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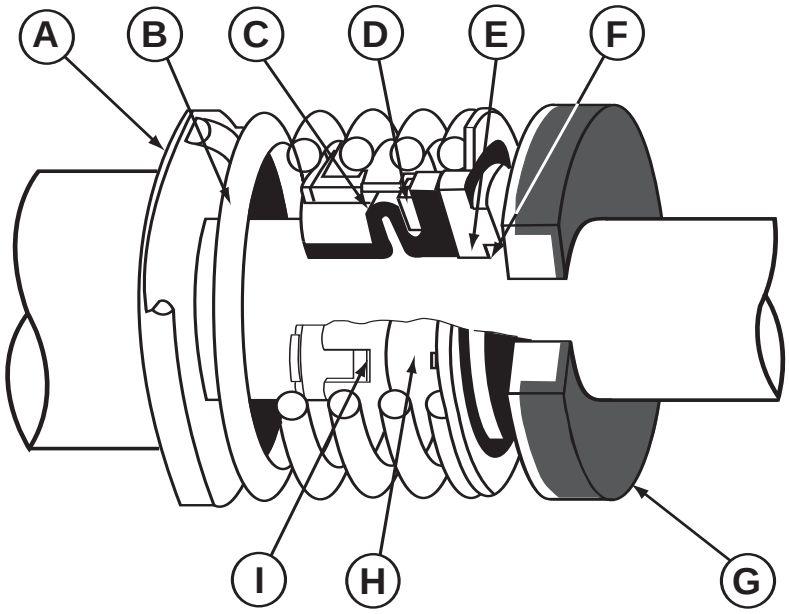
SEAL PARTS DESCRIPTION



TYPICAL TYPE ″D″ SEAL PARTS

A Spring Holder

B Spring

C Rubber Bellows

D Disc

E Sealing Washer (Primary Ring)

F Lapped Sealing Faces

G Mating Ring Assembly

H Retainer

I Drive Band

DESIGN AND CONSTRUCTION FEATURES

- SELF ALIGNING
- COMPLETELY ASSEMBLED FOR EASY INSTALLATION
- EXCEPTIONALLY BROAD APPLICATION RANGE
- WIDE TEMPERATURE RANGE
- LOW, MEDIUM OR HIGH PRESSURE APPLICATIONS
- AVAILABLE FOR STANDARD OR LIMITED GLAND DEPTHS
- AUTOMATIC COMPENSATION FOR MATING RING WEAR AND SHAFT END PLAY

SPRINGER PARTS

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ADVANTAGES OF SPRINGER PARTS SEALS

As most engineers know, a successful seal must be designed to give long life, reduce maintenance and provide automatic self adjustment. The seals in the SPLLC line meet these basic requirements. In addition, they offer other important advantages to the seal user.

1. **ABSOLUTE SEALING** - resulting in less pumpage losses, cleaner environmental facilities, less fire hazard, no danger from fumes and no contamination of the fluid being handled.
2. **NO RUBBING FRICTION BETWEEN SHAFT AND SEAL PARTS.** By replacing your old packing with new state of the art SPLLC mechanical seals there is no more expensive shaft or sleeve replacements.
3. **MORE FLEXIBILITY WITH SEALS MEANS LONGER SERVICE LIFE.** Seals have more flexibility than packing and are able to compensate for shaft deflection, axial and radial end play, as well as vibration and wear of the sealing faces.
4. **LESS FRICTION MEANS VALUABLE POWER SAVINGS.** Seals use less friction than packing and therefore, require less horsepower consumption.
5. **PRECISION LAPPED SEALING SURFACES.** Positively control leakage and eliminate ˝break in˝ runs.
6. **HIGHER SPEEDS AND PRESSURES ARE NO PROBLEMS.**
7. **EXTREME FLAT SURFACES OF MATING FACES.** Care is taken to furnish precision lapped sealing surfaces with a flatness within three light bands which maintains the necessary face film lubrication.
8. **MATERIALS OF CONSTRUCTION.** Teflon, AFLAS®, Viton®, EPR and PTFE materials are available for those applications where Neoprene and Buna are not compatible with the process fluid. Metal parts are normally made of brass, plated steel or stainless steel, but other alloys, such as Monel and Hastelloy can be supplied. Seat materials are available in a wide selection.

