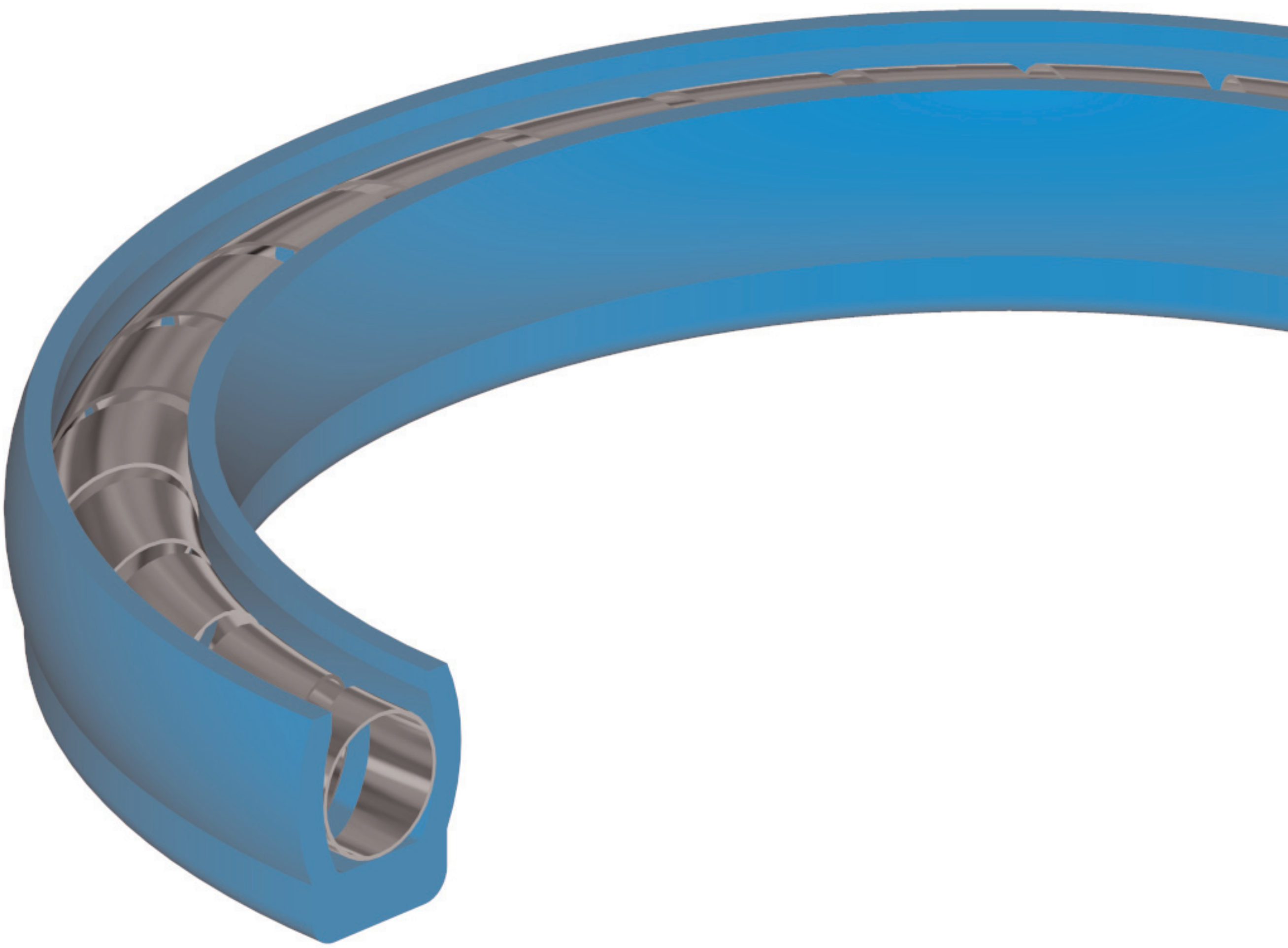
MACROTECH POLYSEAL, INC.

MPI

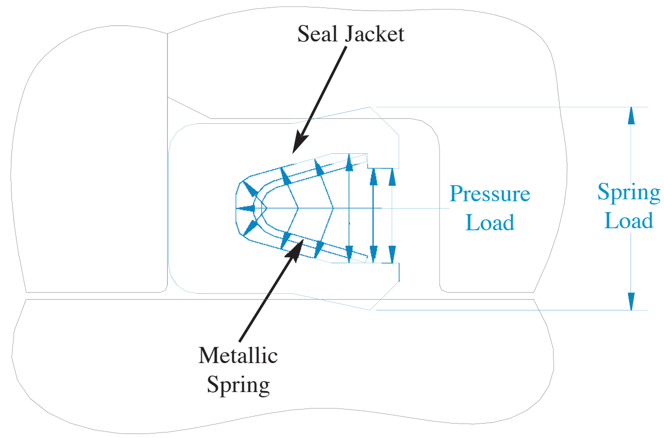
SpectraSeals™



PSS-1000-B

PSS-1000-B

SpectraSeal Sealing Principle



SpectraSeals are engineered plastic seals incorporating a metallic spring, which loads the seal lips against the mating hardware, creating a seal. The spring also allows the seal to follow minor eccentricity and compensates for seal lip wear in dynamic applications. SpectraSeals are normally used in single acting applications and should be oriented with the spring cavity toward the pressure side. Pressure from the media being sealed provides additional sealing force as it acts upon the sealing lips. The seal jacket is produced from a filled PTFE material or other plastic materials such as PEEK, UHMWPE, Acetal or Nylon.

