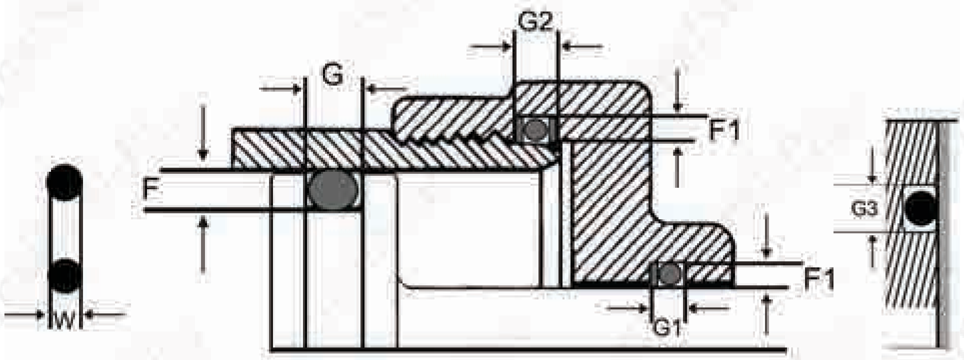
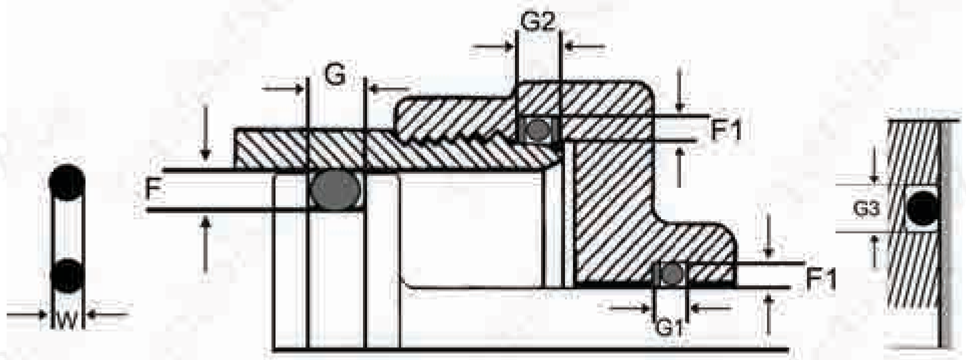
ENGINEERING AND GLAND DESIGN



Cross Section W	STATIC GLAND Groove Depth F1 +0.05	STATIC GLAND Groove Width G1 +0.2	STATIC GLAND Groove Width G2 +0.2	DYNAMIC GLAND Groove Depth F +0.05	DYNAMIC GLAND Groove Width G +0.2	ROTARY GLAND Groove Depth H +0.05	ROTARY GLAND Groove Width G3 +0.2	Radius r1
1.42	1.05	-	-	-	1.90	1.05	2.00	0.30
1.50	1.10	3.00	4.00	1.25	2.00	1.10	2.10	0.30
1.63	1.20	3.10	4.10	1.30	2.10	1.20	2.20	0.30
1.78 1.80	1.30	3.80	5.20	1.45	2.30	1.30	2.60	0.40
1.90	1.40	4.00	5.40	1.55	2.60	1.40	2.70	0.40
2.00	1.50	4.10	5.50	1.65	2.70	1.50	2.80	0.40
2.08	1.55	4.20	5.60	1.75	2.80	1.55	2.90	0.40
2.20	1.60	4.40	5.80	1.85	3.00	1.60	3.00	0.40
2.26	1.70	4.40	5.80	1.90	3.00	1.70	3.10	0.40
2.34	1.75	4.50	5.90	1.95	3.10	1.75	3.10	0.40
2.40	1.80	4.60	6.00	2.05	3.20	1.80	3.30	0.50
2.46	1.85	4.70	6.14	2.10	3.30	1.85	3.40	0.50
2.50	1.85	4.70	6.10	2.16	3.30	1.85	3.40	0.50

