PGE Technical Specifications

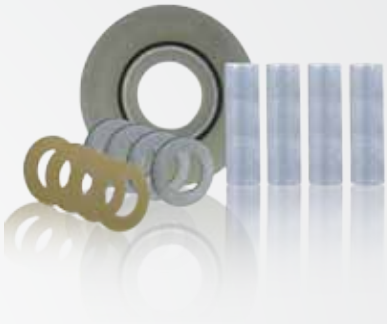
Sealing and Isolation Systems

an EnPro Industries company

INNOVATIVE ENGINEERING FOR CORROSION PROTECTION

The PGE is a non-critical service seal kit designed for electrical flange isolation and/or general sealing applications: This seal is suitable for use in raised-face and full face flanges up to ANSI class 600 (or equivalent) and is excellent for isolating flanges made of dissimilar metals or where prevention of flange face corrosion is desired. The design of the Pikotek PGE seal incorporates overlapping and offsetting seal grooves. The purpose of this design is to block each layer of laminate within the seal itself thereby creating a barrier through which fluid and/or gas cannot migrate. The sealing element can be any elastomeric material as well as more sophisticated Spring-Energized Teflon lip seals. As a result of this advanced seal design, maintenance free flange isolation and flange face corrosion mitigation are achieved economically.

The PGE retainer is constructed of very rigid Glass-Reinforced Epoxy (GRE) laminates, which exhibit excellent dielectric strength, high compressive strength and superior sealing characteristics.





WHEN ORDERING A COMPLETE PGE ISOLATION KIT, THE FOLLOWING MUST BE SPECIFIED:

- *Flange Specification [ANSI/ASME, MSS,BSI or DIN standard]*
- *Size Pressure Rating [ANSI class 600 maximum]*
- *Operating Pressure, Temperature and Media*
- *Required Seal Material*
- *Isolating Sleeve Material*
- *Isolating Washer Material*
- *Metal Washer Material*

GASKET THICKNESS

All PGE gaskets are standard 1/8" (.125) thick

BOLT TORQUE CHARTS

ANSI B16.5 and ANSI B16.47 Series A Recommended Bolt Torque

Nominal Pipe Size	Flange Pressure Class			
	150	300	400	600
1/2	21	21	21	21
3/4	23	41	41	41
1	25	44	44	44
1 1/4	29	49	49	49
1 1/2	34	84	84	84
2	63	48	48	48
2 1/2	68	79	79	79
3	79	86	86	86
3 1/2	59	89	129	129
4	62	93	134	134
5	104	104	147	200
6	111	94	135	187
8	128	147	201	284
10	157	194	267	389
12	173	266	382	401
14	219	273	388	553
16	215	383	529	739
18	307	409	538	971
20	297	410	706	972
22	437	708	935	1262
24	457	777	1230	1640
26	654	550	799	2399
28	647	542	816	2395
30	661	584	1010	3368
32	659	913	1242	3363
34	667	906	1254	3470
36	666	952	1488	4541
38	1016	1001	652	6022
40	1026	992	825	5968
42	1053	1040	842	6126
44	1043	1033	1046	7665
46	1052	1080	1317	7853
48	1054	1073	1303	10034

All torque values are given in FT - LBS.

SEAL MATERIAL OPTIONS

1) PTFE (Spring-Energized)

Recommended for all environments. Helical wound spring provides radial load. Encapsulation in the seal groove eliminates creep or cold flow. This sealing system truly distinguishes GPT gaskets from all other flange sealing systems.

Temperature Range: -250°F to +500°F (-156.7°C to 260°C)

NOTE: *gasket material is limiting factor*

Spring Material Options

Standard spring material is 302L Stainless Steel

Hastelloy C276 is also available for aggressive medias

NOTE: *At this time all other materials have too high a level of hardness to enable spring to be wound to the desired specification*

2) Viton® (FKM)

General-purpose oilfield elastomer. Excellent resistance to aliphatic hydrocarbons, glycols and H2S. Good resistance to aromatic hydrocarbons.Temperature Range: -15°F to +392°F (-26.1°C to 200°C)

Not Recommended for: *Systems with amine inhibitors and in piping systems containing significant partial pressures of polar gases (i.e. CO_2) where radical pressure drops (i.e. 2000 PSI) commonly occur.*

3) Buna-Nitrile

General purpose elastomer only suitable for mild chemical resistance.

Temperature Range: -200°F to +240°F (-128.9°C to 115.6°C)

4) Silicone

Suitable for use in potable water applications. Approved by WRAS.

Temperature Range: -55°F to +400°F (-48.3°C to 204.4°C)

Special seal ring materials are available on request and subject to technical acceptibility.