SpectraSeals are typically used in applications where conventional Elastomer seals are not acceptable due to application conditions such as:

- Media Compatibility
- Friction Sensitive Applications
- Dynamic Sealing of Abrasive or Non-Lubricating Media
- Temperature Extremes (-450° to +550° F)
- High Surface Speeds
- High PV Rates (Pressure x Velocity)
- Explosive Decompression

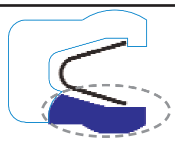
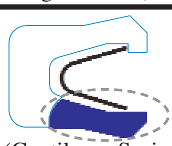
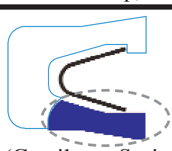
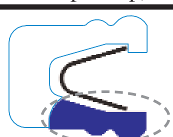
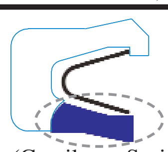
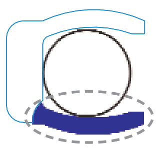
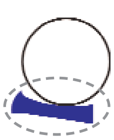
Application conditions determine seal material selection and seal lip style. In static or near static applications a soft material such as unfilled PTFE is used for optimum sealability. In dynamic applications harder materials that have better wear resistance are recommended. Different seal lip styles are offered to address specific applications and various media that are sealed. This catalog will help you choose the correct seal design and materials to meet your specific application requirements. If you have any questions, or would like to review your specific application with one of our Design Engineers, please contact Macrotech Polyseal Engineering Department.

Typical Applications

- Metering Pumps
- Chemical Processing Valves
- Down Hole Tools
- High Pressure Gas Compressors
- Turbo-Expanders
- Cryogenic Pumps
- Expansion Joints
- High Pressure Water or Steam Valves
- Swivel Joints
- Vapor Recovery Nozzles
- Paint Pumps
- Adhesive Pumps
- Spray Guns
- High Pressure Cleaning Equipment
- Plastic Extrusion Equipment
- Glass Processing Equipment
- Refrigeration Equipment
- HPLC (High Pressure Liquid Chromatography)
- Silicone Wafer Processing Equipment
- Gas Turbine Engines
- Mixing Equipment
- Food Processing Equipment
- Robotics
- Machine Tools
- Mechanical Face Seals

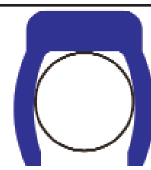
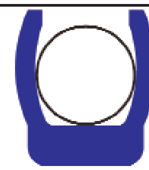
Standard Radial Seal Lip Profiles

SpectraSeals do not have to be, and are frequently not symmetrical in design. The inner seal lip can be a different type than the outer seal lip. When choosing a seal lip type select the dynamic lip first, then decide if this lip is also appropriate for the static side of the seal. SpectraSeals can utilize a Cantilever Style spring or the Helical Wound spring design. The Cantilever Spring is a medium load spring. The Helical Wound Spring is a heavy load spring. The Cantilever spring is normally recommended for dynamic applications where low friction is desired. The higher load of the Helical Wound spring makes this the preferred design for static sealing or dynamic applications where sealability is more critical than low friction. In dynamic applications where the operating pressure is 500 PSI. or less a SpectraSeal utilizing the Cantilever style spring will have a longer wear life due to the lower spring load. In higher-pressure dynamic applications the seal life of the two spring designs will be similar since the spring load is small relative to the pressure load acting upon the seal.

Lip Type	Advantages	Disadvantages
 A - (Cantilever Spring / Single Radius)	- Low wear rate - Preferred design for oscillatory, slow rotary applications. - Radius Lip reduces probability of seal lip damage during installation.	- Should not be used for dynamic sealing of abrasive media. - May weep in high speed reciprocating applications due to seal lip hydroplaning.
 B - (Cantilever Spring / Beveled Lip)	- Improved sealability, preferred design for dynamic sealing of gas/vapors. -Bevel Lip reduces probability of seal lip damage during installation.	- Should not be used for dynamic sealing of abrasive media. - May weep in high speed reciprocating applications due to seal lip hydroplaning.
 D - (Cantilever Spring / Scraper Lip)	- Locks seal into reduced glands. - Reduced probability of seal lip hydroplaning. - Low wear rate. - Good excluder for debris/contamination.	- Requires good lead-in chamfer if hardware is installed lip first. - Possible weepage of light fluids or gases.
 S - (Cantilever Spring / Double Radius)	- Low wear rate. - Redundant seal lip design. - Trapped fluid between contact points provide added lubrication to seal.	- Should not be used for dynamic sealing of abrasive media. - May weep in high speed reciprocating applications due to seal lip hydroplaning.
 X - (Cantilever Spring / Improved Scraper Lip)	- Improved sealability over D style lip. - Preferred lip design for dynamic sealing of abrasive media. - Reduced probability of seal lip hydroplaning.	- Requires good lead-in chamfer if hardware is installed lip first. - Lip design must be used in combination with other lip style.
 H - (Helical Wound Spring / Radius Lip)	- High load of helical wound spring improves sealability. - Suitable for sealing cryogenic gases and fluids. - Radius Lip reduces probability of seal lip damage during installation.	- Should not be used for dynamic sealing of abrasive media. - May weep in high speed reciprocating applications due to seal lip hydroplaning.
 W - (Helical Wound Spring / Scraper Lip)	- High load of helical wound spring improves sealability. - Preferred lip design for dynamic sealing of abrasive media. - Reduced probability of seal lip hydroplaning	- Requires good lead-in chamfer if hardware is installed lip first. - Lip design must be used in combination with radius lip style.

