Third Party Inspection Agency.

4.9 Quality Records

Vendor shall maintain quality records as per his procedures. Inspection Reports & Test Record copies shall be furnished to WGI Inspection Engineer or Third Party Inspection Agency.

4.10 Identification and Traceability

Vendor shall establish and maintain a standard written procedure for identifying the products from applicable drawings, specification or other documents during all stages of production, delivery and installation. A copy of this Standard procedure shall be made available at concerned WGI Inspection office. On job to job basis, vendor shall confirm its validity and only revisions/deviations if any shall be submitted for approval. The vendor shall ensure that each product which is going in the process of fabrication / manufacture/construction/erection has proper identification throughout the process including the final output.

4.11 Vendor Documents for WGI Review/records

General

- i) All Documents shall be in ENGLISH language and in M.K.S. system of units.
- ii) **Review of the vendor Drawings by WGI would be only to review the compatibility with basic designs and concepts and in no way absolve the vendor of his responsibility to comply with PR requirements, applicable codes, specifications and statutory rules/regulations.**
- iii) Unless otherwise agreed, submission of Documents for Review/Records shall commence within 4 weeks from the date of Telefax/Letter of Intent.
- iv) Unless otherwise agreed, vendor shall submit all Drawings and Documents in number of copies, as stipulated in the Vendor Data Requirement Form, along with Document Index. The Documents shall be supplied in soft copies where specified.

4.11.1 A blank space duly marked measuring 75 mm (W) x 38 mm (H) shall be provided on the body of all Vendor Drawings for marking of Review Codes by WGI.

4.11.2 Documents for Review and Documents for Records shall be submitted in separate folders with separate covering letter to facilitate expeditious processing at WGI .

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4.11.3 Before forwarding the drawings and documents, vendor shall ensure that the following information's are properly entered in each drawing:

- PURCHASE REQUISITION :
- NAME OF EQUIPMENT :
- EQUIPMENT TAG NO. :
- NAME OF PROJECT :
- CLIENT :
- DRAWING/DOCUMENT TITLE :
- DRAWING/DOCUMENT NO. :
- REVISION AND DATE :

4.11.4 The Drawing/Documents shall be checked, approved and duly signed/stamped by vendor before submission. Revision Number shall be changed during submission of the revised Vendor Documents and all revisions shall be highlighted by clouds. Before submitting any sub-vendor drawings for review by WGI, the vendor shall ensure that these sub-vendor drawings have been reviewed, commented and stamped by the vendor. Direct submission of sub-vendor's drawings without vendor's review shall not be entertained.

4.11.5 While resubmitting the Drawings/Documents, the vendor shall submit a comment compliance note with justification.

4.11.6 Multi-sheet Documents other than Drawings shall be submitted in their entirety in the event of a resubmission even if only few sheets are revised.

4.11.7 Vendor shall forward all Drawings/Documents (transparencies and printed matter), to WGI. Attention: Vendor Print Control, and the copy of forwarding letter/transmittal to WGI Inspection Department as well as to the Client.

4.11.8 Documents under Review Category

Following review codes shall be used for review of Vendor Drawings/Documents:

- Review Code A - Approval
- Review Code B - Approved subject to incorporation of comments for construction and fabrication.
- Review Code C - Not Approved.
- Review Code D - For information

4.11.9 Documents under Records Category

Documents under this category are meant for WGI Records and would not be returned to vendor. However, comments, if any, will be communicated to vendor.

4.12 Final Documentation

4.12.1 Final Drawings/documents consisting of Technical Data Manual/Mechanical Catalogue is compilation of "as built" certified, drawings and data, manufacturing and test records, installation, operating and

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maintenance instructions. For drawings where Purchaser's approval was required, the final certified drawings shall be included. Final Documents shall be legible photocopies in A4, A3 or A2 size only. The Purchase Requisition shall also form a part of the final documentation.

4.12.2 Final Documentation shall be bound in Hard board folder(s) of size 265 mm x 315 mm (10 & a half inch x 12 and a half inch) and shall not be more than 90 mm thickness, it may be of several volumes and each volume shall have a volume number, index of volumes and index of contents of that particular volume.

4.12.3 Each volume shall contain a Title Block indicating Equipment Tag No., Equipment Name P.O./Purchase Requisition No., Name of Project and Name of Client.

5.0 ATTACHMENT

WAIVER & DEVIATION REQUEST, which shall be subjected to approval by Purchaser's Representative.

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ATTACHMENT

Report No.:
Date:

WAIVER / DEVIATION FORMAT
(TO BE RAISED BY CONTRACTOR / VENDOR)

Project :
Client :
Consultant :
Third Party Insp. Agency :
Order / Contract No. :
Contractor :
Originator :

Requirement as per Specification / Drawing	Description of Waiver / Deviation sought
<p><u>Why the Waiver / deviation is required?</u></p>	
<p>Contractual implications if Waiver/Deviation is granted</p> <ul style="list-style-type: none"> Time taken shall be More / Less / No Change 	
<ul style="list-style-type: none"> Cost of Item Shall be More / Less / No Change <p align="center">Note: Detailed break up of cost benefit to be attached if More / Less</p>	
<ul style="list-style-type: none"> Performance requirement shall be satisfied / not satisfied <p>Under present constraints requested waiver/deviation is most optimum for the Project and does not involve any security and safety hazard.</p> <p>Date: Signature of Originator Name and seal:</p>	
<p><u>Recommended by TPIA (when required):</u> Comments:</p> <p>Date: Signature Name and Seal:</p>	
<p><u>Recommended by Consultant(Site):</u></p>	

Date:	Signature: Name:
<u>Recommended by Owner (Site):</u>	
Date:	Signature: Name:
<u>Justification by Consultant (HO):</u>	
Date:	Signature: Name:
<u>Final Approval by PM / Owner:</u>	
Date:	Signature: Name:
<u>Acceptance by Contractor / Vendor:</u>	
Date:	Signature: Name & Seal: