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EDOPEC ENERJİ PETROL MÜHENDİSLİK SANAYİİ VE TİCARET LİMİTED ŞİRKETİ

Document Title

Flange Insulation Kits

EDO-FF-IFJ-DNXX-PNXXXPA

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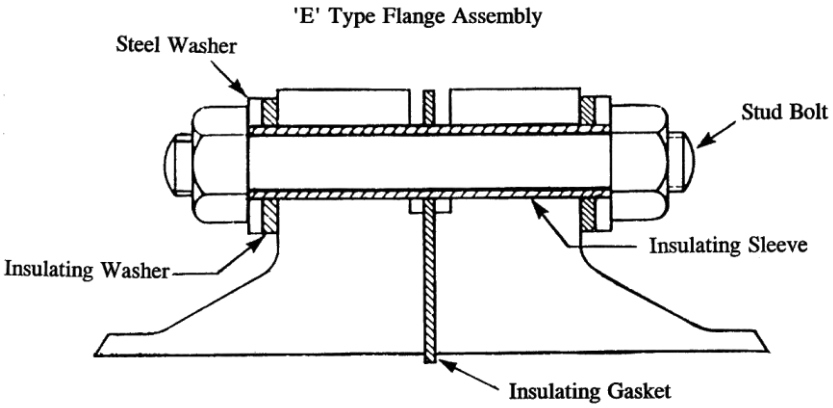
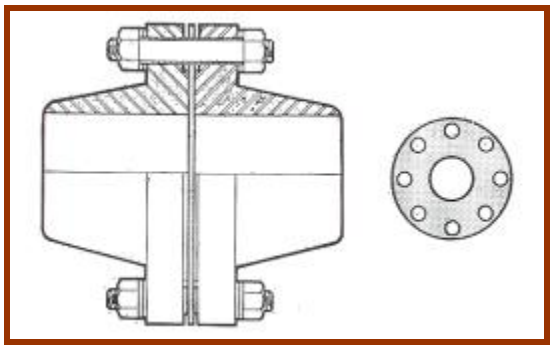
FLANGE INSULATION KITS

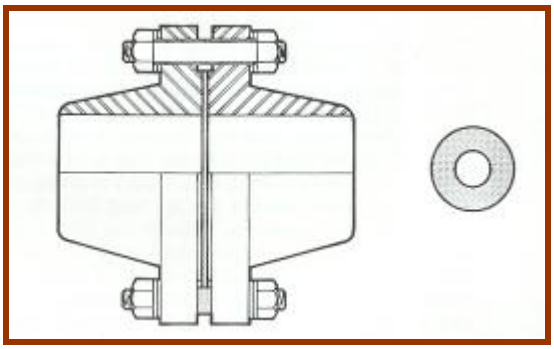
In order to maintain the full integrity of a pipeline cathodic protection system, a pre-requisite is that the pipeline is electrically isolated from other structures. One of the main reasons for this is to prevent current drainage. In the case of pipelines, well casings and similar construction, insulation can be actioned by installing Insulating Flange Kits or Insulating Joints.

When using Insulating Flange Kits, the material recommended is a neoprene coated phenolic either as a full face or ring joint, used in conjunction with insulating bolt sleeves which can be supplied in sufficient thinness to permit the use of standard bolts provided that there is a clearance of 3 millimeters between bolt diameter and bolt hole. Tufnol or similar material washers are also used to isolate the bolt and nut head from the flange although in practice it is only necessary to isolate on one side. It is important that the gasket material used should have a high electrical resistance in conjunction with rigidity but at the same time permit sufficient compression by tightening up to overcome any problems of leaking joints. It is particularly necessary to over-wrap the whole joint, immediately after making, in order to prevent dirt and moisture ingress between the flange end faces or between the heads of the nuts and bolts and the pipe itself. Wherever possible this type of connection should be pre-assembled in a works and checked for insulation prior to insertion on site.