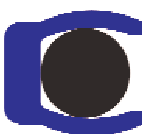
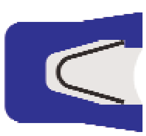
Standard Face Seal Designs

Internal and External Face Seals can be produced using the Cantilever or Helical Wound Spring Designs. The Helical Wound Spring would be the preferred choice for static applications from Cryogenic to 550+ degrees Fahrenheit. The Cantilever Spring is typically used in low speed, rotary or oscillatory applications. Consult Macrotech Polyseal Engineering Department for design recommendations for high speed rotary face sealing or dynamic sealing of abrasive media.

 IC - Internal Face Cantilever Spring	 EC - External Face Cantilever Spring	 IH - Internal Face Helical Wound Spring	 EH - External Face Helical Wound Spring

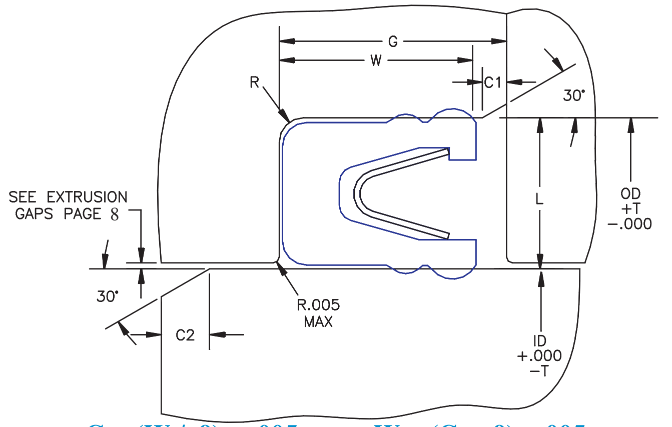
Special Seal Designs

Macrotech Polyseal Engineering Department is available to review your application and recommend a seal design and material to meet your specific application requirements. Special designs can normally be produced without impact to price or availability. Below are just a few examples of non-standard designs used to meet a customers specific application requirements.

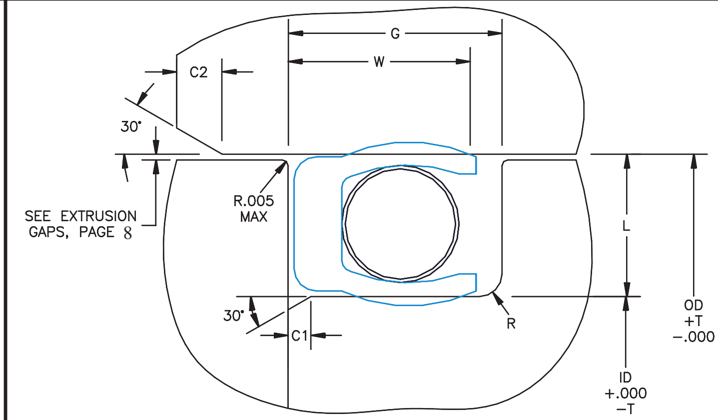
 O-Ring Energized	Economical Seal design but limited to the media capability and temperature rating of the elastomer O-Ring energizer. O-Ring provides uniform load to the sealing lips and is more capable of tolerating eccentricity than springs. This design is used predominately in linear applications where a lower friction and improved life is required over conventional elastomeric U-Cup type seals.
 Food Service	D Style SpectraSeal with silicone filling of spring cavity prevents food particles from becoming trapped in the spring cavity. Food Grade Seals are typically produced from compound 776 (UHMWPE) or 721 (Mineral filled PTFE). D style seal lips are recommended to minimize potential trapping of food particles in the seal lip area.
 Special Rotary	An O-Ring on the OD insures a tight static seal in gland and also prevents the seal from rotating with the shaft. Increased diametrical interface and seal lip contact area improves wear life and the seal's ability to tolerate minor shaft bore eccentricities.
 Triple Lip	Redundant seal contacts and increased load resulting from stacked Cantilever Springs makes this seal especially well suited for the sealing of very viscous media such as adhesives and resins in linear applications. Should not be used in continuous rotary service due to the potential wear of the narrow contact points.
 Flanged Heel	The flange on the heel prevents seal rotation in rotary applications. This design has also been used in linear applications such as metering pumps where it is critical that the seal not shift in the gland since the resulting volume change could effect the accuracy of the meter.

Gland Design Radial Seals

Rod Style Gland	Piston Style Gland



G = (W / .9) + .005 W = (G x .9) - .005



G = (W / .9) + .005 W = (G x .9) - .005

When designing glands for Radial Type SpectraSeals, Macrotech Polyseal recommends using the standard cross-sections as shown in Charts 5-1 & 5-2, column Std. L. Dim. When retro-fitting existing glands or for special needs Macrotech Polyseal part number system allows for non-standard cross-sections to be specified as long as these cross-sections fit within the possible range shown in Charts 5-1 & 5-2, column L. Range. Standard glands and non-standard glands should be toleranced as shown in column T. Dim.

