صنایع پتروگاز نامداران

NAMDARAN
PETROGAS INDUSTRIES



INSULATION JOINT

اتصـال عایـقی

INSULATION JOINT

Introduction

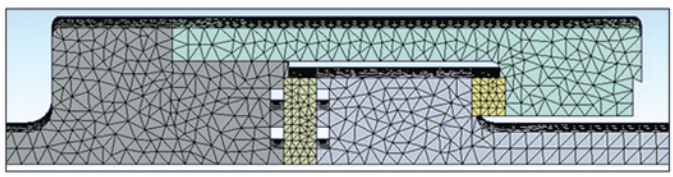
Namdaran Petrogas Industries is a leading company in the design and manufacture of pressure parts and pipeline equipments for the Oil & Gas, Petrochemical and other process industries.

Description

Namdaran Petrogas Industries Insulating Joint (NIJ) is a high-resistance fitting used to electrically isolate sections of a pipeline to improve the effectiveness of cathodic protection systems and to reduce ground-loop currents. Unlike insulating flanges or flange kits that are field assembled and tested, the NIJ is factory assembled, electrically tested at different stages of manufacturing, and hydrostatically tested. The NIJ is provided with extension nipples that match the pipeline wall and grade and are long enough to eliminate any possibility of thermal damage to the NIJ during field welding.

Monolithic insulation joint

- Are boltless, rigid pipeline components, factory-welded and ready for installation
- A design which has proven successful throughout the world even for highest requirements
- Maintenance-free
- Suitable for underground installation without the need for special precautions or for above ground installation
- Absolutely no impairment due to external influences



Mechanical properties

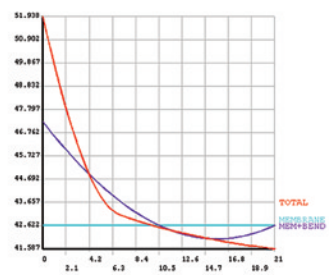
- The excellent mechanical properties are achieved by a rigid design of statically favourable form, using thermo-setting plastics free from cold flow as insulating materials
- The welded unit provides a safe and reliable connection even over extremely long period of operation without the risk of the secured and locked unit loosening or separating
- Countless tests, prototype tests and empirical data gained during the course of many years of practical operation confirm the soundness and correctness of the complete welded design

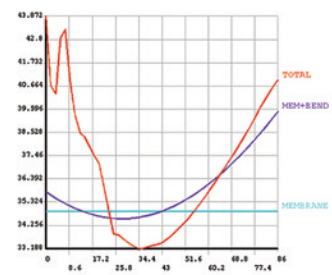
Electrical properties

- The dimensioning and practical arrangement of the insulating sections within the overall design in addition to technical production factors, in conjunction with insulation materials of a suitable quality, result in the ideal overall electrical behavior of the insulating joints large external insulating length, thus eliminating the possibility of spark over
- Very good dielectric strength, substantially greater than is the case with conventional insulating flanges
- A decisive factor in safe operating behavior, however, is linearity between the voltage applied and the resistive leakage current

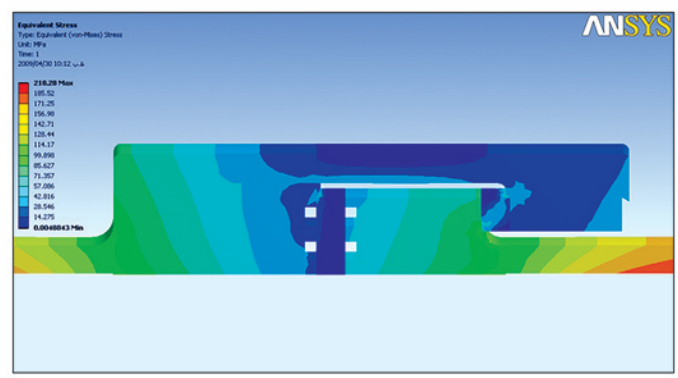
Calculation

- In accordance with standards such as ASME, DIN 2470, TRBF and other international standards, or in accordance with IPS / IGS specific requirements. If no other regulations specified, the IPS or IGS specification are valid.





- Additional forces such as bending moments and tensile forces etc. must be specified by the customer
- Basically, all components of forces and force values occurring can be taken into consideration during design calculation
- All mechanical analysis will be done by ANSYS Software and will be interpreted acc. To ASME VII Div. I / II standard.

