

دفتر الشروط الفنية لتأمين وصلات عزل مختلفة الأنواع والقياسات

Tender Book for Insulation Joints

أولاً-شروط عامة:

- ١ - كافة وصلات العزل المطلوب توريدها يجب أن تكون جديدة وغير مجددة.
- ٢- كافة وصلات العزل يجب أن تكون مصنعة من الكربون ستيل القابل للاستخدام في الأوساط الحامضية متوافقة مع (NACE).
- ٣- يجب أن يتم توريد spark Gap مع كل وصلة عزل.
- ٤ - يجب أن تحتوي وصلات العزل على لوحة معدنية مثبتة (من الستانلس ستيل) متضمنة: القياس والصنف والقطر...
- ٥- يجب للشركة أن ترفض أي وصلة عزل مخالفة للمواصفات المطلوبة بدون أية التزامات.
- ٦- ترفق كافة الوثائق المتعلقة بوصلات العزل متضمنة كافة المواصفات المطلوبة حسب النوع والصنف باللغة الانكليزية وموقعة ومختومة من قبل المصنع.
- ٧- على المتعهد تقديم نشرة مواصفات فنية عند التوريد تتضمن كافة المعلومات والمواصفات والاختبارات المنفذة للمواد المطلوبة من الشركة الصانعة.
- ٨- توضع وصلات العزل و spark Gap وتوضع بصناديق خشبية، تراعى فيها شروط الحفظ والتخزين.
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- ١٠- يوضع ظرف محكم الإغلاق محمي من التلف لقائمة محتويات كل صندوق بالنوع والعدد.
- ١١- كميات المواد المطلوبة وفق الجدول المرفق رقم (١).
- ١٢ - يتم تقديم العرض المالي وفق الجدول المرفق رقم (١) مع ذكر الأسعار الافردية والإجمالية .
- ١٣- يتم دفع مستحقات المتعهد بعد صدور محضر الاستلام المؤقت.
- ١٤- مكان التسليم: أرض مستودعات الشركة في مديرية نقل وتوزيع الغاز بالريان ٢٠ كم شرق مدينة حمص.
- ١٥- يتحمل المتعهد كافة النفقات والرسوم المترتبة داخل وخارج القطر (كافة الأجور والمصاريف والضرائب والرسوم والطابع وأجور النقل وغيرها) حتى وصول المواد إلى أرض مخازن الشركة السورية للغاز في الریان شرق حمص ب ٢٠ كم.
- ١٦- الطلبية غير قابلة للتجزئة.
- ١٧- مدة التوريد: (١٨٠) يوم مائة وثمانون يوماً اعتباراً من اليوم التالي لتاريخ تبليغ المتعهد أمر المباشرة.
- ١٨- مدة الضمان: سنة ميلادية كاملة اعتباراً من تاريخ صدور محضر الاستلام المؤقت المعتمد أصولاً.

Tender Book For Insulation Joints

SCOPE OF WORK:

contractor shall supply insulation joints Suitable for flow media such as natural gas, crude oil, sour service, All Joints shall be of Monolithic type construction by welding pipe-pups on either side, according but not limited to the following conditions

1. Design According to ASME VIII Division 1./ASME B31.8 ,ASME 31.3 and prepared for welding to fit the pipe size and grade specified
2. Insulating joints shall be designed, Design factor /0.6/
3. ALLOWABLE LOADS , Total Design Load 50 % Pipe SMYS
4. Insulating joints shall be **Compact design**, the max. length (end to end) according to the table below.
5. All materials shall be new and unused.
6. **Every isolation joint shall be attached with spark Gaps.**
7. Pipes used to fabricate insulation joint shall be seamless acc. to adjacent pipes shown in bill of quantities table below).
8. Operating temperature shall be (-15 ,+70)°C.
9. Materials shall be sour service(conditions) ,the materials shall comply with the requirements of NACE Standard MR 01-75 (for steel components) and TM 01-87 (for seal gasket). **latest rev.**
10. Hardness: shall not exceed 22HRC maximum, at any point .
11. Carbon equivalent: shall be calculated using product analysis for carbon steels shall not exceed 0.43% by check analysis according to the following formula: $CE = C + Mn/6 + (Cr + Mo + V) /5 + (Cu + Ni) /15$
12. All dimensions and tolerances and bevels end shall be according to (ANSI B-16.9), and applicable standards .
13. The number of welds must be as restricted as possible.
14. 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
15. Marking: Stainless Steel name plate are required, marking shall include : type and grade of material, class, diameter, heat no. , schedule or wall thickness, test pressure ,manufacture name in accordance the mill test certificates.
16. isolation joint shall be for above ground service.
17. bevel weld end $(35 \pm 2)^\circ$,
18. each piece equipped with tow holing cadmium plate $\varnothing (3/8")$ for earthing.
19. **Painting and coating:**
external coating and internal lining shall be fusion bond epoxy min. 500 micron, applied on blast cleaned surface (Sa2 1/2).
50 mm at each end shall be left uncoated to allow welding. but protected with an easy removable rust preventive varnish.
Internal lining virtually all types of lining can be applied upon agreement depending upon intended purpose

Supplier shall be delivered insulation joints according to the following conditions:

Gas Composition	
Nitrogen	0.5÷8 %
Carbon dioxide	0.5÷10 %
Hydrogen sulphide	up to 3%
C1	70÷93 %
C2	1÷7 %
C3	1÷5 %
C4	0.01÷0.9 %
C5	0.01÷0.7 %
C6+	0.01÷0.5 %
Water	0.5÷8 %
H2S continue	2000 ppm
gas may contain: - produced salt water chloride (up to 30000ppm) - methanol	