Std. L. Dim	L. Range	G. +.010/-.000	W. ± .005	R. Max.	Min. I.D.	Suggested Max. I.D.	T. Dim.	C1 +.005 / -.000	C2 Min.
.063	.055 / .085	STD = .094 HVY = .149	STD = .080 HVY = .129	.010	.150	3.500	.002	.008	.020
.094	.086 / .110	MIN = .125 STD = .140 HVY = .183	MIN = .108 STD = .121 HVY = .160	.012	.250	5.500	.002	.010	.030
.125	.111 / .147	MIN = .149 STD = .187 HVY = .235	MIN = .130 STD = .163 HVY = .206	.015	.300	6.500	.002	.015	.040
.188	.148 / .227	MIN = .192 STD = .281 HVY = .334	MIN = .168 STD = .248 HVY = .296	.020	.475	9.500	.003	.022	.050
.250	.228 / .313	MIN = .288 STD = .375 HVY = .475	MIN = .255 STD = .333 HVY = .423	.035	1.000	14.500	.003	.030	.080
.375	.314 / .438	MIN = .389 STD = .475 HVY = .602	MIN = .346 STD = .423 HVY = .537	.040	1.250	19.500	.004	.040	.100

Chart 5-1

HELICAL WOUND SPRING									
Std. L. Dim	L. Range	G. +.010/-.000	W. ± .005	R. Max.	Min. I.D.	Suggested Max. I.D.	T. Dim.	C1 +.005 / -.000	C2 Min.
.063	.060 / .080	MIN = .088 STD = .094 HVY = .149	MIN = .075 STD = .080 HVY = .129	.010	.093	3.500	.002	.008	.020
.094	.089 / .104	MIN = .122 STD = .140 HVY = .183	MIN = .105 STD = .121 HVY = .160	.012	.125	5.500	.002	.010	.030
.125	.121 / .136	MIN = .161 STD = .187 HVY = .235	MIN = .140 STD = .163 HVY = .206	.015	.250	6.500	.002	.015	.040
.188	.186 / .203	MIN = .238 STD = .281 HVY = .334	MIN = .210 STD = .248 HVY = .296	.020	.500	9.500	.003	.022	.050
.250	.238 / .271	MIN = .307 STD = .375 HVY = .475	MIN = .272 STD = .333 HVY = .423	.035	.875	19.500	.003	.030	.080

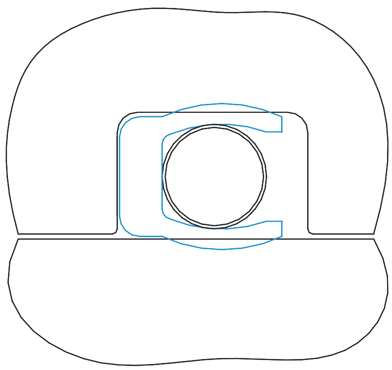
Chart 5-2

The Part numbering system allows you to specify a specific seal height as long as it meets the minimum height requirements provided in column W in Charts 5-1 & 5-2. Columns G and W in Charts 5-1 & 5-2 provides typical gland heights and the corresponding seal heights. The Min. G and W dimensions can be used when axial space is a concern. This gland and seal height should not be used at higher pressures where seal extrusion would be a concern. Std. G and W dimensions are similar to the gland heights required for elastomer O-Rings. This seal height offers improved extrusion resistance. Hvy. G and W dimensions are for severe applications where high pressures and high temperatures could cause excessive extrusion of the seal. The table on page 8 provides a guide for the maximum extrusion gaps at given pressures and temperatures. This guide is based on standard seal widths and the use of filled PTFE seal jackets. Please consult with Macrotech Polyseal Engineering Department for design recommendations if your gland dimensions do not fit within the possible cross-section range, or your gland width (G Dim.) does not meet Macrotech Polyseal minimum width requirements. A non-standard design could possibly be offered to fit your existing gland dimensions.

Optional Gland Designs for Radial Seals

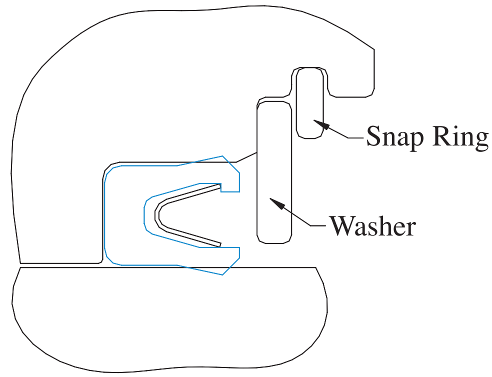
There are too many possible gland configurations for us to show in this catalog. Below are a few of the more popular glands that can be used for piston or rod seals. Whenever possible the gland should be a two-piece design with generous lead-in chamfers to prevent possible damage to the sealing lips during installation.