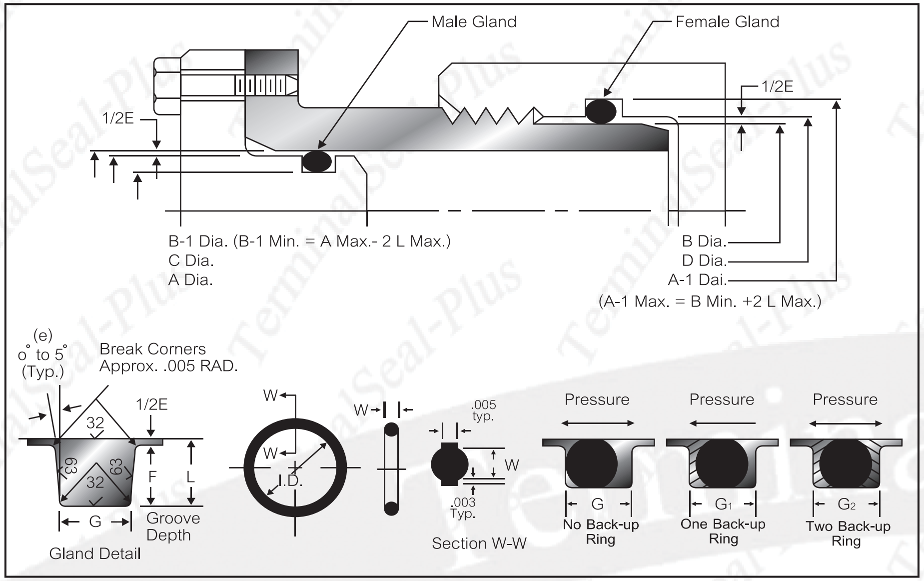
ENGINEERING AND GLAND DESIGN



Cross Section W	STATIC GLAND Groove Depth F1 +0.05	STATIC GLAND Groove Width G1 +0.2	STATIC GLAND Groove Width G2 +0.2	DYNAMIC GLAND Groove Depth F +0.05	DYNAMIC GLAND Groove Width G +0.2	ROTARY GLAND Groove Depth H +0.05	ROTARY GLAND Groove Width G3 +0.2	Radius r1
2.62 2.65	2.00	5.00	6.40	2.25	3.60	2.00	3.80	0.60
2.70	2.05	5.00	6.40	2.30	3.60	2.05	3.80	0.60
2.95	2.20	5.30	6.70	2.50	3.90	2.20	4.00	0.60
3.00	2.30	5.40	6.80	2.60	4.00	2.30	4.00	0.60
3.50	2.65	6	7.4	3.05	4.6	2.65	4.7	0.6
3.53 3.55	2.7	6.2	7.6	3.1	4.8	2.7	5	0.8
3.6	2.8	6.2	7.6	3.15	4.8	2.8	5.1	0.8
4	3.1	6.9	8.6	3.5	5.2	3.1	5.3	0.8
4.5	3.5	7.5	9.2	4	5.8	3.5	5.9	0.8
5	4	8.3	10	4.4	6.6	4	6.7	0.8
5.33	4.3	8.8	10.5	4.7	7.1	4.3	7.3	1.2
5.5	4.5	8.8	10.5	4.8	7.1	4.5	7.3	1.2
5.7	4.6	8.9	10.6	5	7.2	4.6	7.4	1.2
6	4.9	9.1	10.8	5.3	7.4	4.9	7.6	1.2
6.5	5.4	9.7	11.4	5.7	8	5.4	8.2	1.2
6.99 7	5.8	12	14.5	6.1	9.5	5.5	9.7	1.5
7.5	6.3	12.2	14.7	6.6	9.7	6.3	9.9	1.5
8	6.7	12.3	14.8	7.1	9.8	6.7	10	1.5
8.4	7.1	12.5	15	7.5	10	7.1	10.3	1.5
9	7.7	13.1	15.6	8.1	10.6	7.7	10.9	2
9.5	8.2	13.5	16	8.6	11	8.2	11.4	2
10	8.6	14.1	16.6	9.1	11.6	8.6	12	2.5
12	10.6	16	18.5	11	13.5	10.6	14	2.5

ENGINEERING AND GLAND DESIGN

STATIC O-RING SEALING-INDUSRIAL STATIC SEAL GLANDS



Design-For Industrial O-Ring Static Seal Glands

O-Ring Size AS568A-	W Cross-Section		L Gland Depth	Spueeze		E(a) Diametral Clearance	G-Groove Width			R Groove Radius	Max. Eccen-tricitu (b)
	Nominal	Actual		Actual	%		No Back-up Ring(G)	One Back-up Ring(G_1)	Two Back-up Ring(G_2)		
006 through 012	1/16	.070 ±.003	.050 to .052	.015 to .023	22 to 32	.002 to .005	.093 to .098	.138 to .143	.205 to .210	.005 to .015	.002
014 through 116	3/32	.103 ±.003	.081 to .083	.017 to .025	17 to 24	.002 to .005	.140 to .145	.171 to .176	.238 to .243	.005 to .015	.002
201 through 222	1/8	.139 ±.004	.111 to .113	.022 to .032	16 to 23	.003 to .006	.187 to .192	.208 to .213	.275 to .280	.010 to .025	.003
309 through 349	3/16	.210 ±.005	.170 to .173	.032 to .045	15 to 21	.003 to .006	.281 to .286	.311 to .316	.410 to .415	.020 to .035	.004
425 through 460	1/4	.275 ±.006	.226 to .229	.040 to .055	15 to 20	.004 to .007	.375 to .380	.408 to .413	.538 to .543	.020 to .035	.005

(a) Clearance (extrusion gap) must be held to a minimum consistent with design requirements for temperature range variation.

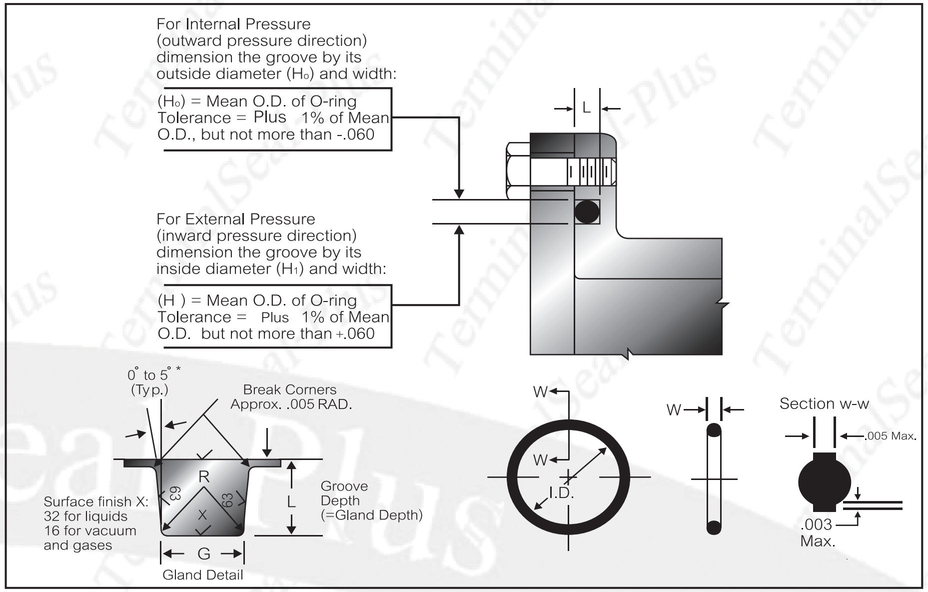
(b) Total indicator reading between groove and adjacent bearing surface.

