

BIDDER SHOULD UPLOAD SIGNED AND STAMPED COPY OF THIS REQUISITE DOCUMENT ALONG WITH THEIR TECHNICAL BID AS TOKEN OF ACCEPTANCE.
ALSO, THIS TENDER IS IN TWO BID SYSTEM. BIDDERS ARE REQUESTED NOT TO QUOTE THEIR PRICES HERE.
PLEASE INDICATE "QUOTED/NOT QUOTED" IN ENQUIRY CUM OFFER.

ENQUIRY CUM OFFER

Enquiry No.:RBRM24V089/2439914

Date:18.01.2025

Enq.Due on:20.01.2025 15:00hrs IST

~~SINGLE BID~~ / TWO BID

Offer Ref.....

Date.....

Dear Sir,

We shall be grateful to receive your quotation filled in the copy of this enquiry for the supply of following items.

Sr.no.	Item Code and Description	Unit	Qty	Unit Price (to be filled) In fig&words
--------	---------------------------	------	-----	--

GROUP: 1
LPG MOUNDED BULLET AND PARTS

0010	2722902844	EA	12.000
		each		
	MONOLTHIC INSULATION JT,4IN,A106 GR.B,150			

ITEM TEXT

Supply of Monolithic joints as per attached TECHNICAL SPECIFICATION FOR MONOLITHIC INSULATION JOINTS.

BREAKUP OF QUANTITY

Barauni Refinery : 12.000EA

0020	2722902934	EA	30.000
		each		

MONOLITHIC INSULATING JOINT
6IN, A106 GR.B, 300

Signature of Vendor with Office Seal

ENQUIRY CUM OFFER

Enquiry No.:RBRM24V089/2439914

Date:18.01.2025

Sr.no.	Item Code and Description	Unit	Qty	Unit Price (to be filled) In fig&words
	BREAKUP OF QUANTITY Barauni Refinery		30.000EA	
0030	2722902874 MONOLTHIC INSULATION JT,12IN,A106 GR.B,300	EA each	6.000
	BREAKUP OF QUANTITY Barauni Refinery		6.000EA	
0040	2722902894 MONOLTHIC INSULATION JT,8IN,A333 GR.6,300	EA each	6.000
	BREAKUP OF QUANTITY Barauni Refinery		6.000EA	
0050	2722903904 MONOLTHIC INSULATION JT,2IN,A333 GR.6,300	EA each	42.000
	BREAKUP OF QUANTITY Barauni Refinery		42.000EA	
0060	2722902954 MONOLTHIC INSULATION JT, 3 IN,300	EA each	10.000
	BREAKUP OF QUANTITY Barauni Refinery		10.000EA	

Signature of Vendor with Office Seal

ENQUIRY CUM OFFER

Enquiry No.:RBRM24V089/2439914

Date:18.01.2025

Important:

~~1. You are requested to fill this format in all respects and forward us Sealed cover so as to reach us on the due date .This tender will be opened at 15 Hrs. IST on the due date. Enquiry No.& Due date must be SUPERSCRIBED on the envelope to avoid any outright rejection.~~

~~2. Please see our terms and conditions and mention deviation ,if any, seperately.~~

~~3. Confirm whether the tenderer is a relative of any Director of IOCL or the tenderer is a firm in which Director(s) of IOCL or his relative is a partner or tenderer is a company in which any Director, or his relative is a member or Director.(If desired, List of IOCL Directors can be referred in IOCL Website)(YES/NO)~~

~~(If YES, details are to be furnished.)~~

~~4.Vendors are required to fill up details of Terms and Conditions and Taxes in the format attached as last page.~~

~~5.The tenderers should respond to the tender either by submitting their bid or by explaining the reason for non-submission of the offer.In case, there is no response either way continuously for three times, names of such tenderers may be removed from the vendor list.~~

~~6.If the bidder is registered with NSIC under Ministry of Micro, Small and Medium enterprises, then, the bidder shall enclose the copy of the recent valid NSIC certificate without fail. The details of the same are to be mentioned in this page.~~

DOCUMENT TEXT

Brief Description: Supply of Monolithic joints

Note:

A)

1. Vendor to submit duly signed and stamped copy of the all attached Technical Specification of monolithic joints as a token of technical acceptance.

2. Vendor will submit drawings and quality assurance plan of monolithic joints for IOCL approval.

3. Third Party Inspection by IOCL empanelled TPI Agencies only.

4. Vendor to submit all the original certificates pertaining to testing & inspection to IOCL along with dispatch of material.