Closed Gland



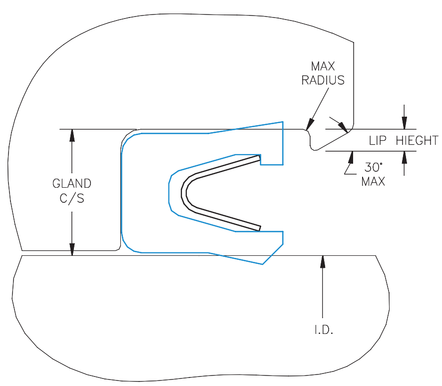
Closed Gland - Least expensive gland to produce but requires stretching of the seal to install in a piston type gland or distortion of the seal to install in a rod type gland. On smaller diameters it is virtually impossible to install a Spectraseal into this type of gland without damaging the seal. **Consult MPI Engineering before specifying a closed gland.**

Snap Ring Gland



Snap Ring - Snap Ring with retaining washer as shown reduces the possibility of seal damage during installation. Snap Ring can be used without retaining washer if generous radii are incorporated into edges of the snap ring gland.

Reduced Gland



Reduced Gland - Similar to the closed gland but the sidewall on the high-pressure side of the seal has been reduced to allow the seal to be snapped over a retention lip. A rod seal is shown but this type of gland can be incorporated for piston seals as well. It is a very positive method of retaining the seal, the seal cannot be removed from this type of gland without being destroyed. The table below provides guidelines for using this type of gland. If the I.D. is smaller than specified a two-piece gland or a snap ring gland should be used. If this is not possible please consult with Macrotech Polyseal Engineering Department for other possible options.

Gland C/S	Lip Height	Maximum Radius	Minimum I.D.
.063	.007 / .010	.004	.375
.094	.010 / .013	.005	.625
.125	.013 / .018	.007	.875
.188	.020 / .025	.010	1.500
.250	.023 / .028	.010	2.500
.375	.025 / .030	.012	3.500

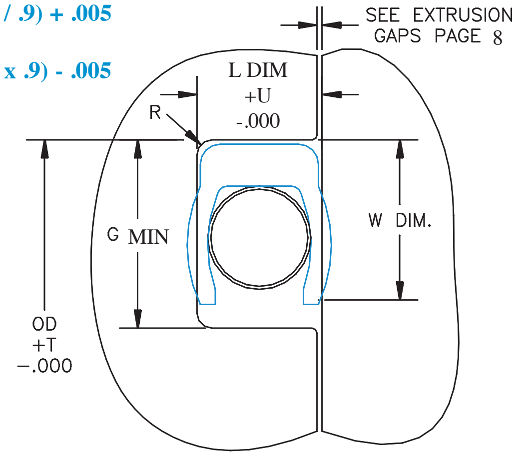
GLAND DESIGN FACE SEALS

Internal Face	External Face

Internal Face

G = (W / .9) + .005

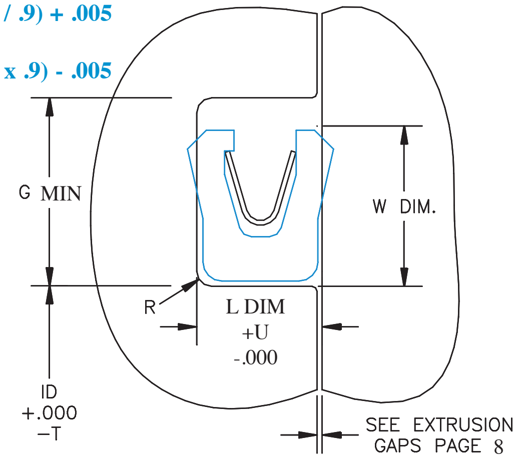
W = (G x .9) - .005



External Face

G = (W / .9) + .005

W = (G x .9) - .005



When designing glands for Face Type SpectraSeals, Macrotech Polyseal recommends using the standard cross-sections as shown in Charts 7-1 & 7-2, column Std. L. Dim. When retro-fitting existing glands or for special needs Macrotech Polyseal part number system allows for non-standard cross-sections to be specified as long as these cross-sections fit within the possible range shown in Charts 7-1 & 7-2, column L. Range. Standard glands and non-standard glands should be toleranced as shown in column T. Dim.

Std. L. Dim	L. Range	G. +.010/-.000	W. ± .005	R. Max.	Internal Face Min. O.D.	External Face Min. I.D.	Suggested Max. Dia.	T. Dim.	U Dim.
.063	.055 / .085	STD = .094 HVY = .149	STD = .080 HVY = .129	.010	.562	.500	3.500	.005	.002
.094	.086 / .110	MIN = .125 STD = .140 HVY = .183	MIN = .108 STD = .121 HVY = .160	.012	.750	.625	5.500	.005	.002
.125	.111 / .147	MIN = .149 STD = .187 HVY = .235	MIN = .130 STD = .163 HVY = .206	.015	1.000	.750	6.500	.005	.002
.188	.148 / .227	MIN = .192 STD = .281 HVY = .334	MIN = .168 STD = .248 HVY = .296	.020	1.875	1.875	9.500	.005	.003
.250	.228 / .313	MIN = .288 STD = .375 HVY = .475	MIN = .255 STD = .333 HVY = .423	.035	4.000	3.750	14.500	.005	.004
.375	.314 / .438	MIN = .389 STD = .475 HVY = .602	MIN = .346 STD = .423 HVY = .537	.040	5.000	4.500	19.500	.005	.005