(c) Reduce maximum diametral clearance 50% when using Silicone or fluorosilicone O-rings.

(d) For ease of assembly, when Back-up Ring are used, gland depth may be increased up to 5%.

ENGINEERING AND GLAND DESIGN

STATIC O-RING SEALING-FACE SEAL GLANDS

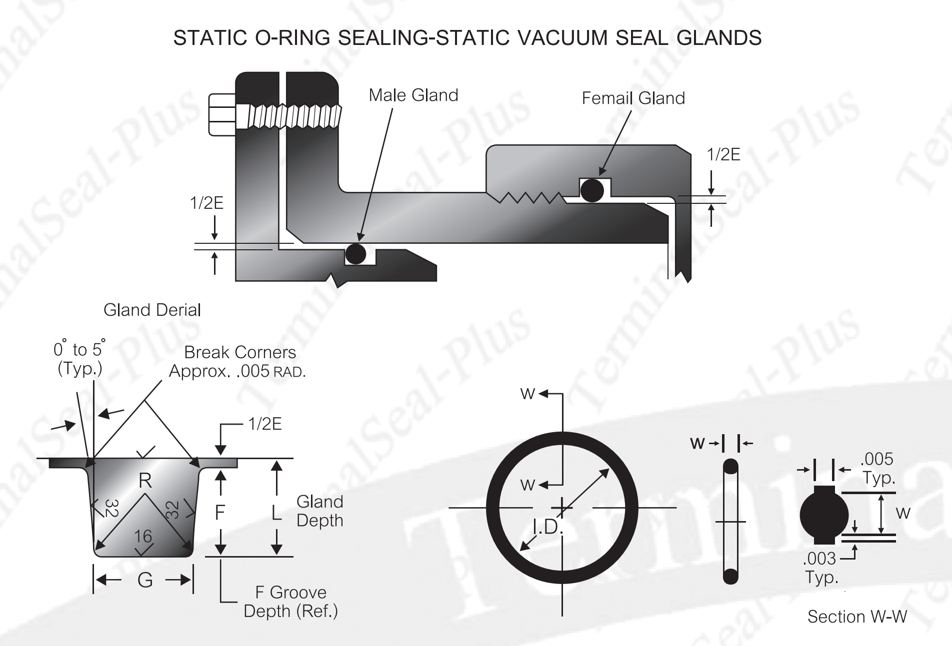


Design-For O-Ring Face Seal Glands

These dimension are intended primarity for face type O-ring seals and low temperature applications.

O-Ring Size AS568A	W Cross-Section		L Gland Depth	Squeeze		G-Groove Wigth		R Groove Radius
	Nominal	Actual		Actual	%	Liquids	Vacuum and Gases	
004 through 050	1/16	.070 ±.003	.050 to .054	.013 to .023	19 to 32	.101 to .107	.084 to .089	.005 to .015
102 through 178	3/32	.103 ±.003	.074 to .080	.020 to .032	20 to 30	.136 to .142	.120 to .125	.005 to .015
201 through 284	1/8	.139 ±.004	.101 to .107	.028 to .042	20 to 30	.177 to .187	.158 to .164	.010 to .025
309 through 395	3/16	.210 ±.005	.152 to .162	.043 to .063	21 to 30	.270 to .290	.239 to .244	.020 to .035
425 through 475	1/4	.275 ±.006	.210 to .211	.058 to .080	21 to 29	.342 to .362	.309 to .314	.020 to .035
special	3/8	.375 ±.007	.276 to .286	.082 to .108	22 to 28	.475 to .485	.419 to .424	.030 to .045
special	1/2	.500 ±.008	.370 to .380	.112 to .138	22 to 27	.638 to .645	.560 to .565	.030 to .04