5. Vendor to submit TPI Release note to IOCL for dispatch clearance. Vendor to

Signature of Vendor with Office Seal

ENQUIRY CUM OFFER

Enquiry No.:RBRM24V089/2439914

Date:18.01.2025

dispatch the material only after obtaining dispatch clearance from IOCL.

6. Deviations,if any, against the scope of work and supply, applicable Technical specifications and Codes shall be duly consolidated at one place only.

7. Bidder has to quote as per attached technical specification only.

B) Similar item definition: Monolithic Joints/Insulating Joints.

~~The tenders will be opened in the presence of bidders, who desire to be present, at 15.00 Hrs IST on the scheduled due date.~~

Yours faithfully,
For and on behalf of

INDIAN OIL CORPORATION LTD.
(Authorised Signatory)

Signature of Vendor with Office Seal



ENGINEERING SERVICES
INDIAN OIL CORPORATION LTD.
PANIPAT NAPHTHA CRACKER

TECHNICAL SPECIFICATION FOR
MONOLITHIC INSULATION JOINTS
STANDARD No. :

PNC/ES/MONOLITHIC INSULATION JT./01

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TECHNICAL SPECIFICATION FOR MONOLITHIC INSULATING JOINTS FOR GAS AND OIL SERVICE



0	28/08/2017	Issued as Standard Specification	Raj Kumar MLE(ES)	Pradeep Kumar (ESM)	H.P. Solanky SESM
Rev. No.	Date	Purpose	Prepared By	Checked By	Approved By



1. SCOPE AND FIELD OF APPLICATION

This Specification covers the technical requirements for the design, manufacturing and testing of Monolithic Insulating Joints for Electrical Insulation of gas and oil pipelines.

Note:

1) The purpose of insulating joints installation on gas and oil pipelines, it is to ensure electrical isolation among sections of pipelines preventing detrimental electrochemical interaction among the sections themselves. Insulating joints are also used to ensure effective current spreading on cathodic protection systems.

2) The insulating joint is suitable for installation either under, or above ground. It shall be installed on pipeline by means of girth welding it between two sections of pipeline itself.

2. REFERENCES

This specification takes into consideration the requirements of the following codes/standards/rules. Unless otherwise specified, the latest editions of the same, including all appendixes and revisions, shall apply.

ANSI (AMERICAN NATIONAL STANDARD INSTITUTE)

- ANSI B16.5 "Pipe Flanges and Flanged Fittings"
- ANSI B31.8 "Gas Transmission and Distribution Piping System"
- ANSI B31.4 "Pipeline transportation system for liquid hydrocarbons and other liquids"

ASME (AMERICAN SOCIETY OF MECHANICAL ENGINEERS)

- ASME B 16.25 "Butt-welding Ends"
- ASME V NDE
- ASME VIII Pressure Vessels
- ASME IX Welding and Brazing Qualifications

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SMAW	Shield Metal Arc Welding
GTAW or TIG	Gas Tungsten Arc Welding
GMAW	Gas Metal Arc Welding
SAW	Submerged Arc Welding
ERW	Electrical Resistance Welding

ASNT (AMERICAN SOCIETY FOR NON DESTRUCTIVE TESTING)

- SNT TC-1A Recommended Practice

ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS)

- ASTM A105 Standard Specification for “Forgings, Carbon Steel for Piping Components”
- ASTM A370 Standard Test Method and definition for “Mechanical Testing of Steel Product”
- ASTM A694 Standard Specification for “Forgings, Carbon and Alloy Steel, for Pipe Flanges, Fittings, Valves and Parts for High Pressure Transmission Services”

API (AMERICAN PETROLEUM INSTITUTE)

- API 5L “Line-pipe”

EN (EUROPEAN NORM)

- EN 10204 “Metallic products - Types of inspection documents
- EN 10297 “Seamless circular steel tubes for mechanical and general engineering purposes”

ISO (INTERNATIONAL ORGANIZATION FOR STANDARDIZATION)

- ISO 8501- 1 “Preparation of Steel Surfaces before Application of Paints and Related Products Surface Preparation Methods”

NACE (NATIONAL ASSOCIATION OF CORROSION ENGINEERS)

- TM-01-87 “Evaluating Elastomer Materials in Sour Gas Environments”
- MR 01-75 “Materials Requirements Sulfide Stress Cracking Resistance-Metallic Materials for Oilfield Equipment”

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3. UNITS

This Standard is based on International System of Units (SI), unless otherwise specified.