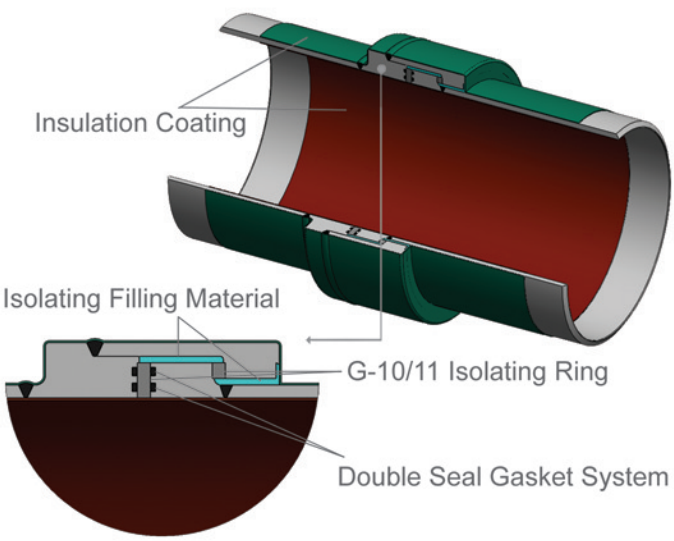


Applications

- Suitable for flow media such as natural gas, crude oil, kerosene, gasoline, propane, butane, coal gas, ethylene, nitrogen and drinking water etc.
- Media such as sour gas and oxygen necessitate special materials and design bases
- Standard versions up to maximum +80 °C constant temperature
- Special versions for district heating pipelines up to +150 °C

Materials

- Pipe materials used are in accordance with API, ASTM/ASME or DIN standards
- Seamless rings made of plate material or of forged quality, depending upon costumers requirements and design calculations



- Seals materials are selected as e.g. FKM(Viton), NBR, EPDM and other materials according to ASTM D 2000
- Insulating materials are supplied according to ASTM D709 standard

External coating

- We apply two layers Epoxy Zink Rich as primer, and two layers Polyurethane as top coat as our standard.
- Other types of coating are possible according to agreement and purpose such as Bitumen primer, coal tar epoxy resin and others

Internal lining

- As per our standard without lining
- Electrically conductive media and deposits require an appropriate internal lining
- Virtually all types of lining can be applied upon agreement

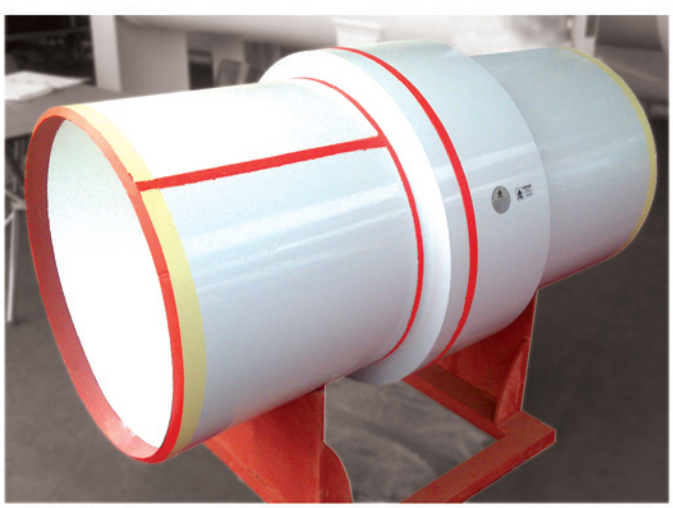
Tests/Inspections

- According to the agreed requirements, usually:
  a. A strength and tightness test with water
  b. An electrical breakdown test with 3000 V/1 minute, AC, 50 Hz (both before and after the hydrostatic pressure test as our standard)
  c. An electrical resistance test, standard 1000 V DC
  d. Checking the material certificates
  e. Evaluation of the destructive and non destructive tests
  f. Dimensional checks
- Depending upon the basis of the order, the tests are conducted either by our quality assurance department, by the customer himself or by an authorized third party