TYPICAL SPLLC SEAL INSTALLATION

- SWIMMING POOL PUMPS
- CENTRIFUGAL PUMPS
- ROTARY PUMPS
- JET PUMPS
- TURBINE PUMPS
- PETROCHEMICAL PUMPS
- GEARBOX SEALS

SHAFT SIZE:	.312" to 5.625"
TEMPERATURES:	-75° to +450°F.
PRESSURE:	75 to 200 PSI

SPRINGER PARTS

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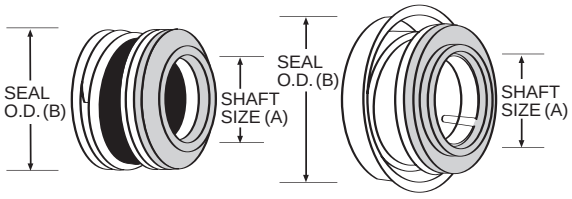
SEAL SIZING GUIDE

1. Remove seal to be replaced from shaft and/or sleeve.
2. Make note of materials used for the old seal parts using SPLLC Material Code found on page 99.
3. Identify Head type (page 99) Use caliper to measure inside diameter (I.D.) and outside diameter (O.D.)

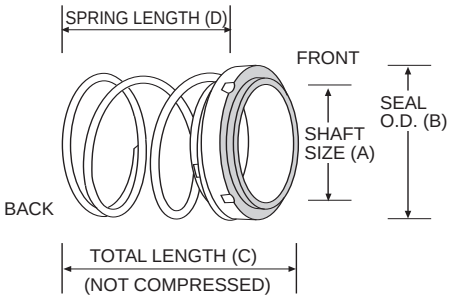


TYPE A **TYPE B**

SEAL HEADS – TYPE A and B

Identify seal head type - Determine Shaft Size:
Measure the inside diameter (I.D.) (dimension A)
Measure the outside diameter (O.D.) (dimension B)

The operating height is generally the same for all A and B seals of the same shaft size. More positive identification will result from calculating the mating ring dimensions below. If unable to positively identify the seal, consult SPLLC.



TYPE C, D, and E

SEAL HEADS – TYPE C, D and E

Identify seal head type - Determine Shaft Size:
Measure I.D. of the bellows (dimension A) as installed in the seal head.
Add approximately .016" additional for rubber squeeze.

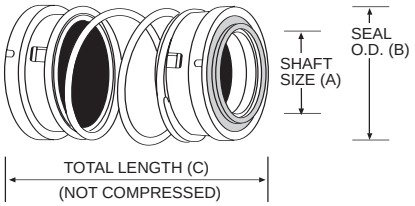
Measure the head O.D. (dimension B)

Step 1. Measure the total free length (C) of the rotating portion of the assembled seal. (Do not include the seat).

Step 2. Disassemble seal and measure the free length of the spring (D).

Step 3. Take half of the measurement obtained in step 2.

Step 4. Subtract the figure obtained in step 3 from the measurement (C) in step 1. The result is the approximate operating height of the seal.



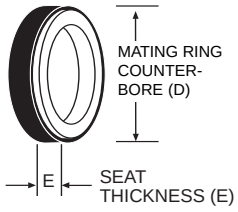
TYPE K, R, and T

SEAL HEADS – TYPE K, R and T

Identify seal head type - Determine Shaft Size:
Measure the inside diameter of the bellows (dimension A).
Add approximately .016" additional for rubber squeeze.
Measure the head O.D. (dimension B)
Calculate the operating height of the seal as follows:

Step 1. Measure the total length of the rotating seal (C). (Not compressed).

Step 2. Multiply the total length (C) by .73. The result is the approximate operating height of the seal.



MATING RING and GASKET

Identify the mating ring design from those shown on inside of back cover. Measure O.D. of the gasket while assembled on mating ring and subtract approximately .016" additional for rubber squeeze to obtain counterbore dimension (dimension D).
Measure the combined insert and gasket width (dimension E).