Chart 7-1

HELICAL WOUND SPRING

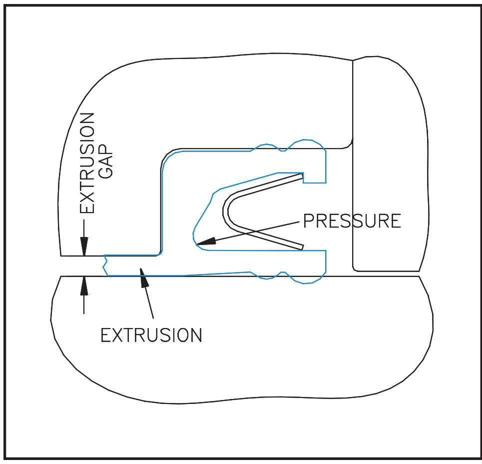
Std. L. Dim	L. Range	G. +.010/-.000	W. ± .005	R. Max.	Internal Face Min. O.D.	External Face Min. I.D.	Suggested Max. Dia.	T. Dim.	U. Dim.
.063	.060 / .080	MIN = .088 STD = .094 HVY = .149	MIN = .075 STD = .080 HVY = .129	.010	.562	.375	3.500	.005	.002
.094	.089 / .104	MIN = .122 STD = .140 HVY = .183	MIN = .105 STD = .121 HVY = .160	.012	.750	.500	5.500	.005	.002
.125	.121 / .136	MIN = .161 STD = .187 HVY = .235	MIN = .140 STD = .163 HVY = .206	.015	1.000	.625	6.500	.005	.002
.188	.186 / .203	MIN = .238 STD = .281 HVY = .334	MIN = .210 STD = .248 HVY = .296	.020	1.500	1.500	9.500	.005	.003
.250	.238 / .271	MIN = .307 STD = .375 HVY = .475	MIN = .272 STD = .333 HVY = .423	.035	3.000	2.500	19.500	.005	.004

Chart 7-2

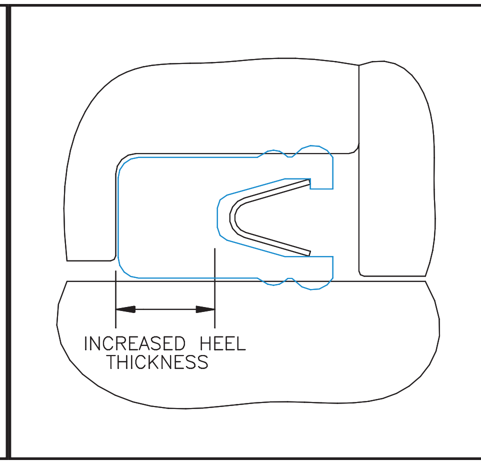
The Part numbering system allows you to specify a specific seal height as long as it meets the minimum height requirements provided in column W in Charts 7-1 & 7-2. Columns G and W in Charts 7-1 & 7-2 provides typical gland heights and the corresponding seal heights. The Min. G and W dimensions can be used when axial space is a concern. This gland and seal height should not be used at higher pressures where seal extrusion would be a concern. Std. G and W dimensions are similar to the gland heights required for elastomer O-Rings. This seal height offers improved extrusion resistance. Hvy. G and W dimensions are for severe applications where high pressures and high temperatures could cause excessive extrusion of the seal. The table on page 8 provides a guide for the maximum extrusion gaps at given pressures and temperatures. This guide is based on standard seal widths and the use of filled PTFE seal jackets. Please consult with Macrotech Polyseal Engineering Department for design recommendations if your gland dimensions do not fit within the possible cross-section range, or your gland width (G Dim.) does not meet Macrotech Polyseal minimum width requirements. A non-standard design could possibly be offered to fit your existing gland dimensions.

SEAL EXTRUSION

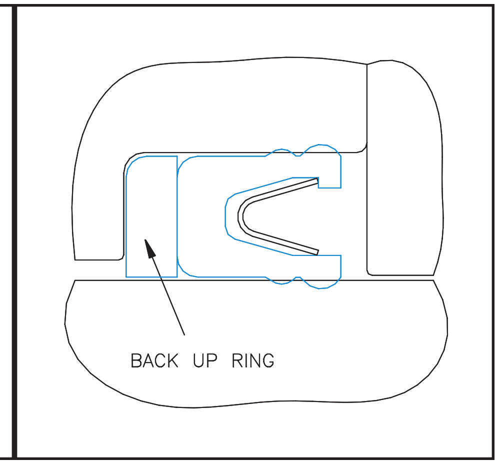
High pressure can cause the seal jacket material to flow into the extrusion gap in the hardware. This can result in distortion of the seal causing leakage and/or premature seal failure. Higher temperatures and dynamics increase the possibility of extrusion. Increasing the heel thickness behind the spring will prevent extrusion in many cases. For demanding applications a back up ring produced from a stronger material such as Nylon, Acetal or PEEK might be used to prevent extrusion. The table below provides the maximum recommended extrusion gaps for filled PTFE SpectraSeals at various temperatures and pressures. If your application exceeds these conditions please consult with Macrotech Polyseal Engineering Department for design assistance.



