

# Flange Bolt Isolation Accessories 4 pipes

## High-quality isolation materials for an electrical isolation point

### Product information

Special isolation materials for flange bolts and nuts fulfil the requirement for an electrical separation point and prevent contact corruptions of the flange joint. The bolt isolation set contains the required quantities of isolating washers, isolating sleeves and steel washers for the particular flange joint size / standard. One bolt requires: two isolating washers, two steel washers and one sleeve. The bolt isolation set protects both sides of the flange joint from possible electrical short circuits through the nut and bolt. The bolt isolation set can be delivered for all common flange standards, sizes and pressure rates.

### Usage

- New installation areas
- In connection with flange isolation gaskets
- Also suitable for replacement of existing flange joints during maintenance activities at the connection point

### Isolation bolt

Bolts are pre-coated with isolating epoxy resin / glass fibre material. One isolating bolt set contains two isolating washers, two steel washers and one nut. The Isolation bolts steel quality and grade are made according to customer specification. (Standard bolt grade is 8.8 galvanized)

### Isolating washer

- G10 (standard)
- G11 (special)

### Isolating sleeve

- Mylar (standard)
- Nomex (special)

### Steel washer

- Steel ST37, galvanized DIN 126 (standard)
- Stainless steel V4A (special)

### Standard Isolating Kit =

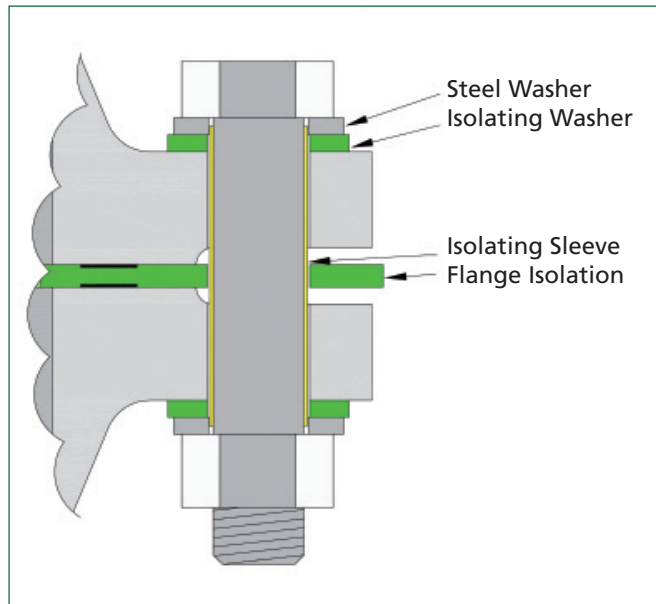
Isolating Washer: G10  
Isolating Sleeve: Mylar  
Steel Washer: steel galvanized

### Special (selection of combination) Isolating Kit =

Isolating Washer: G10 or G11  
Isolating Sleeve: Mylar or Nomex  
Steel Washer: steel galvanized or stainless steel

### Technical data

Please find the dimension and pressure rates in our price list or ask us.



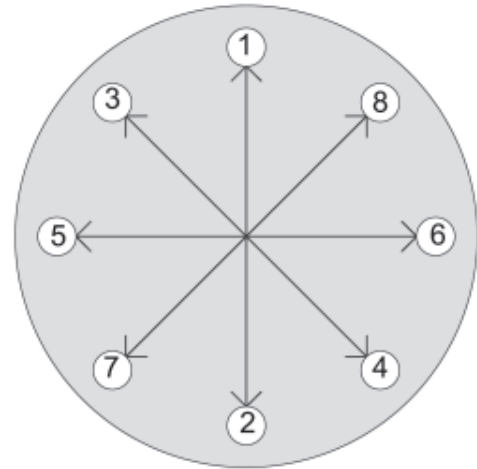
Characteristics:	G10	G11	Mylar	Nomex	Isolating Bolt
Material	Epoxy resin glass fibre	Epoxy resin glass fibre	Spiral wound polyester	Armid spiral wound paper	Epoxy resin glass fibre
Operating temperature	-60°C bis +130°C	-60°C bis +180°C	-60°C bis +150°C	-196 °C bis +200 °C	200°C
Water absorbtion	<0.1 %	<0.1 %	<0.8 %	< 0.1%	<20 mg
Dielectrical strength	20.000 V/mm	60.000 V/mm	270.000 V/mm	22.500 V/mm	min. 5 KV/mm

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## Installation guide

Follow the installation instructions carefully to ensure correct functioning of the flange isolation.

1. The sealing surface of the flange has to be clean, free of grooves and edges (Flange surface according to DIN/ASME standard)
2. Insert the gasket carefully between the flange sealing surfaces
3. Lubricate bolts
4. Insert bolts incl. isolation washers and sleeve through the bolt hole and handtighten them:  
The steel washer will be placed on the bolt head and nut; the isolation washer will be placed directly on the flange. The bore holes of the flanges and isolation gasket have to be aligned with each other.  
Calculation of isolation sleeve length:  
2 x flange thickness incl. raised face + thickness of flange isolation gasket + 2 x thickness of isolation washer + 1x thickness of steel washer = sleeve length
5. - Tighten bolt evenly (in three steps 30%-40%-30%) with a torque wrench according to the tightening torque table spec. below  
- Tighten bolt in a diagonally opposite sequence as shown in the picture on the right



### Note:

- The flange bolts have to be greased/ lubricated generally for the installation
- For gas systems, it is advisable to use a PTFE based grease (common greases contain hydrocarbons which could cause incorrect gas measurement readings with a gasometer)
- **Warning:** For DIN flanges with bolt grades  $\geq 8.8$ , we advise to use 80% of the tightening torque. 100% tightening torque could deform the flange blades.

Tightening torque for flange bolts

Bolt size Metric	Bolt grade						Bolt size inch	Bolt grade A 193 B7
	5.6 Ck 35	8.8	10.9	12.9	A2 - 70	42 CrMo 4 A 320 L7M 40 CrMoV 47		
in Newtonmeter (Nm)							in Nm	
M10	21	50	70	85	34	30	-	
M12	37	85	120	145	59	52	1/2 - 13 UNC	80
M16	90	210	300	350	145	128	5/8 - 11 UNC	160
M20	180	410	570	690	280	264	3/4 - 10 UNC	320
M22	240	550	780	940	380	360	7/8 - 9 UNC	480
M24	310	700	1,000	1,200	480	456	1 - 8 UNC	750
M27	450	1,050	1,480	1,775	-	672	1-1/8 - 7 UNC	1,050
M30	610	1,400	2,000	2,400	-	912	1-1/4 - 7 UNC	1,450
M33	830	1,900	2,700	3,250	-	1,240	1-3/8 - 6 UNC	1,900
M36	1,060	2,500	3,450	4,200	-	1,600	1-1/2 - 6 UNC	2,500
M39	1,380	3,200	4,500	5,400	-	2,080	1-3/4 - 8 UNC	4,600
M42	1,700	4,000	5,600	6,700	-	2,560	2 - 8 UNC	8,400
M45	2,120	5,000	7,000	8,400	-	3,200	2-1/4 - 8 UNC	9,800
M48	2,570	6,000	8,450	10,150	-	3,840	-	-
M52	3,310	7,750	10,800	13,000	-	4,960	-	-
M56	4,120	9,600	13,500	16,200	-	6,200	-	-
M60	5,130	12,000	16,800	20,200	-	7,680	-	-

Checking the suitability of the product for the individual application is solely the responsibility of the user. 4 pipes does not grant any warranty for preinstalled or reused flange gaskets.