Use the Dimensional Cross Reference by Shaft Size guide (pgs. 72-100) to find the part number of the seal you need, start with SHAFT SIZE and find the line in the tables that matches the dimensions and material code.

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MATERIALS OF CONSTRUCTION

METALS	ELASTOMERIC BELLOWS	SEALING FACES
18-8SS	AFLAS®	Carbon Graphite
316SS	Buna	Cast Iron
Brass	Ethylene Propylene	Ceramic
Monel	Neoprene	Molded Plastic
Plated Steel	Viton®	Ni-Resist*
		Silicon Carbide
		Stellite**
OPTIONS	Special Alloys	Tungsten Carbide
	Special Secondary Sealing Elements	

*Cast Iron with Nickle
**Chromium/Cobalt Alloy

PRESSURE LIMITS FOR SEAL TYPES

Seal Types A and B	**75 PSI**	**Seal Type G**	**150 PSI**
Seal Type C	**150 PSI**	**Seal Type Q**	**30 PSI**
Seal Types D and E	**350 PSI**	**Seal Type W and X**	**350 PSI**

ELASTOMERIC TEMPERATURE LIMITS

AFLAS® 450°F. Buna 225°F. EPR 300°F. Neoprene 175°F. Viton 400°F.

VITON SEALS for High Temperatures

The elastomer compounds of our seals are available in Viton for temperatures exceeding 212°F. and in services where Neoprene, Buna or EPR is not compatible with the fluid handled.

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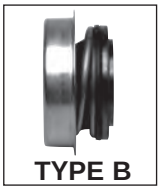
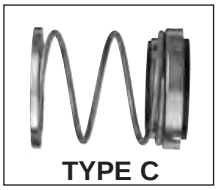
HEAD TYPES

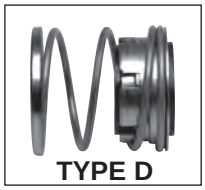
TYPE A
Equal to:
Type 6



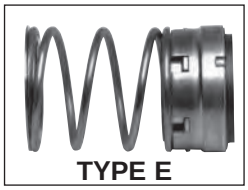
TYPE B
Equal to:
Type 6A



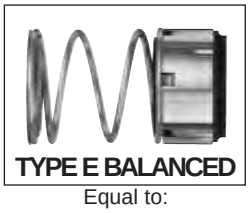
TYPE C
Equal to:
Type 21



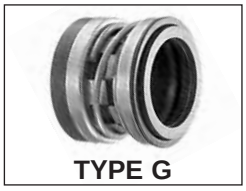
TYPE D
Equal to:
Type 2



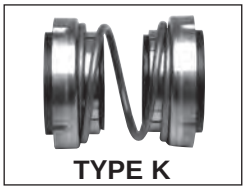
TYPE E
Equal to:
Type 1



TYPE E BALANCED
Equal to:
Type 1 Balanced

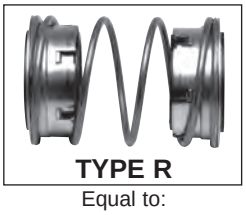


TYPE G
Equal to:
Types 2100 & 2106

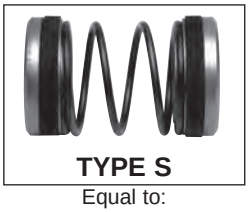


TYPE K
Equal to:
Type 21 Dbl.

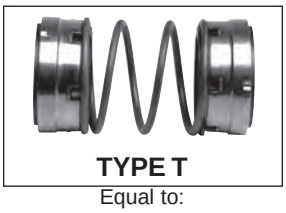
TYPE Q
Equal to:
Type 11A



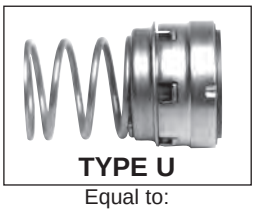
TYPE R
Equal to:
Type 2 Dbl.



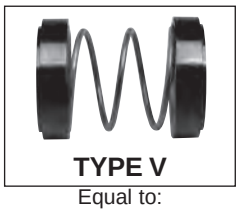
TYPE S
Equal to:
Type 8 Spec



TYPE T
Equal to:
Type 1 Dbl.