Rod Seal Extrusion



Increased Heel Thickness



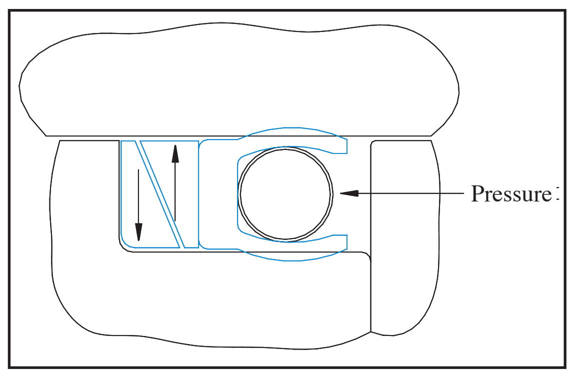
Use of Back Up Ring

Maximum Extrusion Gaps at Various Pressures and Temperatures

Seal C/S	Degrees F	500 psi	1000	3000	5000	7500	10,000
.063	To 200	.006	.005	.003	.002		
	To 300	.005	.004	.002			
	To 400	.004	.003				
	To 500	.003	.002				
.093	To 200	.009	.007	.004	.002	.002	
	To 300	.008	.006	.002			
	To 400	.007	.004	.002			
	To 500	.005	.002				
.125	To 200	.012	.010	.005	.003	.002	
	To 300	.011	.008	.003	.002		
	To 400	.010	.005	.002			
	To 500	.006	.003				
.188	To 200	.018	.016	.006	.004	.003	.002
	To 300	.017	.012	.004	.002	.002	
	To 400	.013	.007	.002			
	To 500	.008	.004				
.250	To 200	.025	.023	.008	.005	.003	.002
	To 300	.023	.014	.005	.003	.002	
	To 400	.017	.008	.003	.002		
	To 500	.010	.005	.002			

Consult Macrotech Polyseal Engineering

Extrusion Gaps based on standard seal widths and the use of filled PTFE for the seal jacket material. When using unfilled PTFE, gaps should be reduced to the next higher pressure rating.



Delta Back Up Rings

Seal design for extreme pressures utilizing Delta type Backup rings to bridge extrusion gap. Pressure load energizes backup rings eliminating extrusion gap. This type of Back Up Ring is frequently used in high pressure piston applications where there is a potential of cylinder growth. Delta back up rings are typically manufactured from high strength plastic materials such as Nylon, Acetal or PEEK.

Surface Finish Requirements

Below is a table outlining the surface finish requirements for SpectraSeals. In dynamic applications the roughness of the surface can have a significant impact on the wear rate of the seal jacket material. Ra (Arithmetic Average Roughness Height) is a very commonly used measure of surface finish, but alone is not sufficient to properly specify the required finish to obtain the best possible performance from a SpectraSeal. Two other valuable surface finish indicators are Rz and Rsk. Rz is the average of the five greatest peak-to-valley separations. Rsk (skewness) defines the symmetry of the finish about its mean line.

Media Sealed	Static Surface	Dynamic Surface
Cryogenic and Critical Sealing of Light Gasses	Ra 6-12 μin Rz < 50 μin Rsk -1.0 to - 4.0	Ra 2-8 μin Rz < 30 μin Rsk -1.0 to -4.0
Less Critical Gas Sealing	Ra 16-32 μin Rz < 80 μin Rsk -1.0 to - 4.0	Ra 6-12 μin Rz < 50 μin Rsk -1.0 to -4.0
Fluid Sealing	Ra 20-63 μin Rz < 80 μin Rsk -1.0 to - 4.0	Ra 8-16 μin Rz < 50 μin Rsk -1.0 to -4.0

Surface Hardness Requirements

In dynamic applications it is critical that one considers the surface speed and the hardness of the mating hardware when specifying the seal jacket material for a SpectraSeal. Typically the more wear resistant the seal jacket material is, the more abrasive it will be against the mating hardware. For maximum seal life at high surface speeds a heavier fill PTFE is desired. The increased fill results in a lower wear rate but may cause wear to the mating hardware if it is not hard enough. The seal jacket materials listed on Page 10 have been coded for their abrasiveness. "A" is specified for non-abrasive materials such as unfilled PTFE. "B" is specified for materials that should be considered slightly abrasive, while "C" represents materials that should be considered highly abrasive. Below is a chart that provides guidelines for seal jacket material selection at various surface velocities and mating surface hardness.

	Rockwell Hardness		
Velocity Feet / Minute	**< 30 RC**	**45 RC**	**58 RC**
0-50	A or B	A, B or C	A, B or C
51-100	A	A or B	A, B or C
101 +	A	A or B	A or B

Consult Macrotech Polyseal Engineering for recommendations for rotary sealing at speeds greater than 300 feet per minute.

Seal Jacket Compounds

The materials below are some of the more common materials used in SpectraSeals. Macrotech Polyseal has numerous other compounds available, if one of these standard compounds fails to meet your application requirements.