GASKET TYPE "E" (Full Face)



GASKET TYPE "F" (Ring Face)

Standard Flange Insulation Kit

Unless otherwise specified shall consist of the following:

Included Materials

Each set consist of the following:

- Gasket complies to ASTM B16.2 (Neoprene Faced Phenolic) or other
- Insulating Sleeve (Polyethylene) or other
- Insulating Washers (Reinforced Phenolic) or other
- Mild steel Washers

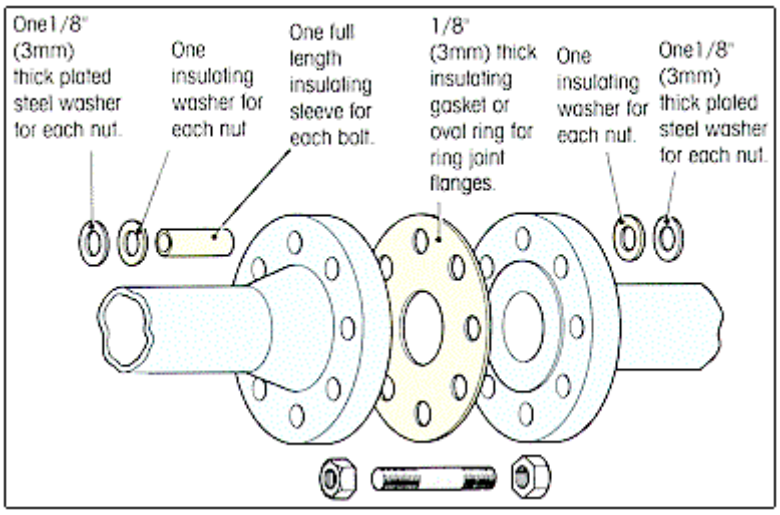
Further Protection

To prevent short circuit in flanges caused by the ingress of conductive matter between the flanges faces, it is recommended that self adhesive PVC tape be wrapped around the outside of the flange for both types specially for F type of flange insulating gaskets.

INSULATION FLANGE KITS

Application

EDOPEC High Quality Flange insulation kits are usually installed at the ends of a pipeline to electrically isolate it from other buried metallic structures and grounding systems



Flange insulation kits offer effective cathodic protection against corrosion in flanged piping systems. Available in three types (see below), each kit comprises of one insulating gasket (either an oval ring type joint or flat gasket dependant on flange type.), one insulating sleeve per bolt, two insulating washers per bolt and two plated steel washers per bolt.

Gasket Types

TYPE `D' :

For use on ring joint flanges. Insulating gasket manufactured from reinforced phenolic. Insulating sleeve manufactured from either phenolic, mylar, or polyethylene. Insulating washers manufactured from reinforced phenolic.

TYPE `E' :

For use on flat face & raised face flanges. Insulating gasket manufactured from either reinforced phenolic, or high di-electric strength non-asbestos. Insulating sleeve manufactured from either phenolic, mylar, or polyethylene. Insulating washers manufacturedfrom reinforced phenolic.

TYPE `F' :

Central gasket locates inside the bolts. Insulating gasket manufactured from either reinforced phenolic, or high di-electric
strength non-asbestos. Insulating sleeve manufactured from eitherphenolic, mylar, or polyethylene

Sample Certificate of Conformity
According to the ANSI B16.5

EDOPEC., declares to comply with the standard requirements for following form equipment;