4. DESIGN

- 4.1 All Joints shall be of Monolithic type construction by welding pipe-pups on either side of it. The Insulating joints shall be designed and prepared for welding to fit the pipe size and grade specified by the Owner's.
- 4.2 Construction shall not incorporate any flanges, bolts, nuts and threaded unions and structure shall be stiff, strong and suitable for maintenance free field installation, no matter if installed on buried or surface laid pipeline.
- 4.3 The insulating joint body shall be designed in accordance with the method described on ASME VIII Division 1 Appendix 2, adequately adapted. As a minimum requirement, the design pressure shall be the same of the design pressure of the pipeline. If no requirement is specified instead, the design temperature shall be 0/+70°C.
- 4.4 The pipe-pups of insulating joints shall if not otherwise specified, shall be designeand as per ANSI B31.8 or ANSI B31.4 as applicable. All pups ends bevelled to ANSI B 16.25.
- 4.5 The insulating joints shall be designed to withstand the design pressure plus an external applied bending load that combined together are sufficient to induce a total longitudinal stress of 100% of the SMYS of the adjoining pups.
- 4.6 The insulating joints must be assembled allowing its internal components to get firmly locked in their designated position. Such scope shall be reached by impressing an adequate calculated preload during assembly.
- 4.7 The number of welds must be as restricted as possible.
- 4.8 Dimension Tolerances as per ANSI B 16.5 & MSS - SP – 44.

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4.9 Sealing Gasket shall be designed such that the joint assembly complies with the mechanical and electrical requirements specified in this specification. The seal gasket must be made of one rectangular or “ U” shaped piece.

Sealing Systems that foresee “o-ring/s” cannot be accepted.

4.10 The design of the insulating joint shall include longitudinal electrical insulation across the whole circumference of its bore, a preventing an electrical resistance reduction to occur whenever wet gas flows thru. This could be obtained with a stiff extension of the insulating ring (insulating sleeve), or with lining application of paint having high electrical and abrasive resistance. In case of lining, bevel ends shall be free of paint for 50 mm approx., but protected with an easy removable rust preventive varnish.

5. MATERIALS

5.1 The pipe pups material shall be ASTM A106 Gr.B, of similar grade of the adjacent pipeline itself.

5.2 The other metallic components of the insulating joint shall be of forged steel conforming to the requirements of ASTM A694 , ASTM A105, ASTM A350, or circular steel tube conforming to the requirements of EN10297 or other approved standards. Forged steel shall be normalized or quenched and tempered. Only fully killed material shall be used. Chosen steel grade must have similar SMYS (specified minimum yield strength) of the one of the pipe pups.

5.3 Wherever service conditions are sour, the materials shall comply with the requirements of NACE Standard MR 01-75 (for steel components) and TM 01-87 (for seal gasket).

5.4 The insulating materials shall be ASTM D 709 for long-term exposure to the conveyed fluid at operating temperature and be made of non –hygroscopic and shall be capable of sustaining high compressive stress. The material shall have good long-term stability, excellent dielectric strength and thermo properties without cracking, distorting, or loss of insulating properties.

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5.5 The gasket shall be obtained from moulds and of age resisting rubber material. Only high dielectric characteristics NBR (Nitrile butadiene rubber), or Viton can be used. It shall resist explosive decompression, and shall be suitable for long-term exposure to GAS at the design pressure and temperature.

6. MANUFACTURE

- 6.1 The insulating joint shall be assembled in such a way that its several components are firmly locked in position and the complete joint is capable of withstanding stresses due to designed operating conditions and field hydrostatic testing.
- 6.2 Prior the assembly all metallic and insulating materials shall be thoroughly cleaned in order to remove rust or impurities.
- 6.3 The annular space between the retainer and the pup shall be filled with insulating fillers, stiff plastics, or combination of the same.
- 6.4 External filled surface shall be filled with adhesive sealant elastomer to prevent deposit of sediments.
- 6.5 Bevel ends shall be as per ANSI B 16.25 or API 5L. Any lamination found on bevel ends shall be fully removed.
- 6.6 Under-cutting on weld seam shall not be permitted.
- 6.7 For a distance of 100mm from the welding ends, the internal diameter shall not deviate by more than +/- 1.5mm from the nominal internal diameter of the pipeline.
- 6.8 Post weld heat treatment, if required, shall be performed according to ASME VIII Division I and ANSI B31.8 or ANSI B31.4 as applicable. PWHT shall not be carried out on final closure weld, ever.