Electrical Resistance Test (dry air)	> 5 mega ohms @ 1000 V DC
Direct strength test	> 1.5 kv AC @ 50 Hz for 5 minute
Design Tem.	(- 29 , 93)° C
Ambient. Tem.	(-10, 55)° c
Operating Tem.	(-15, 70) ° C

REFERENCE DOCUMENTS:

Design construction and testing of the material shall comply with the following codes and standards:

- ASTM A370
- NACE STD MR-01-75 (LATAST REV.)
- ANSI B 16-9 (LATAST REV.)
- ASTM A388 (LATAST REV.)
- ASME VIII Division 1 (LATAST REV.)
- ANSI B 31.8 (LATAST REV.)
- E 709 .
- AMSE IX for Welds

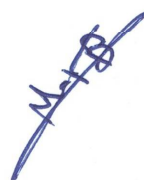
PRIORITY:

In case of any discrepancy or conflict arises or exists between specification and codes the severe specification shall apply with this priority:

- a- This material requisition and its attachment.
- b- International codes and standards.

PROCUREMENT:

All material shall be from the first class manufacturers.
the company has the right to reject any material not according to the specifications without any increase in the contract price or change in the delivery time.



Test : Tests/Inspections:

The manufacturer/supplier shall be responsible to perform and carrying out all the tests and inspections required by this specification, using his own equipment and devices, and shall delivered complete records of all tests and inspections. the test shall be performed for each piece of insulation joint acc.to flowing :

- **Electrical tests:**

manufacturer shall be perform all electric test acc. To above mechained table. No flashover, or breakdown shall occur during the test. Upon completion of the assembly and prior to the hydrostatic test, each insulating joints shall be Tested . 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 M ohm minimum .

- **Hydro Fatigue Test:**

A fatigue 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

- **Hydrostatic Test :**

tested, at 1.5 times of the design pressure. The test pressure shall be maintained for at least /30/ minutes. No leaks or unacceptable deformation shall occur during this test.

- **TORSION TEST** 5% of SMYS

- **HIC TEST:** From Accredited Certified Laboratories; on Forgings and on Pipes

- **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 method. Acceptance criteria shall be ASME VIII Div.1 Appendix 12 and Appendix 6 respectively. Welds, which cannot by 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

- **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

Note 1: Crack is prohibited

Note 2: any defects out of acceptance limits shall be removed by machining or grinding and shall be examined by (MPI), the wall thickness at any point shall be at least (87.5 %) of the specified nominal wall thickness.



Bill of Quantity: Table (1)

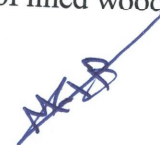
Insulation Joint								
Item	Description	NPS	(OD) mm	WT. mm	Adjacent Pipe	Rating	Test pressure bar	Qty
1	Insulation Joint API 5LX42	3"	88.9	5.5	API5L X42	#600	150	10
2	Insulation Joint API 5LX42	4"	114.3	11.3	API5L X42	#900	210	18
3	Insulation Joint API 5LX42	4"	114.3	7.9	API5L X42	#600	150	15
4	Insulation Joint API 5LX42	6"	168.28	14.27	API5L X42	#900	210	20
5	Insulation Joint API 5LX42	6"	168.28	8.7	API5L X42	#600	150	12
6	Insulation Joint API 5LX42	8"	219.1	8.7	API5L X42	#600	150	4
7	Insulation Joint API 5LX60	10"	273.1	8.7	API5L X42	#600	150	6
8	Insulation Joint API5L X60	12"	323.8	12.7	API5L X60	#600	150	4
9	Insulation Joint API5L X52	16"	406.4	9	API5L X52	#600	150	2
10	Insulation Joint ASTM A106 Gr.B	18"	457	23.8	ASTM A106 Gr.B	#600	150	2
11	Insulation Joint ASTM A106 Gr.B	18"	457	34.93	ASTM A106 Gr.B	#900	150	2
12	Insulation Joint API 5LX60	24"	610	11.6	API5L X59	#600	150	2
13	Insulation Joint API 5LX60	24"	610	14.27	API5L X60	#600	150	2
14	Insulation Joint ASTM A106 Gr.B	24"	610	30.96	ASTM A106 Gr.B	#600	150	2
Total								101

Packing:

All insulation joint shall be provided with the following required packing instructions:

- **each piece** shall be blanked to protect the two end surfaces and internals, protective covers may be wood, wood fiber, plastic, then they will be packed in waterproof lined wooden cases in such a manner that the flange faces will be separated from other by wood or fiber board. Weight of each case not to exceed 400 KG.
- Each case will contain only one size.
- **spark Gaps** shall be packed in waterproof lined wooden cases separately.







- One (1) copy of the packing list complete with a mill certificate shall be placed in a sealed waterproof envelope and attached to the inner side of the case lid.

Third part Inspection:

Contractor/vendor shall be responsible for the Inspection and testing of material in the manufacturers shop in order to ensure conformance to the material requisition and specifications.

All tests, documents, shall be witnessed and stamped by authorized qualified third part Inspection Company.

The third part inspection agency, to be at the **contractor cost**.

DOCUMENT AND CERTIFICATION TO BE SUBMITTED :

with the shipment:

- mill certificates shall be submitted and shall include: mill chemical analysis, product analysis, heat treatment, hardness tests, NDT report ,mechanical & electrical & hydro test report, all other tests etc.
- The contractor must provide all document listed below, All document submitted shall be written in English.

Item	Document	Final
1	Origin & name of manufacturer	1 copy
2	Acceptance test certificate	1 copy

مدير تطوير واستثمار الغاز الطبيعي

يعتمد

المدير العام

المهندس فراس سلمان إسماعيل