ENGINEERING AND GLAND DESIGN

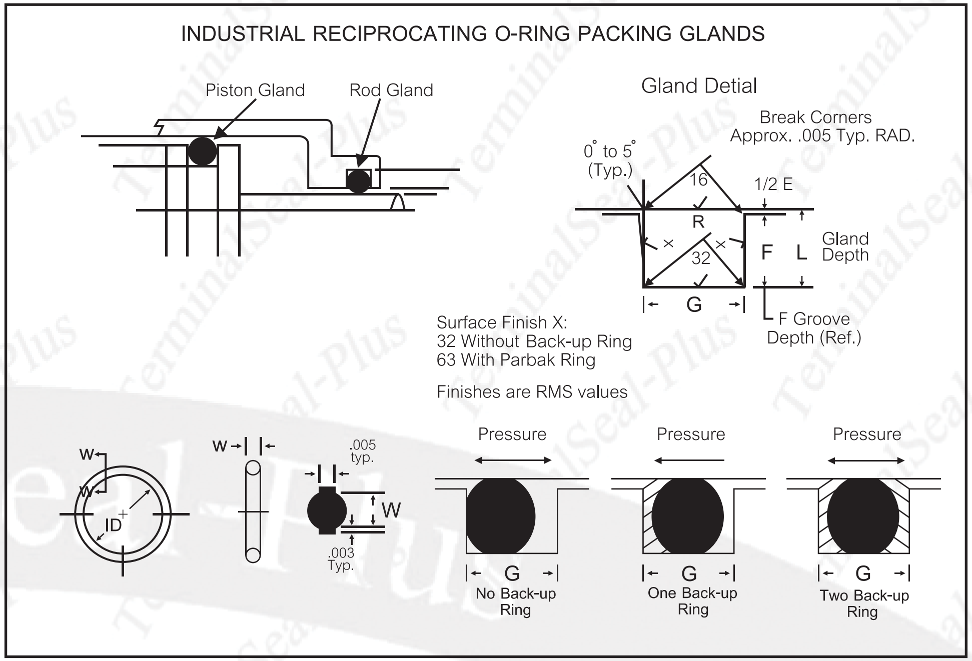


Design - For Static Vacuum Seal Glands

O-Ring Size AS568A-	W Cross-Section		L Gland Depth	E Squeeze		Diametral Clearance	G Groove Width	R Groove Radius	max.* Eccen-tricity
	Nominal	Actual		Actual	%				
004 through 050	1/16	.070 ±.003	.050 to .052	.015 to .023	22 to 32	.002 to .005	.093 to .098	.005 to .015	.002
102 through 178	3/32	.103 ±.003	.081 to .083	.017 to .025	17 to 24	.002 to .005	.140 to .145	.005 to .015	.002
201 through 284	1/8	.139 ±.004	.111 to .113	.022 to .032	16 to 23	.003 to .006	.187 to .192	.010 to .025	.003
309 through 395	3/16	.210 ±.005	.170 to .173	0.32 to .045	15 to 21	.003 to .006	.281 to .286	.020 to .035	.004
425 through 475	1/4	.275 ±.006	.226 to .229	.040 to .055	15 to 20	.004 to .007	.375 to .380	.020 to .035	.005

* Total indicator reading between groove and adjacent bearing surface.

ENGINEERING AND GLAND DESIGN



Industrial Reciprocating O-Ring Packing Glands

AS568 B Uniform Dash No.	W Cross-Section		L Gland Depth	Squeeze		E(a) Diametral Clearance	G-Groove Width			R Groove Radius	Max. Eccen-tricity (b)
	Nominal	Actual		Actual	%		No Back-up Ring(G)	1 Back-up Ring(G1)	2 Back-up Ring(G2)		
006 to 012	1/16	.070 ±.003	.055 to .057	.010 to .018	15-25	.002 to .005	.093 to .098	.138 to .143	.205 to .210	.005 to .015	.002
104 to 116	3/32	.103 ±.003	.088 to .090	.010 to .018	10-17	.002 to .005	.140 to .145	.171 to .176	.238 to .243	.005 to .015	.002
201 to 222	1/8	.139 ±.004	.121 to .123	.012 to .022	9-16	.003 to .006	.187 to .192	.208 to .213	.275 to .280	.010 to .025	.003
309 to 349	3/16	.210 ±.005	.185 to .188	.017 to .030	8-14	.003 to .006	.281 to .286	.311 to .316	.410 to .415	.020 to .035	.004
425 to 460	1/4	.275 ±.006	.237 to .240	.029 to .044	11-16	.004 to .007	.375 to .380	.408 to .413	.538 to .543	.020 to .035	.005

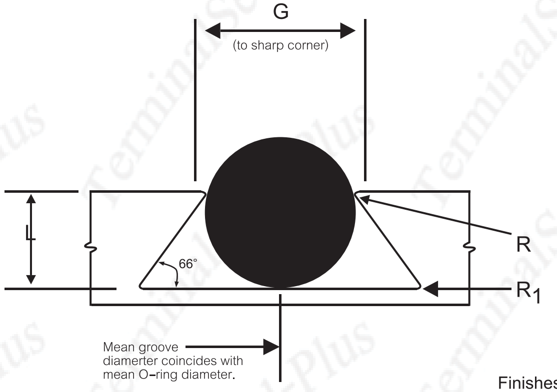
(a) Clearance (extrusion gap) must be held to a minimum consistent with design requirements for temperature range variation.

(b) Total indicator reading between groove and adjacent bearing surface.

(c) O-rings not listed are not recommended for reciprocating application.

ENGINEERING AND GLAND DESIGN

O-Ring Dovetail Grooves



Finishes are RMS values

It is often necessary to provide some mechanical means for holding an o-ring in a face seal groove during assembly and maintenance of equipment. An undercut or dovetail groove has proven beneficial in many applications to keep the o-ring in place. This is an expensive groove to machine, however, and thus should be used only when absolutely necessary.

It should be noted that although this method has been used successfully,It is not generally recommended. The inherent characteristics of the groove design limit the amount of void area. Normally acceptable tolerance extremes, wide service temperature ranges and fluid media the cause high swell of the elastomer are conditions that cannot be tolerated in this type of groove design.

NOTE: If needed, Applications Engineering can recommend where to purchase dovetail cutter.