SEAL MATERIAL

The sealing elements are intended to provide an impervious barrier through which no contained media or other substance can penetrate. Consequently, the composite retainer backing material behind the seal remains uncontaminated and this permanently holds the seal in place in a static, fully encapsulated manner.

NOTE:

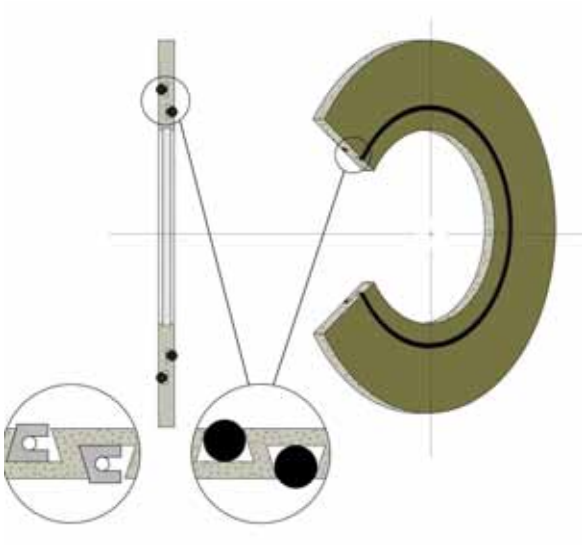
- *Recommended bolt torque is based on generating a minimum gasket seating stress of 7,500 PSI arrived at using API 6A Annex D recommended flange bolt torque*
- *Bolt torque values listed assume a lubricated stud bolt resulting in a .16 friction factor*
- *Recommended torque values are based on using weld-neck (integral) flanges*
- *The torque figures above are based on a flange surface finish between 125 - 250 rms finish, surface flatness within 0.020" tolerance and no misaligned flanges*
- *Deviation from these specific requirements may affect product performance or longevity*

PGE Technical Specifications

1) G-10

NEMA grade G-10 Glass-Reinforced Epoxy (GRE) laminate material:

Compressive Strength ..... 65,000 PSI
Dielectric Strength ..... 750 - 800 VPM
Max. Continuous Operating Temp ..... 300° F (150° C)
Water Absorption..... ..05%
Flexural Strength ..... 65,000 PSI
Tensile Strength ..... 50,000 PSI



2) G-11

NEMA grade G-11 Glass-Reinforced Epoxy (GRE) laminate material:

Compressive Strength ..... 50,000 PSI
Dielectric Strength ..... 500 VPM
Max. Continuous Operating Temp ..... 392° F (202° C)
Min. Continous Operating Temp ..... (minus) -50° F
Water Absorption..... ..085%
Flexural Strength ..... 57,700 PSI
Tensile Strength ..... 41,000 PSI
Bond Strength ..... 2,200 lb.
Shear Strength ..... 21,200 lb.

3) G-10CR

NEMA grade G-10 Glass-Reinforced Epoxy (GRE) laminate material:

Produced to NIST G10R process specification for materials used in cryogenic applications.

Compressive Strength ..... 65,000 PSI
Dielectric Strength ..... 800 VPM
Max. Continuous Operating Temp ..... 266° F (130° C)
Min. Continous Operating Temp ..... (minus) -459° F (-273° C
Water Absorption..... .085%
Flexural Strength ..... 57,700 PSI
Tensile Strength ..... 41,000 PSI
Bond Strength ..... 2,200 lb.
Shear Strength ..... 21,200 lb.

ISOLATION SLEEVE OPTIONS

1) GRE

GRE (Glass-Reinforced Epoxy) tubing is suitable for continuous exposure to 350° F. This material is an epoxy laminate that offers excellent resistance to crushing, cracking, breaking and thread pinch.

2) NOMEX

NOMEX is a high temperature sleeve material manufactured from solid organic polymer and is suitable for temperatures up to 425° F.

3) Mylar

Spiral wound Mylar is a general-purpose material recommended for bolting applications with flange temperatures below 250° F. This material has fair resistance to crushing, cracking, breaking and thread pinch.

ISOLATING WASHERS OPTIONS

1) HCS Washers

Hardened Coating Steel Isolating Washers

2) GRE Washers

1/8" (.125) thick washers

STEEL WASHER OPTIONS

1) ZPS

Zinc-Plated Steel Washers

2) SS

Stainless Steel Washers

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VISION STATEMENT

Sealing, Connecting and Protecting the World's Pipelines

STRATEGIC MISSION STATEMENT

With global focus on safety, reliability and sustainability, we produce innovative solutions that enhance the integrity of pipeline systems today to meet the demands of tomorrow.

QUALITY POLICY

At GPT we are committed to manufacturing and supplying only reliable, high-quality products that exceed our customers' requirements and expectations.



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