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7. WELDING REQUIREMENTS

7.1 Approved welding Processes:

Any of the following processes may be used:

1. Shield Metal Arc Welding (SMAW)
2. Gas Tungsten-Arc Welding (GTAW or TIG)
3. Gas Metal-Arc Welding (GMAW or MIG)
4. Submerged –Arc Welding (SAW)
5. Combination of above processes

7.2 Procedure Qualification

Welding procedures shall be qualified in accordance with ASME Section IX

7.3 Welders Qualifications

Welders shall be qualified in accordance with the requirements of ASME Section IX.

7.4 Consumable Materials

Electrodes, filler wires and fluxes shall conform to AWS specifications A 5.1 through A 5.30 as applicable

8. SURFACE FINISHING AND PROTECTIVE COATING

After all tests and inspections required have been carried out, insulating joint shall be thoroughly cleaned in order to remove rust or impurities.

External surface preparation shall be carried out by shot blasting or sand blasting to SA 21/2 finishing grade in accordance with ISO 8501-1. The insulating joint shall be externally coated with an epoxy resin, or polyurethane paint to a dry film thickness of 200 microns min. The application shall be in strict accordance with the coating supplier's specification.

Bevel ends for 50 mm approx., shall be free of coating and protected with an easy to remove rust preventive varnish.

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9. QUALITY ASSURANCE PROVISIONS

It is the responsibility of the manufacturer to establish quality assurance thru quality control procedures, ensuring that the product will meet the requirements of this specification.

The quality control at the manufacturer's premises shall include control systems for:

- Raw materials, i.e. checking of documents and/or testing for conformity with the specification.
- Production equipment and process.
- Testing during and after fabrication.
- Checking of dimensions
- Documents (material certificates)

10. TESTS

10.1 General

The scope of tests performing is to prove that the materials comply with this specification and that insulating joint could satisfactorily pass all required tests.

10.2 Metallic Material Chemical Analysis

Chemical analysis and tensile test shall be performed by the ladle analysis for each heat of steel. The results shall comply with requirements of the related standard.

For design temperature lower than 0°C, charpy impact test shall be carried out on all metallic materials according to ASTM A370. Acceptance criteria shall be 37 J average and 27 J minimum for single specimen. The test shall be carried out at the design temperature, or lower.

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10.3 Dielectric Test and Megger Test

Upon completion of the assembly and prior to the hydrostatic test, each insulating joints shall be megger teted with 1000 V. d.c. Minimum resistance shall be 5 Mhom.

Each Insulating joint shall be also dielectric tested at 3500 V a.c. (50Hz) for 1 minute. No flashover, or breakdown shall occur during the test.

The above tests shall be repeated immediately after hydrostatic test. The readings before and after hydrostatic test shall be equal.

Moreover, megger test shall also be repeated on wet insulating joint. Test shall be performed right after water immersion, or internal surface water spraying. Tension test shall be 1000 V. d.c. minimum and resistance shall be 1 Mohm minimum.

10.4 Fatigue and Hydrostatic Test

A fatigue hydraulic test shall be carried out on each joint before the hydrostatic test. This test consists on 40 consecutive cycles of quick pressure variations from 1.000 kPa to 1,5 time of the design pressure, back and fore. After fatigue test, the insulating joint shall be hydrostatically tested, at 1.5 times of the design pressure. The test pressure shall be maintained for at least 60 minutes.

No leaks or unacceptable deformation shall occur during this test.

Fatigue and hydrostatic tests shall be carried out in unrestrained conditions.

10.5 Welding Tests

All N.D.E. shall be carried out according to ASME V by a level II ASNT TC-1A practice qualified inspector.

In case of presence of Butt Welds these shall be 100% radio-graphed with X-rays. Acceptance criteria shall be per ASME VIII Div.1 UW.51.

Closure welds shall be inspected by ultrasonic, or magnetic particles

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method. Acceptance criteria shall be ASME VIII Div.1 Appendix 12 and Appendix 6 respectively.

Welds, which cannot be inspected by radiographic, ultrasonic, or magnetic particles, shall be checked by Dye penetrant test according to ASME Section VIII, Dv. I, Appendix 8.

All finished bevel ends shall be 100% ultrasonically tested for lamination type defects, for a distance of 50mm from the ends. Lamination shall not be acceptable

10.6 Visual and Dimensional Check

The manufacturer shall carry out visual inspection of all components prior to assembly and after finishing of the insulating joints. General appearance shall prove good workmanship. Dimensions of the insulating joint shall be checked against the specification, purchase order description and/or approved manufacturer drawings.