Ordering information

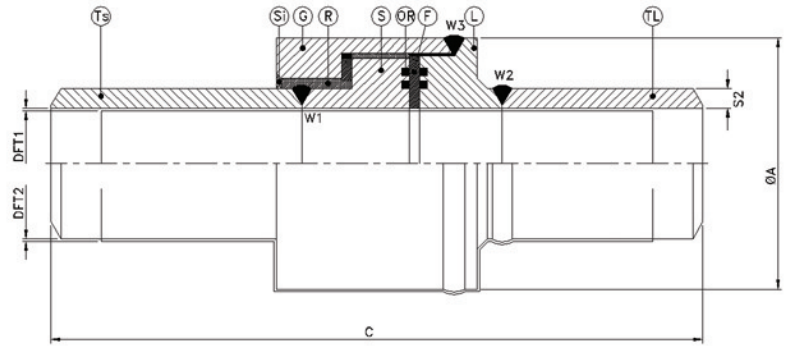
Please provide the following information on any purchase order or request for quotation:

- Design code
- Nominal pipe size
- Design pressure
- Design factor
- Working temperature
- Pipeline wall thickness or bore
- Pipeline grade
- Fluid conveyed
- Electrical Resistance test (MΩ @ 1000V DC)
- Dielectric test @ 5000 V or 3000 V
- Design factor
- Quantity



ISOTS 29001:2003 CERTIFIED ORGANIZATION
URS

ISO 9001 CERTIFIED ORGANIZATION
URS
UKAS QUALITY MANAGEMENT
043-A



Size (in)	ANSI 300			ANSI 600		
	ØA(mm)	C(mm)	Weight (Kg)	ØA(mm)	C(mm)	Weight (Kg)
6	273	700	45	273	700	58
8	324	700	74	324	700	86
10	380	700	113	384	700	138
12	425	700	148	434	1000	234
14	454	700	150	476	1000	262
16	510	1000	205	527	1000	296
18	560	1000	252	586	1200	420
20	612	1000	328	645	1200	530
22	667	1000	364	708	1200	640
24	722	1000	400	770	1200	750
26	775	1200	483	828	1500	935
28	828	1200	565	886	1500	1120
30	885	1200	713	946	1800	1395
32	941	1500	860	1005	1800	1670
36	1046	1500	1085	1115	1800	2120
40	1162	1500	1345	1222	1800	2620
42	1212	1800	1575	1287	2200	3230
44	1271	1800	1685	1340	2200	3473
48	1382	2000	2150	1474	2500	4730
52	1492	2000	2615	1608	2500	5987
56	1603	2000	3080	1742	2500	7260

Inspection & Testing

100% RT examination on but welds W1&W2, accepted standard ANSI B31.8/B31.4
100% UT examination on closure weld W3, accepted standard ANSI B31.8/B 31.4
100% Hydrostatic pressure test (1.5× design pressure, TIME=4 HR)
100% Dielectrical strength test(≥ 3kv AC 50Hz (1 minute))
100% Electrical resistance test (≥ 4M Ω @ 1000v DC)*
100% Visual & dimensional check
* The resistance test can be increased up to 40 M Ω @ 1000 v DC upon customer requirement

Description		
DFT2	External coating	Amine Cured Epoxy
DFT1	Internal Lining	Amine Cured Epoxy
OR	O-ring	ASTM D 2000 NBR / FKM(Viton) / EPDM
Si	Silicon	Silicon Bs 5889
R	Resin	Epoxy resin
F	Insulators	G 10/11 ASTM D709
TL-TS	Pipe	API 5L X42 to X70 / A106-B
S-L-G	Small large retainer	ASTM A694 F42 to 70 / A105N / A350 LF2

Remark:

- Dimensions are approximate and many change without notice.
- Certified dimensional drawings and pricing available upon request.

Head Office: 3rd Floor, No. 12, Naghdi St., North Mofateh St., Tehran-Iran
Tel No: (+98-21) 88522258-60 Fax No: (+98-21) 88753763
Sales Office: Unit 11, No. 3, 8th St., Khaled Slamboly Ave., Tehran-Iran
Tel No: (+98-21) 88710234-5 Fax No: (+98-21) 88717457
Factory: No. 61, Keyhan Alley, Shams Abad, Km 35 Qom Highway
Tel No: (+98-21) 56225112-14 Fax No: (+98-21) 56225115
E-mail: info@namdaran.ir **Website:** www.namdaran.ir