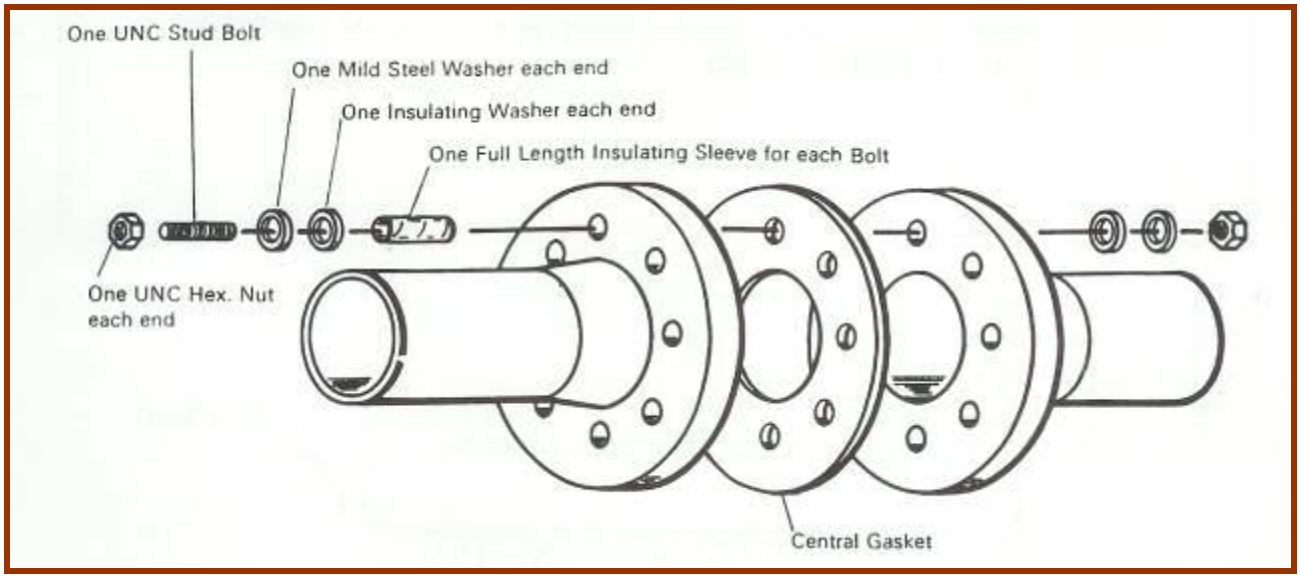
Product Name	**Flange Insulation Kit**
Product Code	**EDO-FF-IFJ-DNxxx-PN… MPA**
Product Standard	**ANSI B16.5**
Pressure Class	**300**
Pipe Size	**4"**
Gasket Type	**E**
Gasket Material	**Neoprene Faced Phenolic**
Sleeve Material	**Extruded Polyethylene**
Isolation Washers	**Reinforced Phenolic**
Purchaser Name	**Loops Automation**
Purchase order No.	**52011**
Pro. Date	**Jan 2005**
Serial No.	**FIK-4-E-300-20**

Standard Gasket Materials

Neoprene Faced Phenolic - N

Neoprene faced phenolic gaskets have long been used as a standard insulating gasket in the gas and oil industries because the soft neoprene rubber provides good sealing qualities. In these gaskets, neoprene sheets are factory bonded to both sides of a laminated phenolic sheet to give good sealing qualities and high electrical resistance. The temperature limitation of these gaskets is approximately + 90°C.

Installation Guide



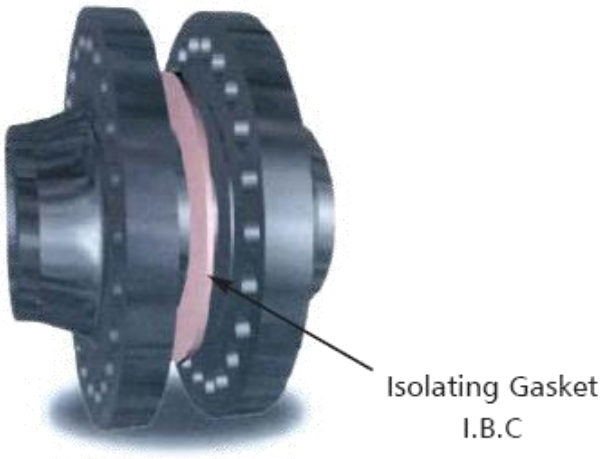
Type E Gaskets

Type E gaskets are designed for full protection of flanges, and have the same outside diameter as the flanges. Each gasket has precision – located bolt holes. Type E gaskets prevent foreign conducting material from getting between the flange faces outside the raised the face portion and complete isolation is accomplished.

Further Protection

To prevent short circuit in flanges caused by the ingress of conductive matter between the flanges faces, it is recommended that self adhesive PVC tape be wrapped around the outside of the flange for both types specially for F type of flange insulating gaskets.

Standard Gasket Materials



Neoprene Faced Phenolic - N

Neoprene faced phenolic gaskets have long been used as a standard insulating gasket in the gas and oil industries because the soft neoprene rubber provides good sealing qualities. In these gaskets, neoprene sheets are factory bonded to both sides of a laminated phenolic sheet to give good sealing qualities and high electrical resistance. The temperature limitation of these gaskets is approximately + 90°C (1940P)

STANDARD DIMENSIONS OF REQUESTED MATERIALS (SAMPLE)

