

STATIC FACE™ SEALS

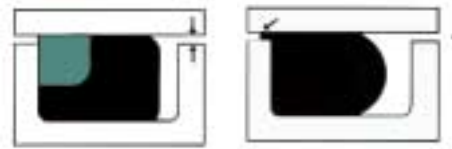
*Low-Cost, Leak-Free Reliability
in Face-Mounted Assemblies*



The Static Face Seal is designed to provide reliable, low-cost, leak-free sealing in face-mounted assemblies such as manifold mounted pumps and valves, flanged fittings and modular hydraulic components. Replacing other seals which can function only in zero clearance situations, the Static Face Seal has been proven in clearances to .015" and beyond at pressures well in excess of 10,000 psi. Consisting of an "L" shaped elastomeric sealing element and a mating non-extrusion ring, the Static Face Seal allows substantial space, weight and cost savings in a broad range of applications.

SEAL OPERATION

At zero or low pressures, the Static Face Seal performs much like a standard O-ring, axial compression ("squeeze") deforming the resilient "L" shaped elastomeric member. As pressure builds, the elastomeric part transmits full system pressure to the non-



CLEARANCE EXTRUSION
PRESSURIZED

extrusion ring, bring it into positive contact with the port face. During extreme pressure spikes, impulse or shock-loading, bolts can momentarily stretch, opening a clearance between mating faces. The Static Face Seal's non-extrusion ring - already under an axial load-merely follows the motion, effectively bridging the same clearance that causes O-ring leakage and failure. (Designers often specify harder, 90 durometer O-rings to eliminate high pressure extrusion. This works, but because harder O-rings cannot conform well to rough port faces, low pressure leakage occurs.)

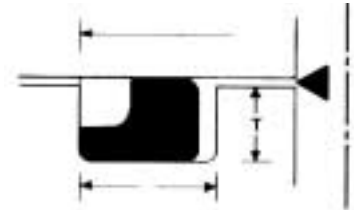
SURFACE FINISHES

The Static Face Seal is recommended for use with standard finishes noted in ISO

standard practice. For optimal performance however, Greene, Tweed Engineering recommends a gland finish of 32µ in. RMS and port face finish of 16µ in. RMS.

SEAL CONFIGURATION

The Standard Static Face Seal is designed to operate at pressure. Configurations for vacuum service are also available. Contact your distributor or Greene, Tweed Engineering for specifics.



SEAL SIZE SELECTION

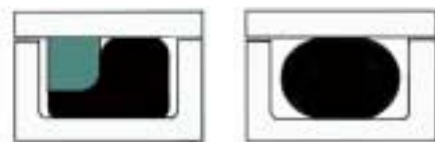
For best seal performance (in new design), we recommend you select the largest seal cross-section and corresponding seal diameter that will fit your available metal.

SEAL SIZE SELECTION

EXAMPLE

1. Determine the maximum depth (axial) of your available metal3,5 mm
2. From the Gland Depth column in Table 2, select the largest of the four gland depths that will fit your available metal2,75 mm
3. Note the corresponding gland width5,00 mm
4. Add 3 times the gland width to your port diameter: $3 \times 5 = 15$ 25 mm*
5. From the ØA column in Table 2, select the next largest number (this is your gland OD)25,1
6. Determine the maximum diameter (radial) of the available metal around the port.....36 mm dia. (If your gland OD is larger than your available metal, select the next smaller gland depth and repeat calculations from step 3.
7. Specify the seal size designator from the right-most column30250

**Assuming a port dia. of 10mm*



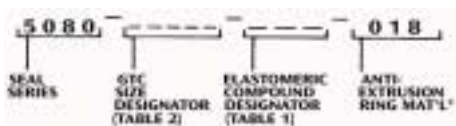
STATIC FACE SEAL O-RING
INSTALLED

TABLE 1 ELASTOMERIC COMPOUND SELECTOR

FLUIDS	TEMPERATURE RANGE	BASE POLYMER	DUROMETER HARDNESS (SHORE A)	COMPOUND DESIGNATOR
HYDRAULIC FLUIDS General Purpose Hyd. Oils, Petroleum Base Lubricating Oils, Air, Water, Water Glycols & soluble oil	-40° to 275°F -65° to 325°F	NBR FZ (PNF)	70 70/80	173 737/738
MIL-H-5606 MIL-H-6083 MIL-H-83282	-65° to 275°F -65° to 325°F	NBR FZ (PNF)	75 70/80	964 737/738
Silicone Oils	-65° to 300°F -40° to 300°F -65° to 325°F	EPR NBR FZ (PNF)	80 70 70/80	952 173 737/738
Pydraul 10E/50E/29E/115E, Fyrquel Pydraul 10E/29E/30E/50E/90E/115E 250C/312C/320C/540C	-65° to 250°F -20° to 400°F	EPDM FKM	70 75	801 731
FUELS Gasoline, Kerosene JP Fuels	-20° to 400°F -65° to 300°F	FKM FZ (PNF)	75 70/80	731 740/741
BRAKE FLUIDS Automotive (SAE-J-1703) Silicone, Petroleum	-65° to 300°F -65° to 300°F -65° to 325°F	EPDM EPR FZ (PNF)	70 80 70/80	801 952 737/738
AUTOMATIC TRANS. FLUID	-40° to 275°F	NBR	70	700
GASES Freon Nitrogen	-40° to 250°F -65° to 275°F	CR NBR	75 75	156 964
CHEMICAL LUBRICATING OILS AND SOLVENTS	-20° to 400°F	FKM	75	731
STEAM	-32° to 400°F	EPDM	80	803
PETROLEUM INDUSTRY Well-Drilling Fluids Amines, N ₂ S, Steam	-60° to 250°F +32° to 450°F	ECO TFE/Propylene	85 70/90	957 797/799
Virtually all Fluids and Fluid Combinations	-20° to 450°F	FFKM	75/90	505/510