TYPE U
Equal to:
Type 1 w/Sp. Adpt.



TYPE V
Equal to:
Type 8 D

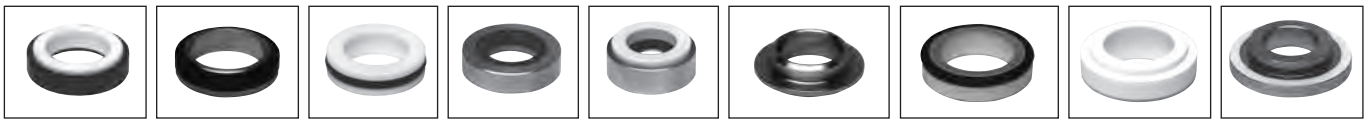
TYPE W
Equal to:
Types 9 & 9T

TYPE X
Equal to:
Types 8-1 & 8-1T

MATING RING DESIGNS

(Available in a wide variety of materials)

CUP MTD. **L-SHAPED** **O-RING**



1 **2** **3** **9** **11** **14** **25** **27** **28**

SPLLC MATERIAL CODE

ELASTOMERS	WASHERS	METAL PARTS	SEATS	SPRINGS
B. Buna	A. Bronze	D. Brass	G. Cast Iron	E. Monel
N. Neoprene	C. Carbon	E. Monel	K. Ni-Resist	F. Stainless Steel
Q. EPR	H. Glass Filled TFE	F. Stainless Steel	L. Silicon Carbide	P. Plated Steel
T. PTFE	L. Silicon Carbide	O. Stellite	J. Ceramic	
V. Viton®	M. Molded Plastic	P. Plated Steel		
X. AFLAS®	R. Silicon Carbide (CVR)	S. Tooled Steel		
	S. Tooled Steel	Z. Tungsten Carbide		
	Z. Tungsten Carbide			

B C F Z F

Elastomer (Buna) — Washer (Carbon) — Metal Parts (Stainless Steel) — Seat (Tungsten Carbide) — Spring (Stainless Steel)

AFLAS is a registered trademark of Asahi Glass Co. Ltd.
Viton is a registered trademark of DuPont.
John Crane is a registered trademark of Smith Group.

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SEAL APPLICATION GUIDE

CONTACT: _____

PHONE: _____

FAX: _____

E-MAIL: _____

DIMENSIONAL DATA

(See drawing below)

A. Shaft/Sleeve O.D. _____

B. Counter Bore of Stuffing Box _____

C. Bore of Gland for Stationary Unit _____

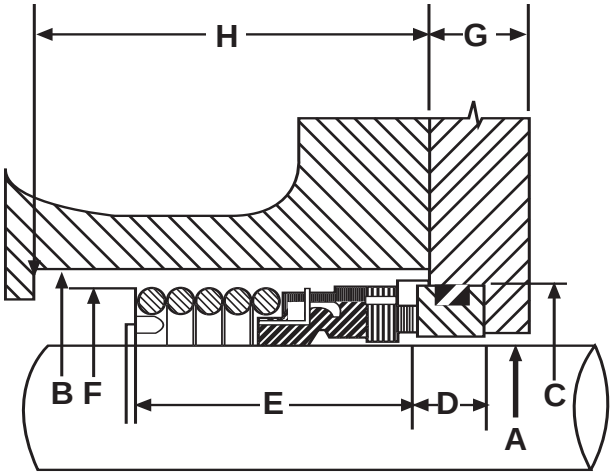
D. Width of Stationary _____

E. Operating Height of Seal _____

F. O.D. of Seal _____

G. Width of Gland _____

H. Stuffing Box Depth _____



EQUIPMENT DATA

1. Pump Mfg. Name _____
2. Model Number _____
3. Seal Part No. _____

SEAL DESIGN

1. Head Type _____
2. Seat Type _____
3. Manufacturer _____
4. Manufacturers Part # _____

OPERATING CONDITIONS

*1. Product Handled _____
2. If Abrasive (explain) _____
3. % of Concentration _____
*4. Temperature F. _____ C. _____
*5. Stuffing Box Pressure _____
*6. Shaft Speed _____

***Required Fields**

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