Nom. Pipe Size	*Gasket I.D. 150 Thru 300	*Gasket I.D. 400 Thru 2500	*Gasket O.D. Type "E"	*Gasket O.D. Type "F"	Number and Size of Bolts USAS 150	USAS 300	USAS 400	USAS 600	USAS 900	USAS 1500	USAS 2500	Nom. Pipe Size
1/2	1/2	1/2	SAME AS OD OF FLANGE	BOLT CIRCLE LESS BOLT DIAMETER	4- 1/2	4- 1/2	4- 1/2	4- 1/2	4- 3/4	4- 3/4	4- 3/4	1/2
3/4	3/4	3/4			4- 1/2	4- 5/8	4- 5/8	4- 5/8	4- 3/4	4- 3/4	4- 3/4	3/4
1	1 1/16	1			4- 1/2	4- 5/8	4- 5/8	4- 5/8	4- 7/8	4- 7/8	4- 7/8	1
1 1/4	1 3/8	1 1/4			4- 1/2	4- 5/8	4- 5/8	4- 5/8	4- 7/8	4- 7/8	4-1	1 1/4
1 1/2	1 5/8	1 1/2			4- 1/2	4- 3/4	4- 3/4	4- 3/4	4-1	4-1	4-1 1/8	1 1/2
2	2 1/16	1 15/16			4- 5/8	8- 5/8	8- 5/8	8- 5/8	8- 7/8	8- 7/8	8-1	2
2 1/2	2 1/2	2 5/16			4- 5/8	8- 3/4	8- 3/4	8- 3/4	8-1	8-1	8-1 1/8	2 1/2
3	3 1/16	2 15/16			4- 5/8	8- 3/4	8- 3/4	8- 3/4	8- 7/8	8-1 1/8	8-1 1/4	3
3 1/2	3 9/16	3 3/8			8- 5/8	8- 3/4	8- 7/8	8- 7/8				3 1/2
4	4 1/16	3 13/16			8- 5/8	8- 3/4	8- 7/8	8- 7/8	8-1 1/8	8-1 1/4	8-1 1/2	4
5	5 1/16	4 13/16			8- 3/4	8- 3/4	8- 7/8	8-1	8-1 1/4	8-1 1/2	8-1 3/4	5
6	6 1/16	5 3/4			8- 3/4	12- 3/4	12- 7/8	12-1	12-1 1/8	12-1 3/8	8-2	6
8	8	7 5/8			8- 3/4	12- 7/8	12-1	12-1 1/8	12-1 3/8	12-1 5/8	12-2	8
10	10 1/16	9 3/4			12- 7/8	16-1	16-1 1/8	16-1 1/4	16-1 3/8	12-1 7/8	12-2 1/2	10
12	12 1/16	11 3/4			12- 7/8	16-1 1/8	16-1 1/4	20-1 1/4	20-1 3/8	16-2	12-2 3/4	12
14	13 1/4	13			12-1	20-1 1/8	20-1 1/4	20-1 3/8	20-1 1/2	16-2 1/4		14
16	15 1/4	15			16-1	20-1 1/4	20-1 3/8	20-1 1/2	20-1 5/8	16-2 1/2		16
18	17 1/4	17			16-1 1/8	24-1 1/4	24-1 3/8	20-1 5/8	20-1 7/8	16-2 3/4		18
20	19 1/4	19			20-1 1/8	24-1 1/4	24-1 1/2	24-1 5/8	20-2	16-3		20
22	21 1/4	21			20-1 1/4	24-1 1/2	24-1 5/8	24-1 3/4				22
24	23 1/4	23			20-1 1/4	24-1 1/2	24-1 3/4	24-1 7/8	20-2 1/2	16-3 1/2		24
26	25 1/4	25			24-1 1/4	28-1 5/8	28-1 3/4	28-1 7/8	20-2 3/4			26
28	27 1/4	27			28-1 1/4	28-1 5/8	28-1 7/8	28-2	20-3			28
30	29 1/4	29			28-1 1/4	28-1 3/4	28-2	28-2	20-3			30
32	31 1/4	31			28-1 1/2	28-1 7/8	28-2	28-2 1/4	20-3 1/4			32
34	33 1/4	33			32-1 1/2	28-1 7/8	28-2	28-2 1/4	20-3 1/2			34
36	35 1/4	35			32-1 1/2	32-2	32-2	28-2 1/2	20-3 1/2			36
40	39 1/4	39			36-1 1/2	36-2	32-2 1/2	28-2 3/4				40
42	41 1/4				36-1 1/2	36-2	32-2 1/2	28-2 3/4				42

* Special Gasket I.D. or O.D. available upon request.

Order form

EDO-AA-IFJ-DN… -PN… MPa- Norm:
AA= FF , E
DN508 etc
PN15 MPa
Norm: ANSI DIN ora ASME