O-Ring Dovetail Grooves

Radius "R" is CRITICAL. Insufficient radius will potentially cause damage to the O-ring during installation, while excessive radius may contribute to extrusion.

AS568 B Uniform Dash No.	W Cross-section		L Gland Depth	Squeeze %	G Gland Width (to sharp Corner)	R	R1
	Nominal	Actual					
004-050	1/16	.070 ± .003	.050 to .052	27	.055 to .059	.005	1/64
102-178	3/32	.103 ± .003	.081 to .083	21	.083 to .087	.010	1/64
201-284	1/8	.139 ± .004	.111 to .113	20	.113 to .117	.010	1/32
309-395	3/16	.210 ± .005	.171 to .173	18	.171 to .175	.015	1/32
425-475	1/4	.275 ± .006	.231 to .234	16	.231 to .235	.015	1/16
Special	3/8	.375 ± .007	.315 to .319	16	.315 to .319	.020	3/32

Note : These design recommendations assume metal-to-metal contact. In some hard vacuum applications, it may be necessary to increase compression on the seal to achieve sealing Contact a Parker Applications Engineer for more information.

ENGINEERING DESIGN & APPLICATION INFORMATION

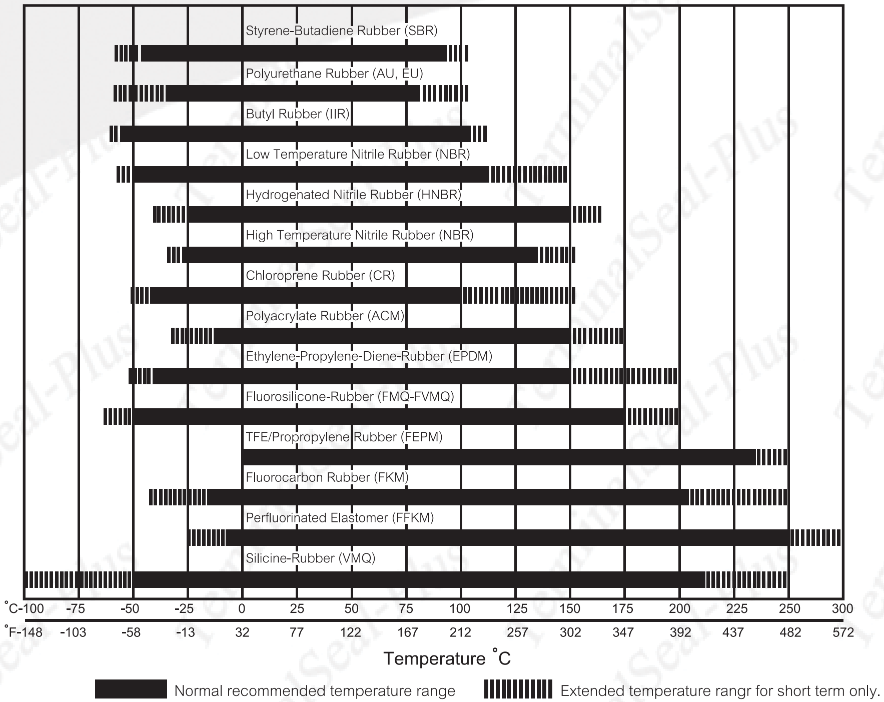
Elastomer Base	Durometer (Shore A)	General Recommendations
Fluorocarbon	75	General ASTM D2000 M2HK810 A1-10 B38 EF31 EO78 Z1=75+/-5 SHORE A.
(FPM, VITON, FKM)	90	General ASTM D2000 M2HK910 A1-10 B38 EF31 EO78 E088
	75	FDA 21 CFR 177.2600
	75	Internal Lubricant (PTFE, MOS2)
	75	AMS 7276, MIL-R-83248 Low Compression Set
	75	Viton GFLT for Chrysler MS-BZ832 grade F.
	75	Viton F-type for Ford WSA-M2D401-A8
	75	Viton GLT-type for Chrysler MS-BZ832 grade G
	75	Viton GF-type for Chrysler MS-BZ832 grade C
	75	Viton B-type for Chrysler MS-BZ832 grade B
	75	General meet F15 Low Temperature
ETP	75	Viton ETP-type excellent oil, Heat, Chemical, solvent resistance.
Aflas (TFE/P, FEPM)	75	Aflas good for strong bases and acids
Fluorosilicone	60	M25988/3 Type 1, Class 1, Grade 60
(FVMQ)	70	M25988/1 Type 1, Class 1, Grade 70
	75	M25988/2 Type 1, Class 3, Grade 75
	80	M25988/4 Type 1, Class 1, Grade 80
Silicone	70	General ASTM D2000 M2GE705 A19 B37 C12 EA14 EO16 EO36 F19
(MQ, VMQ, PVMQ)	70	FDA 21 CFR 177.2600 Class II spec.
	70	ZZ-RP765E/GEN
	70	High heat resistance, service temperature -55c~ +250c
	70	Improve oil resistance
	70	NSF61 approval.
	60	UL 94-vo approval
Nitrile	70	General ASTM D2000 M2BG714 A14 B34 EA14 EF11 EF21 EO14 EO34
(NBR, BUNA-N)	70	FDA 21 CFR177.2600 Class I
	70	40% Acn. Good fuel resistance.
	70	Internal lubricant (PTFE, Molysulfide, Wax)
	70	NBR/PVC blending, excellent ozone resistance, good fuel resistance.
	70	Higher heat resistance (M2CH714 A25 EO15 EO35)
	70	18% Acn. Excellent low temperature resistance (-55C)
	70	NSF61 approval.
	60	Insulation, resist to 2kv
	90	Non-nitosamine
Highly Saturated Nitrile	70	General ASTM D2000 M2DH710 A26 B16 EO16 EO36 F17 Z1=Green color
(HNBR, HSN)	70	Ford WSH-M2D463-A
	70	FDA 21 CRF177.2600 Class II spec.
	70	Good fuel resistance and for adhesion metal seal.
Polyurethane	70	Ether type-excellent water resistance, Ester type-excellent oil resistance.
(AU, EU, PU)	90	Ether type-excellent water resistance, Ester type-excellent oil resistance.
Polyacrylate	70	General ASTM D2000 M2DH710 A26 B16 EO16 EO36 F13
(ACM, PA, POM)	70	Improve low temperature flexibility
Ethylene/Acrylic elastomer (AEM)	70	General ASTM D2000 M3EE710 A47 B46 EO16 EO36 F16
Ethylene Propylene Rubber	70	General ASTM D2000 M3CA710 A25 B35 EA14 G11
(EPM, EPR, EPDM)	70	General ASTM D2000 M3DA710 A26 B36 C32 EA14 F19 G21 Z1=Peroxide