SEALABILITY (↑) — EXTRUSION RESISTANCE (↓)

SPECTRALOY COMPOUND #	TEMP. RATING (°F)	WEAR RESISTANCE	CHEMICAL RESISTANCE	MATING SURFACE HARDNESS (See Table on Page 9)	COMPOUND FEATURES AND RECOMMENDED SERVICE
700	-450 +450	P	E	A	Unfilled PTFE: Used predominately for static or slow speed/intermittent dynamic service. Excellent for cryogenic service.
716	-450 +500	F	E	A	15% Graphite filled PTFE: Very low coefficient of friction. Used in low-pressure dynamic applications that are friction sensitive.
755	-450 +550	G	G	A	*Ekonol® filled PTFE: Good wear resistance but is not abrasive against non-hardened surfaces. Should not be used in steam applications.
756	-450 +550	E	G	A	Polyimide filled PTFE: Excellent wear resistance but is not abrasive against non-hardened surfaces. Should not be used in steam applications.
771	-450 +550	E	G	B	Mineral, Moly filled PTFE: Excellent wear resistance. Typically used for dynamic sealing at higher temperatures and pressures.
721	-450 +550	G	G	B	Mineral filled PTFE: Filler is an FDA approved mineral. Used for sealing food products at temperatures greater than 180° Fahrenheit.
734	-450 +550	G	E	B	10% Carbon Graphite filled PTFE: General-purpose material. Suitable for dynamic sealing of steam and water.
702	-450 +550	E	E	C	Glass, Moly filled PTFE: Excellent material for dynamic sealing at high temperatures and pressures.
703	-450 +550	E	E	C	PPS, Carbon and Moly filled PTFE: Excellent wear rate in non-lubricated service at high temperatures and pressures.
782	-450 +550	E	E	C	Carbon Fiber filled PTFE: Excellent wear and creep resistance at elevated temperatures. Good abrasion resistance for sealing non-lubricating media at elevated temperatures.
711	-450 +550	E	E	C	25% Carbon Graphite filled PTFE: Similar to #734 but additional filler improves wear, creep and extrusion resistance.
741	-450 +550	E	P	B	40% Bronze filled PTFE: Suited for high-speed dynamic sealing of lubricating media. Should not be used for Chemical service.
776	-450 +180	E	G	A	UHMWPE: FDA and USDA approved. Best material for reciprocating service in water or water based fluids. Typically used for food products, paints, adhesives and resins. Excellent abrasion resistance.
745	-100 +550	G	G	B	Unfilled PEEK: High strength material predominately used for back-up rings. Suitable for sealing non-lubricating, viscous fluids from ambient to 550°F.

Material Comparison: E = Excellent G = Good F = Fair P = Poor

Standard Spring Material

Spring Materials			
Spring Type	**301 Stainless**	**17-7 PH Stainless**	***Elgiloy**
Cantilever	✓✓✓		✓✓✓
Helical Wound		✓✓✓	✓✓✓

* While Stainless Steel 301 and 17-7 PH are suitable for most applications, *Elgiloy®, which is a Cobalt Nickel Alloy, is a premium grade material. This material offers improved load deflection and chemical resistance. Elgiloy meets the requirements of NACE (National Association Of Corrosion Engineers).

SpectraSeal Part Numbering System

Radial Seal Part Numbering System

XB125 - 02500 - 160 - A - 776

- I.D. Lip Style
- O.D. Lip Style (See Standard Lip Profiles)
- Gland Cross-Section (L Dim.)
- Nominal Gland I.D.
- Seal Height (W Dim.)
- Spring Material
  - A - SS 301 Cantilever Spring
  - B - Elgiloy Cantilever Spring
  - C - 17-7PH Helical Wound Spring
  - D - Elgiloy Helical Wound Spring
- Seal Jacket Compounds (See Page 10)

A-Style Lip
Single Radius Lip

B-Style Lip
Beveled Lip

D-Style Lip
Scraper Lip

X-Style Lip
Improved Scraper Lip

S-Style Lip
Double Radius

H-Style Helical
Wound/Radius Lip

W-Style Helical
Wound/Scraper Lip

Face Seal Part Numbering System

IH125 - 02500 - 160 - C - 776

- I = Internal Face
  E = External Face
- H = Helical Wound Spring
  C = Cantilever Spring
- Gland Cross-Section (L Dim.)
- Nominal Gland I.D. for External Face Seals.
  Nominal Gland O.D. for Internal Face Seals.
- Seal Height (W Dim.)
- Spring Material
  - A - SS 301 Cantilever Spring
  - B - Elgiloy Cantilever Spring
  - C - 17-7PH Helical Wound Spring
  - D - Elgiloy Helical Wound Spring
- Seal Jacket Compounds (See Page 10)

IC-Internal Face
Cantilever Spring

IH-Internal Face
Helical Wound Spring

EC-External Face
Cantilever Spring

EH-External Face
Helical Wound Spring

Important Notice

We reserve the right to make changes without notice in our products and in the information and content of this brochure. The statements and information in the brochure are intended to serve only as guides. There are no warranties or binding descriptions of the products.

Notice of Exclusive Warranty and Remedy

Briefly, our exclusive warranty is against defects in materials and workmanship at the time of shipment. It is in lieu of all other warranties. *There is no implied warranty of merchantability or fitness for a particular purpose.* The exclusive remedy is replacement of defective products or, at our option, refund of their purchase price. *All damages exceeding the purchase price are excluded,* whether consequential or otherwise and regardless of cause. The terms and conditions on our printed quotation contain a much more complete statement of our Exclusive Warranty and Remedy.

MACROTECH POLYSEAL, INC.

P.O. Box 26627 Salt Lake City, UT 84126
(801) 973-9171 (800) 453-8742
Fax (801) 973-9188 (800) 825-7325

info@polyseal.com

Visit us on the Internet at
www.polyseal.com

Authorized MPI Distributor: