

INDIA



INSULATING JOINTS



FLOSILTM

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Mololithic Insulating Joint Catalog

Steel pipes suffer chemical and electrochemical corrosion at any moment when they are used, and these metal materials which takes us a lot of labor and energy to flow away. This is because iron metal is in instable thermodynamic state. Once there are opportunities, it tries to restore comparatively stable state as it was in lithosphere before, to produce Fe_2O_3 or transform into Fe^{+3} . In the course can be regarded as reverse course of metallurgy.



Catholic protection method applied in antiseptis engineering effectively resist corrosion of metal pipes, and electricity insulation is an indispensable condition for catholic protection in antiseptis engineering of underground metal pipes. Integral Insulating joint invented by our company applies patent technique, which more effectively ensure electricity insulating condition for catholic protection. Thus it is the best electricity component for catholic protection.

Its functions are to perform insulation and seclusion among each section of steel pipe, pipe lines and equipments, to avoid flowing off of electricity because of catholic protection, to reduce galvanic corrosion and disturbance of disorder current.



Product characteristics high insulating resistant value, high breakdown voltage, better mechanic performance, direct underground use, needing no maintenance management, long using cycle. It is updated and replacing product of insulating flange.

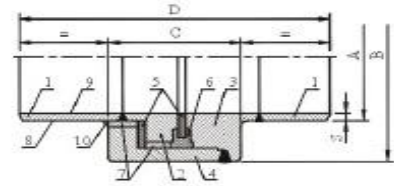
Monolithic insulating joint is composed of the following parts upper and lower conduits, sleeve, insulating part, seals and insulating coat.

Insulating part and seal are fixed where upper and lower conduits are joined oppositely, which forms double sealing structure possessed of insulating performance. Groove welding is applied to sleeve, or it is directly welded with upper conduct. In this way, insulating part and upper and lower conduits are sealed inside firmly, which forms sealed vessel. Therefore, the joint can provide better insulating effect, and it also improves mechanic performances such as pull resistance, bending resistance and stress resistance.



❖ **APPLIED STANDARD**

1. Design code: ASME CODE Section VIII Division 1
2. Material



ITEM	PARTS		MATERIAL
1	PIPE PUPS		API 5L, (Gr X42/X52/X60/X65/X70/X80), ASTM A106 (Gr B) ASTM A333 (Gr 6)
2	FLANGE-I	Forging	ASTMA105, ASTM A350 (Gr LF2) ASTM A694 (Gr F42/F52/F60/F65/F70/F80)
3	FLANGE-II		
4	FLANGE-III		
5	Insulation Gasket		Epoxy Fiber Glass ASTM D709
6	Seal System	O-ring (Double Seal System)	Viton, Nitrile, Neoprene
7	Filling		Epoxy resin
8	External coating		Epoxy Paint DFT 150Micron
9	Internal coating		Epoxy Paint DFT 300Micron
10	Sealant		Epoxy resin/Silicon

❖ **SIZE RANGE**

DN25 (1") ~ DN1200(48")

❖ **PRESSURE CLASS**

(Up to ANSI 2500)

❖ **WORKING TEMP**

-10 ~ +90°C

❖ **TESTING**

Hydrostatic test 1.5 times MOP

Electrical resistance; $\geq 100 \text{ M}\Omega$ (1000 V DC) Under Dry air, 25°C

Dielectrical voltage 3.5 KV/50 HZ (1 min) (can be 5.0 KV up to the request)

❖ **SUITABLE MEDIA**

Gas, Oil, Water

ORDERING INFORMATION:

When ordering, please give the following information

1. Diameter of pipe
2. ANSI rating
3. Grade of pipe material
4. Wall thickness
5. Product to be transported
6. Temperature of transported material
7. Additional X-ray, ultrasonic and dye penetrate testing requested? Electrical and hydrostatic testing is standard

Production, Technical & Management

Background: Goodrich is India's Largest manufacturer of industrial gaskets, under the well known brand name of FLOSIL® with over-20-years. Today our gaskets and allied products are successfully being used in a wide variety of applications around the world including: Petroleum Refineries, Pipelines, Oil and Gas Processing, Petrochemicals, Offshore Structures & Platforms, Engineering, Ports & Terminals, Metallurgy, Fertilizers, Power, Valve, Wellhead Equipments, Waste Water Treatment, Heat Exchanger & Pressure Vessels etc...

Our manufacturing facilities are ISO 9001:2008 accredited, and are on par with world class players in manufacturing process and technology.

Design: The Company adopts advance CAD software such as **AUTOCAD, Pro-e** to support the design work of engineers. The regulator sizing program developed antiquely by our company, can meet all the special requirements arise from the customers.

Production Facilities:

No	Equipment Name	Specification	Qty	Purchased Time
1	5 Ton Bridge Overhead Crane	-	5	2010
2	1 Ton Bridge Overhead Crane	-	2	2010
3	Paint Spray Equipment	-	1	2009
4	Arc-Welding Machine	Upto 400 A	3	2007 to 2010
5	Argon Tungsten-Arc Welding Machine	Upto 400 A	3	2007 to 2010
6	Plasma Air Cutting Machine	-	1	2010
7	Precision Lathes	(Upto 3 mtr)	12	2010
8	Horizontal Band Saw Machine	(Upto 300 mm)	1	2010
9	High-Speed Hack Saw Machine	(Upto 300 mm)	1	2010
10	CNC Lathes	(Upto 615 mm)	6	2005 to 2010
11	Welding Rotators	-	2	2010
12	Portable Drilling Machine	12mm	2	2010
13	Drilling Machines	Upto 49mm	3	2005 to 2010
14	Kirloskar Genset	250 KVA	1	2010
15	Hydraulic Press	-	1	2010
16	Threading Machine	Upto 120mm Dia	1	2010
Inspection Equipment				
17	Mobile Air Compressor	0 – 10 Bar	2	2010
18	Stationary Air Compressor	0 – 10 Bar	1	2010
19	Hydro Pump	0 - 700 Bar	2	2005 to 2010
20	Hydrostatic Pressure Test Rig	-	1	2010
21	LPT test facility	-	1	2008
22	Insulation High Voltage, Testing Machine	0 – 15 KV AC	1	2009
23	Megger	0 to 5000 V DC (0 to 10 TΩ)	2	2009
24	Large Compressor	16 Bar	4	2005 to 2010
25	Pressure Gauge	0 - 700 Bar	5	2009
26	Coating Thickness Gauge	0 – 1250µ	1	2009
27	Digital Hardness Tester	-	1	2010
28	Other Measuring Devices	-	20	2007 - 2010

Introduction

Steel pipes suffer chemical and electrochemical corrosion at any moment when they are used, and these metal materials which take us a lot of labor and energy flow away. This is because iron metal is in instable thermodynamic state. Once there are opportunities, it tries to restore comparatively stable state as it was in lithosphere before, to produce Fe_2O_3 or transform into Fe^{+3} . In the course can be regarded as reverse course of metallurgy.



Cathodic protection method applied in antiseptis engineering effectively resist corrosion of metal pipes, and electricity insulation is an indispensable condition for cathodic protection in antiseptis engineering of underground metal pipes. Integral insulating joint invented by our company applies patent technique, which more effectively ensure electricity insulating condition for cathodic protection. Thus it is the best electricity component for cathodic protection.

Its functions are: to perform insulation and seclusion among each section of steel pipe, pipe lines and equipments; to avoid flowing off of electricity because of cathodic protection; to reduce Galvanic Corrosion and disturbance of disorder current, and so on. The joint can effectively protect steel pipelines from electrochemical corrosion, extend their using lifespan, and prevent electric components of equipments from disturbance of disorder current.

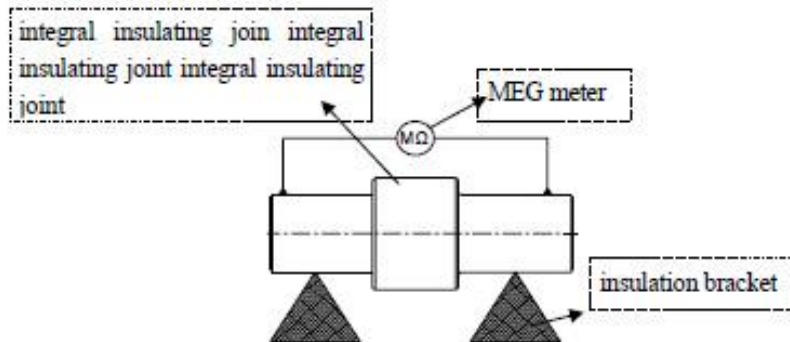
Product characteristics: high insulating resistance value, high breakdown voltage, better mechanic performance, direct underground use, needing no maintenance management, long using cycle. It is updated and replacing product of insulated Flange.