ENGINEERING DESIGN & APPLICATION INFORMATION

Elastomer Base	Durometer (Shore A)	General Recommendations
	70	Internal Lubricant
	70	FDA 21 CRF177.2600 Class II spec.
	70	NSF61 approval.
	70	Peroxide Cured, Electric insulation
	70	General, ANTI-MICROBE
Epichlorohydrin (CO, ECO, GECO)	70	General M3CH710
Chloroprene (CR) (Neoprene)	70	General ASTM M3BC710 A14 B14 EO14 EO34 F17
	57	Electrical insulation 500v, 100m
	60	For UL94-V1 application
Carboxylated Nitrile (XNBR)	70	General ASTM D2000 M2BG714 A14 B14 EO14 EO34 EF11 EF21
	70	Internal lubrication (PTFE, Molysulfide, Erucamide)
Butyle (IIR)	70	General ASTM D2000 M2BA710 B13 C12
Natural Rubber (NR)	70	General ASTM D2000 M2AA710
	40	General ASTM D2000 M2AA410
Styrene-butadiene Rubber (SBR)	70	General ASTM D2000 M2AA708
Polytetrafluorthene (PTFE)	51-65 Shore D	FDA approval
Polyetheretherketone (PEEK)	90	FDA approval

Elastomeric sealing compounds

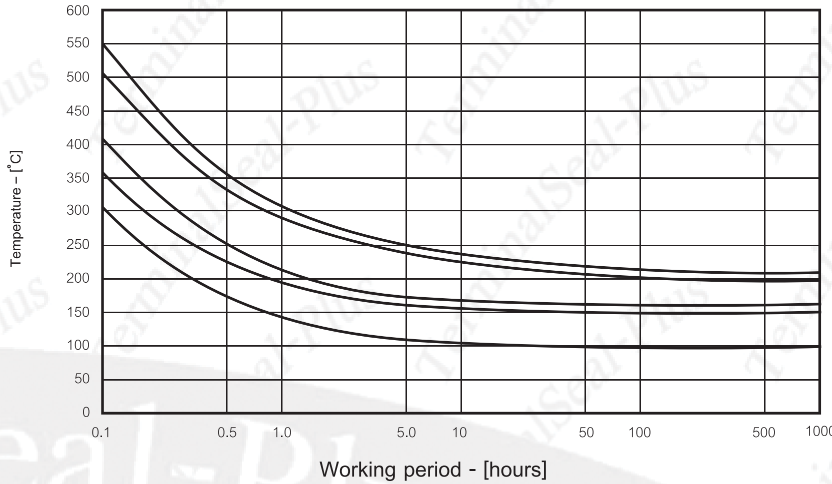
Temperature Range for Common Elastomeric Materials



ENGINEERING DESIGN & APPLICATION INFORMATION

Temperature Range for Common Elastomeric Materials

Table: Temperature range for various elastomeric materials



The table can only be used as a guide line. The actual life-span of a seal at a high temperature is dependent upon the application and the medium to be sealed.