11. INPECTIONS

The manufacturer/supplier shall be responsible for carrying out all the tests and inspections required by this specification, using his own equipment and devices, and shall maintain complete records of all tests and inspections.

12. TEST CERTIFICATES

The manufacturer/supplier shall submit following certificates, as a minimum requirement:

- 1) Test certificates referred to the chemical and mechanical properties of the materials used for construction as per this Specification and related standards
 - 2) Test reports of welding tests
 - 3) Test certificate for fatigue and hydrostatic tests
 - 4) Test certificate for electrical tests
 - 5) Test certificate for dimensional and visual inspection
- Certificates shall be as per EN 10204 3.1.

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13. Marking

The following information shall be clearly stated on label attached to external surface of each insulating joint:

Manufacturer's name or trademark
Pipe pups steel grade
Pipe pups nominal wall thickness
Pipe pups nominal outside diameter
Maximum operating pressure
Maximum operating temperature
Serial number

No marking by means of stamping is allowed.

14. PACKING AND STORING

14.1. Insulating joint shall be properly packed in closed container fitted with cover to prevent damage during handling, preservation and transportation.

14.2. The content of each package shall be clearly indicated on outside walls.



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INSPECTION AND TEST PLANT

i)	X-Ray Examination Of All Butt Welds	R	❖ By Owner or TPI (third party Inspection) at Vendor's / Manufacturer's works.
ii)	Dimensional Check of Insulating Rings	R	
iii)	Ultrasonic Examination	W	❖ Testing and inspection shall be for each coupling.
iv)	Hydrostatic test	W	
v)	Ultrasonic Examination of Weld Ends	W	
vi)	Electric resistance greater than 25 mega ohms measured at 1000 V DC before and after hydrostatic testing	W	❖ Bending Test combined with hydrostatic test for one piece of each item of Summary of requirement.
vii)	Di-electric strength test	W	
viii)	Visual and Dimension Check	R	R - Review, W – Witness
ix)	Bending Test combined with hydrostatic testing	W	



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PROCESS DATASHEET

DOCUMENT

Rev: 0

IOCL/PNC/ES/MONO/BUTENE/01

Dt.22.08.2017

DATA SHEET OF MONOLITHIC JOINT

GENERAL	
Manufacturer	
Ref. Drawing No.	Vendor to submit drawings
TECHNICAL REQUIREMENT	
Design Pressure	6 (Int) Kg/cm ² (g)
Design Temperature	Min. (Peak -07° C) to Max. (65° C)
Operating Pressure	1.60/3.70 kg/cm ² (g)
Operating Temperature	20° C to 40° C
Electrical Resistance	> 25 Mega ohms (Applicable 1000 V DC)
Break down Voltage	5 KV (AC)
Medium	BUTENE

Sr. No.	Size	Schedule	Material	Rating	Qty.
1	4IN /100 NB	STD	ATSM A106 GR.B	150#	(6 No.)
2	6IN /150 NB	STD	ATSM A106 GR.B	150#	(3 No.)
3	10IN /250 NB	STD	ATSM A106 GR.B	150#	(7 No.)

For IGP ENGINEERS PVT. LTD.


K.C. HARIBABU
Dy. General Manager



PROCESS DATASHEET

DOCUMENT

Rev: 0

IOCL/PNC/ES/MONO/PROPYLENE/01

Dt.22.08.2017

DATA SHEET OF MONOLITHIC JOINT

General	Manufacturer	
	Ref. Drawing No.	Vendor to submit drawings
TECHNICAL REQUIREMENT		
Design Pressure	47.4/49 (Int) Kg/cm ² (g)	
Design Temperature	Min. (Peak -47° C) to Max. (65° C)	
Operating Pressure	9.3/18.5 kg/cm ² (g)	
Operating Temperature	20° C to 40° C	
Electrical Resistance	> 25 Mega ohms (Applicable 1000 V DC)	
Break down Voltage	5 KV (AC)	
Medium	PROPYLENE	

Sr. No.	Size	Schedule	Material	Rating	Qty.
1	6IN /150 NB	STD	ATSM A106 GR.B	300#	(2 No.)
2	6IN /150 NB	STD	ATSM A333 GR.6	300#	(2 No.)
3	8IN /200 NB	STD	ATSM A333 GR.6	300#	(2 No.)
4	12IN /300 NB	STD	ATSM A106 GR.B	300#	(2 No.)

For IGP ENGINEERS PVT. LTD.


K.C. HARIBABU
Dy. General Manager