1) Technical Parameters

Pressure Grade	Kg/cm ²	PN25, PN40, PN64, PN100,
	ANSI	Class 150, 300, 600,
Products Specification	DN25 ~ DN1200	
Medium Temperature	-10°C~+70 °C	
Insulating Performance	Breakdown voltage	≥ 3kv/50Hz
	Insulating resistance	≥ 100 MΩ (25°C, under the dry air environment)
Test Detection	Hydraulic pressure test	pressure of test : 1.5times of design pressure
Applied Medium	Gas, oil, water and another non-corrosive liquid medium	

2) Product structure:

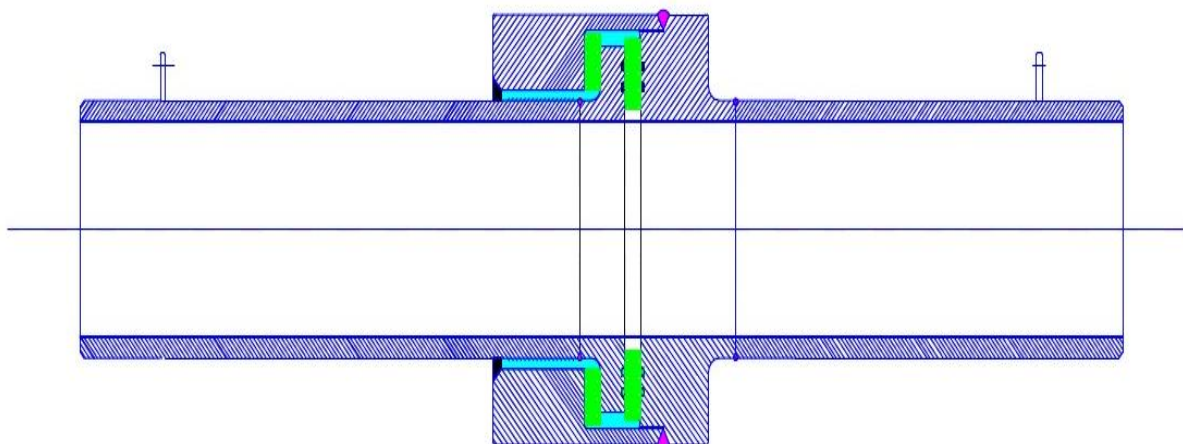
Integral insulating joint is composed of the following parts: upper and lower conduits, sleeve, insulating part, seals and insulating coat. Insulating part and seal are fixed where upper and lower conduits are joined oppositely, which forms double sealing structure possessed of insulating performance. Groove welding is applied to sleeve, or it is directly welded with upper conduit. In this way, insulating part and upper and lower conduits are sealed inside firmly, which forms sealed vessel. Therefore, the joint can provide better insulating effect, and it also improves mechanic performances such as pull resistance, bending resistance and stress resistance.



Installation Process and Attention Points

- 1) Before installation, check coat, appearance and insulating resistance of insulating joint, and confirm working pressure and temperature.
 - check coat and appearance of insulating joint with eyes to remove any defect affecting use, make sure that nameplate affixed on insulating joint is complete and clear, and find out whether technique parameters on nameplate accords with use pressure and temperature of pipeline.
 - Insulating resistance is examined according to MEG meter method, but the method only applies to integral insulating joint that is not installed onto pipes yet. Shown in the following figure, magnetic joint (or clamp) is applied to connect measurement lead of input end to 1000V MEG meter to exposing pipes in the two sides of integral insulating joint (rust must be removed at jointing point), and MEG meter handle is turned to specified rotate speed and keep it for 60 seconds at the time, indicated stable resistance on MEG meter is insulating resistance of integral insulating joint, and insulating resistance must be more than or equal to 20 MΩ (notes: integral insulating joints with insulating resistance of ≥ 50 MΩ are approved when they are sent out of factory).
- 2) Check whether geometric size of integral insulating joint accords with neutral size of connection pipeline.
 - attention items: not change length of insulating joint for installation
- 3) Before welding, adjust the position of front and back pipes, to make pipes bear force naturally and avoid greater stress, then clean grooves of pipe and insulating joint and welding position sides, to display metal polish and make sure that no filths such as rust, oil and water at grooves and both sides, finally welding can begin.
 - Attention notes:
 - i. When insulating joint with outer antisepsis layer is installed, make adequate prevention to antisepsis layer from scratch or damage.
 - ii. after welding, prevent joint from greater stress of axis direction, bending moment and torque

- 4) After welding, when exposed metal of pipes and joint are burnished with metal polish, instant perform antiseptis treatment on them.
 - Attention items: after burnishing, filths such as water, oil and rust are not allowed; when performing antiseptis treatment, control surface temperature of insulating joint below 100°C.
- 5) When insulating joint is connected to pipes vertically, adjust positions of front and back sections of pipes, make them bear force naturally and avoid greater stress. The end with the same direction as nameplate words is installed upwards (namely: the end filled with epoxy resin is installed downwards.)
 - Attention items: after welding one end, not enforce welding on the other in pairs.
- 6) When integral insulating joint is connected to pipes horizontally, horizon inclination angle of central axis line is required to be $\leq 15^\circ$.
 - attention item: when inclination angle is over great, which leads to height difference between front and back bases, greater stress is easily produced at welding position of insulating joint, to further damage insulating joint and cause ineffectiveness of electricity insulation.
- 7) When integral insulating joint is installed on ground, bracket should be set up at front and back positions of insulating joint.
 - Attention items: adequately set up bracket, to effectively avoid insulating joint from bearing over great bending and shearing moments.
- 8) When integral insulating joint is buried underground, in addition to attention items above, the joint should avoid being installed at the position with permanent rain as well.
 - When pipes are under lifting operation, if insulating joint has been installed, the joint cannot be force-bearing point for lifting pipes.