Remark: High temperature limitations for various Elastomeric Meterials

ENGINEERING DESIGN & APPLICATION INFORMATION

GENERAL PROPERTIES OF MOST USED ELASTOMERS

	NITRILE (HIGH NITRILE)	NEOPRENE	ETHYLENE PROPYLENE TERPOLYMER	POLYACRY-LATE	SILICONE	FLUORO-SILICONE	FLUORO-CARBON
ASTM D1418 DESIGNATION	NBR	CR	EPDM	ACM	MQ. PMQ	FVMQ	FKM
ASTM D2000 /SAE J200 TYPE CLASS	BF.BG BK.CH	BC.BE	AA.BA.CA	DF.DH	VMQ.PVMQ FC.FE.GE	FK	HK
HARDNESS, SHORE A	40-90	30-90	30-90	40-85	30-85	60-80	60-95
TENSILE STRENGTH MAX, REINF(PSI)	4000	4000	3000	2500	1200	1200	2500
ELONGATION MAX, REINF (%)	600	600	600	400	700	400	300
SPECIFIC GRAVITY	0.0	1.24	0.86	1.09	0.98	0.98	1.85
BRITTLE POINT (F)	-40	-80	-90	-40	-90TO-180	-85	-40
COMPRESSION SET	G-E	G-E	G-E	G	F-E	G	G-E
RESILIENCE AT 73°F	G	G-E	G	F	P-E	F	F
ELECTRICAL-PROPERTIES	P-F	E	E	F	G-E	E	G
ADHESION TO METAL	G-E	G-E	F-G	G	G	F	F
RESISTANCE TO							
ABRASION	E	E	G	F	P-F	P	G
TEARING	G	F-G	F	P-F	P-F	P	F-G
FLAME	P	G-E	P	P	F-E	F	E
OZONE	P-F	E	E	E	E	E	E
WEATHER	P	E	E	E	E	E	E
OXIDATION	G	E	E	G	E	E	E
WATER	E	G	E	P	G-E	E	E
STEAM	F-G	F	G-E	VP	F-G	F-G	G
ACID (DILUTED)	G	E	E	P-F	G	E	E
ACID (CONCENTRATED)	G	E	E	P-F	F	G	E
ALKALIES(DILUTED)	G	E	E	P-F	E	E	E
ALKALIES(CONCENTRATED)	G	E	E	P-F	E	G	E
SYNTHETIC LUBRICANTS	G-E	P	VP	P	VP	E	E
LUBRICATING OILS (HIGH ANILINE)	E	E	VP	E	G	E	E
LUBRICATING OILS (LOW ANILINE)	E	G	VP	E	F	E	E
ANIMAL,VEGETABLE OILS	G	G	G-E	G	E	E	E
GAS PERMEABILITY	G-E	G	F	G	P	P	E

E=EXCELLENT; G=GOOD; F=FAIR; P=POOR; VP=VERY POOR

ENGINEERING DESIGN & APPLICATION INFORMATION

BASIC REQUIREMENT FOR CLASSIFICATION OF BASIC ELASTOMERS

TEST ITEM \ KIND OF MATERIAL	ASTM D2000 SYMBOL	BG	BC	DH	FK	GE	HK
	POLYMER	NITRILE	NEOPRENE	POLY-ACRYLIC	FLUORO-SILICONE	SILICONE	FLUORO-CARBON
	APPLICATION	FOR NORMAL OIL-RESISTANCE APPLICATION	FOR HEAT & WEATHER RESISTANCE APPLICATION	FOR GOOD HEAT & OIL RESISTANCE APPLICATION	FOR EXCELLENT HEAT & FUEL RESISTANCE APPLICATION	FOR HEAT RESISTANCE APPLICATION	FOR EXCELLENT HEAT & FUEL RESISTANCE APPLICATION
NORMAL CONDITION	HARDNESS SHORE A	70±5	70±5	70±5	60±5	70±5	70±5
	TENSILE STRENGRH MIN, (PSI)	2000	2000	1000	870	870	1450
	ELONGATION MIN, (%)	250	250	200	150	150	1750
AGING TEST	TEMP(°F)TIME(HRS)	212°F,70 (100°C)	212°F,70 (100°C)	302°F,70 (150°C)	437°F,70 (225°C)	437°F,70 (225°C)	482°F,70 (250°C)
	CHANGE IN HARDNESS, MAX,	±15	+15	+10	+15	+10	+10
	CHANGE IN TENSILE STRENGHT MAX, (%)	±30	-15	-25	-45	-25	-25
	CHANGE IN ELONGATION, MAX,(%)	-50	-40	-30	-45	-30	- 25
COMPRESSION SET TEST	TEMP(°F)/TIME(HRS)	212 °F, 22 (100°C)	212°F, 22 (100°C)	302°F, 22 (150°C)	347°F,70 (175°C)	347°F,70 (175°C)	347°F,70 (175°C)
	COMPRESSIONE SET MAX, (%)	25	35	30	45	30	30
OIL RESISTANCE TEST	TEMP(°F)/TIME(HRS)	212 °F,70 (100°C)	212°F,70 (100°C)	302°F,70 (150°C)	73°F,70 (23°C)	302°F,70 (150°C)	73°F,70 (23°C)
	OIL USED	LUBRICANT#1	LUBRICANT#1	LUBRICANT#1	FUEL C	LUBRICANT#1	FUEL C
	CHANGE IN HARDNESS	-5 ~ +10	±10	-5 ~ +10	0 ~ -15	0 ~ -15	±5
	CHANGE IN TENSILE STRENGHT MAX, (%)	-25	-30	-20	-60	-20	-25
	CHANGE IN ELONGATION, MAX,(%)	-45	-30	-30	-50	-20	-20
	CHANGE IN VOLUME(%)	-10 ~ +50	-10 ~ +15	±5	0 ~ +25	0 ~ +15	0 ~ +10
	TEMP(°F)/TIME(HRS)	212°F,70 (100°C)	212°F,70 (100°C)	302°F,70 (150°C)	302°F,70 (150°C)	302°F,70 (150°C)	
	OIL USED	LUBRICANT#3	LUBRICANT#3	LUBRICANT#3	LUBRICANT#3	LUBRICANT#3	
	CHANGE IN HARDNESS	-10 ~ +5	-20	-15	0 ~ -10	-40	
	CHANGE IN TENSILE STRENGHT MAX, (%)	-45	-45	-40	-35		
	CHANGE IN ELONGATION, MAX,(%)	-45	-30	-40	-30		
	CHANGE IN VOLUME(%)	0 ~ +25	+80	+25	0 ~ +10	+60	
LOW TEMPERATURE BENDING TEST	TEMP(°F)/TIME(MIN)	-40°F,3 (-40°C)	-40°F,3 (-40°C)	-14°F,3 (-10°C)	-67°F,3 (-55°C)	-67°F,3 (-55°C)	0°F,3 (-18°C)
	APPEARANCE	PASS	PASS	PASS	PASS	PASS	PASS