PART NUMBERING SYSTEM

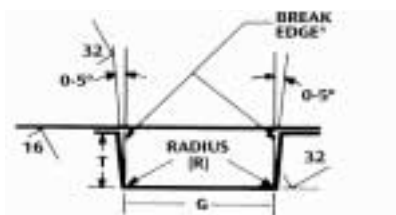
The Static Face Seal part number describes the size, elastomeric compound and anti-extrusion ring material. For sizes not shown in this brochure please contact your distributor or Greene, Tweed engineering.



*NOTE: Greene, Tweed's MoS₂- loaded nylon ("NWR") is supplied standard. For extreme pressure, fluids,

temperatures (above 350°F) and/or broad clearances, Greene, Tweed Engineering will be pleased to make specific recommendations.

GLAND DETAIL



*to the smaller of $\frac{T}{10}$ max. or 0,25 mm (.010 in.) max.

STATIC FACE™ SEALS

TABLE 2 DIMENSIONAL INFORMATION

MILLIMETERS				INCHES				GTC Size Designator
ØA Gland Dia. (+0,00) (-0,13)	G Gland Width (+0,25) (-0,00)	T Gland Depth (+0,10) (-0,00)	R Radius	ØA Gland Dia. (+.000) (-.005)	G Gland Width (+.010) (-.000)	T Gland Depth (+.004) (-.000)	R Radius	
12.6	2,60	1,28	0,25 to 0,51	.496	.102	.050	.010 to .020	10120
13.6				.535				10130
14.8				.583				10150
16.1				.634				10160
16.8				.661				10170
17.6				.693				10180
18.6				.732				10190
19.6				.772				10200
20.6				.811				10210
21.6				.850				10220
22.6				.890				10230
23.6				.929				10240
24.8				.976				10250
26.0				1.024				10260
27.2				1.071				10270
28.6				1.126				10290
30.1				1.185				10300
31.6				1.244				10320
33.6				1.323				10340
35.1				1.382				10350
36.1	1.421	10360						
37.1	1.461	10370						
38.1	1.500	10380						
17.8	3,80	1,97	0,25 to 0,51	.701	.150	.076	.010 to .020	20170
18.5				.728				20180
19.3				.760				20190
20.3				.799				20200
21.3				.839				20210
22.3				.878				20220
23.3				.917				20230
24.3				.957				20240
25.3				.996				20250
26.5				1.043				20260
27.7				1.091				20280
28.9				1.138				20290
30.3				1.193				20300
31.8				1.252				20320
33.3				1.311				20330
35.3				1.390				20350
36.8				1.449				20370
38.8				1.528				20390
39.8				1.567				20400
40.8				1.606				20410
41.8	1.646	20420						
42.8	1.685	20430						
44.0	1.732	20440						
45.3	1.783	20450						
46.5	1.831	20460						
47.8	1.882	20480						
49.0	1.929	20490						
50.3	1.980	20500						

TABLE 2 DIMENSIONAL INFORMATION (Continued)

MILLIMETERS				INCHES				GTC Size Designator
ØA Gland Dia. (+0,00) (-0,13)	G Gland Width (+0,25) (-0,00)	T Gland Depth (+0,10) (-0,00)	R Radius	ØA Gland Dia. (+.000) (-.005)	G Gland Width (+.010) (-.000)	T Gland Depth (+.004) (-.000)	R Radius	
25.1	5,00	2,75	0,50 to 0,70	.988	.197	.108	.020 to .030	30250
26.1				30260				
27.1				30270				
28.3				30280				
29.5				30300				
30.7				30310				
32.1				30320				
33.6				30340				
35.1				30350				
37.1				30370				
38.6				30390				
39.6				30400				
40.6				30410				
41.6				30420				
42.6				30430				
43.6				30440				
44.6	30450							
45.8	30460							
47.1	30470							
45.1	7,30	4,24	0,50 to 0,70	1.776	.287	.167	.020 to .030	50450
48.1				50480				
51.8				50520				
55.6				50560				
59.3				50590				
63.6				50640				
68.6				50690				
73.6				50740				
79.6				50800				
85.6				50860				
93.1				50930				
100.6				51010				
108.1				51080				
116.6				51170				
125.6				51260				

NOTE: Static Face Seal gland design based on metric O-ring sizes to ISO-DIS 3601/1.

www.gtweed.com

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September 2001