References of welding technique

1) Welding equipment, welding rod specification and drying:

Pipe Wall Deepness(Mm)	4~7	8	10	12~16	18
Welding Layers(Layer)	2	3	4	5	6

2) Welding layers classification table

Welding Equipment	Welding Material Specification (mm)	Drying Temperature	Drying Duration (h)
Direct Current Welding Machine	Φ3.2, Φ4, Φ5	350	1.0

3) Main welding technique specification parameters

Material	Welding Method	Welding Equipment	Power Supply Polarity	Layer	Welding Material Specification	Current (A)	Voltage (V)	Welding Velocity (mm/min)	Interlayer Handling	Back Holes of Point fixation (mm)
ASTM A106	Arc Welding For Welding Rods	Direct Current Welding Machine	Reverse Joining	Point Fixation	Φ3.2	120~130	21~23		Slag Removing	2mm
				1	Φ3.2	120~130	21~23	180~200		
				2	Φ4	160~180	23~25	180~200		
				3,4	Φ4	160~180	23~25	180~200		
				5	Φ4	160~180	23~25	170~190		
API 5L Or ASTM A516	Arc Welding For Welding Rods	Direct Current Welding Machine	Reverse Joining	Point Fixation	Φ3.2	120~130	21~23		slag removing	2mm
				1	Φ3.2	120~130	21~23	180~200		
				2	Φ4	160~180	21~25	180~200		
				3	Φ4	200~220	21~25	180~200		
				4,5	Φ5	200~220	21~26	170~200		
6	Φ5	200~220	21~26	160~200						

General Drawing

TECHNICAL DETAILS:
 DESIGN TEMPERATURE :
 DESIGN PRESSURE :
 HYDRO TEST PRESSURE : 1.5 X DP
 ELECTRICAL RESISTANCE : ≥100 MEGA OHMS (1000 V DC APPLIED FOR 1 MIN.)
 DI-ELECTRIC STRENGTH : 3.5 KV/50Hz AC FOR 1 MIN.

TESTING:
 1. THE WELD JOINT OF FORGED RING WITH PIPE (W1 & W2) TO BE D.P & RADIOGRAPHY TESTED AND THE FINAL WELD (W3) TO BE D.P & M.P.I
 2. ULTRASONIC TEST ON FORGED RINGS
 3. ASSEMBLY HYDRO TEST
 4. DI-ELECTRIC STRENGTH TEST
 5. INSULATION RESISTANCE TEST

ENLARGED VIEW

S.L NO	DESCRIPTION	QTY	MATERIAL
7	TESTING LUG	2	M.S
6	PIPE	2	
5	'O' RINGS	4	RUBBER
4	INSULATING FILLING	1	EPOXY RESIN
3	INSULATING RINGS	2	EPOXY LAMINATED GLASS FABRIC BASE
2	ADHESIVE SEALENT	1	SILICON
1	FORGED RINGS	3	

2011	SIGN	GOODRICH GASKET PVT LTD. CHENNAI - 48
DRN.	CLIENT:	
CHD.	ITEM: MONOLITHIC INSULATION JOINT ASSEMBLY	
	PROJECT:	
	SIZE & RATING:	
	DRG. NO:	REV.NO:

Storage and Transportation

1. Storage

1.	Suggest that products be stored in closed warehouse.	
2.	Suggest that products be placed erectly in singles in warehouse.	
3.	Acidic or alkaline articles must not be placed or stored near the location, to prevent erosion.	
4.	Storage temperature is room temperature, and comparative humidity of ≤ 85% is suggested for warehouse.	
5.	During storage, products are prevented from colliding other articles to cause deformation, scratch and other damages.	

2. Transportation

- a. Insulating joints can be transported by various vehicles. During transportation, they are prevented from fierce vibration, chemical erosion, throwing or casting and colliding.
- b. Insulating joints with outer antiseptis layer are protected from scratching antiseptis layer, and the layer must be ensured in order.



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Represented by :

Note : Please contact our distributor or our office for the prices.