ENGINEERING DESIGN & APPLICATION INFORMATION

DESIGN DATA : EXTRUSION LIMIT OF O-RING & CLEARANCE GAP

The O-ring is contained in the gland and forced to flow into the surface imperfections of the gland and any clearance gap available to it. So, O-ring can perform sealing by means of squeeze under low-pressure conditions. However, as the pressure mounts, it becomes distorted. The distortion increases the strain, and the increased strain results in more tight sealing. Under high pressure, O-ring would extrude out of the clearance gap. The extrusion will cause seal failure in a standard gland configuration. An antiextrusion back-up ring. Made of a tough, cut-resistant material such as leather. Teflon or hard rubber, is suggested. In static applications it may be possible to modify the gland to withstand the higher pressures without the addition of a back-up ring. Anyway, care must be taken to make the extrusion as small as possible. The extent of this extrusion depends upon the hardness of O-ring, pressure, and clearance gap. Please refer to FIG 1, FIG 2 and TABLE 1.

FIG. 1

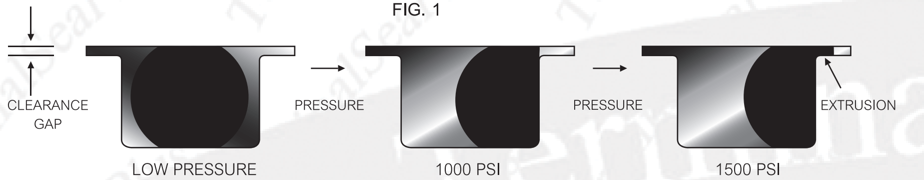
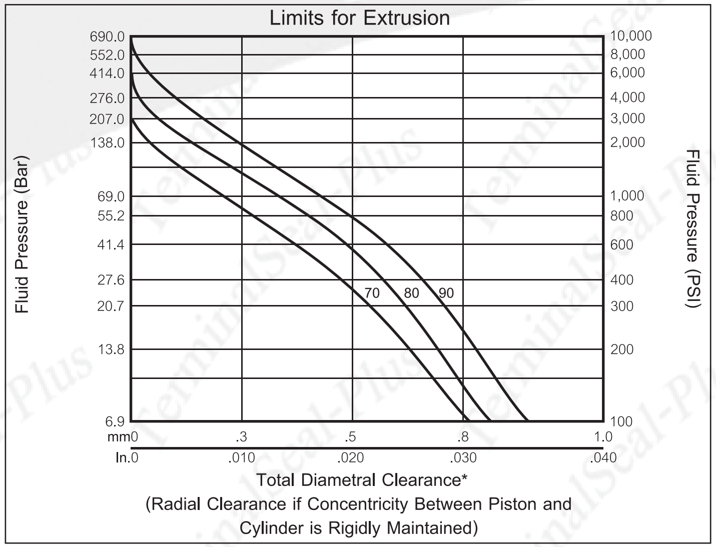


FIG. 2: EXTRUSION LIMIT OF O-RING



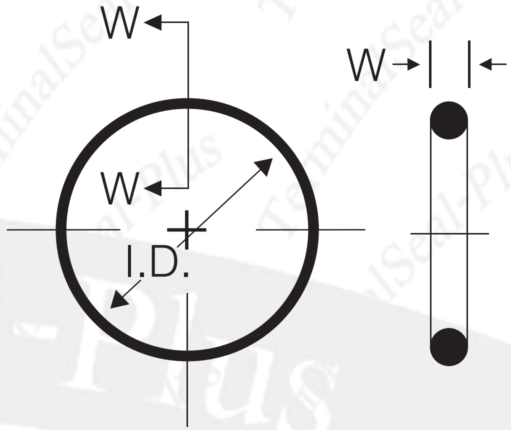
*Reduce the clearance shown by 60% when using silicone or fluorosilicone elastomers.

Basis for Curves

1. 100,000 pressure cycles at the rate of 60 per minute from zero to the indicated pressure.
2. Maximum temperature (i.e., test temperature) 71°C (160°F).
3. No back-up rings.
4. Total diametral clearance must include cylinder expansion due to pressure.
5. Apply a reasonable safety factor in practical applications to allow for excessively sharp edges and orther Imperfections and for higher temperatures.

STANDARD O-RINGS SIZE

P, G, S, SS, V, AS, ISO, METRIC



MATERIAL	TEMPERATURE
-NBR -70	-40 °C UP TO + 120 °C
-NBR -90	-40 °C UP TO + 120 °C
-FKM -75	-40 °C UP TO + 230 °C
-MVQ -70	-60 °C UP TO + 230 °C
-EPDM -70	-55 °C UP TO + 150 °C
-HNBR -70	-40 °C UP TO + 150 °C
-PTFE	-200 °C UP TO + 260 °C
-TFE/P (AFLAS)	-15 °C UP TO + 280 °C