

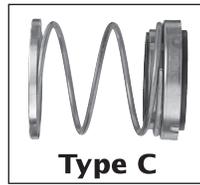
## U.S. SEAL MFG. HEAD TYPES



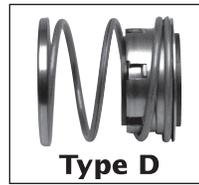
Equal to:  
John Crane  
Type 6



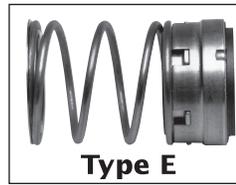
Equal to:  
John Crane  
Type 6A



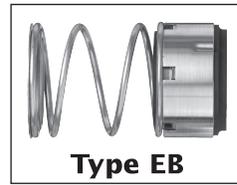
Equal to:  
John Crane  
Type 21



Equal to:  
John Crane  
Type 2



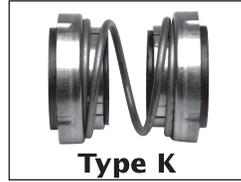
Equal to:  
John Crane  
Type 1



Equal to:  
John Crane Type 1  
Balanced



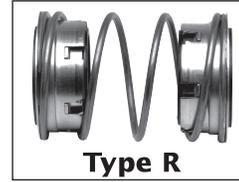
Equal to:  
John Crane Types  
2100 & 2106



Equal to:  
John Crane  
Type 21 Double



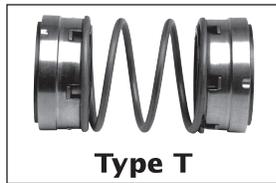
Equal to:  
John Crane  
Type 11A



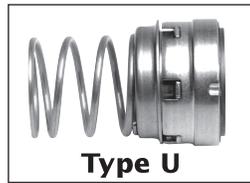
Equal to:  
John Crane  
Type 2 Double



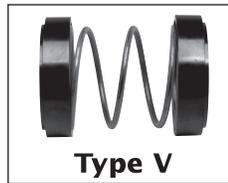
Equal to:  
John Crane  
Type 8 Special



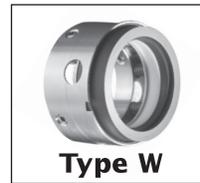
Equal to:  
John Crane  
Type 1 Double



Equal to:  
John Crane  
Type 1 w/ Spring Adapter



Equal to:  
John Crane  
Type 8D



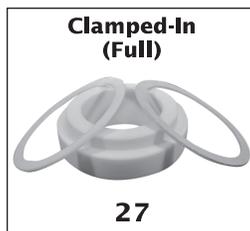
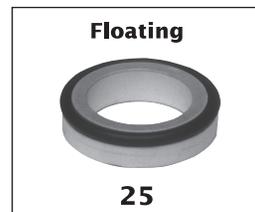
Equal to:  
John Crane  
Types 9 & 9T



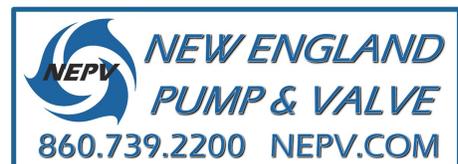
Equal to:  
John Crane  
Types 8-1 & 8-1T

## U.S. SEAL MFG. MATING RING DESIGNS

(Available in a wide variety of materials)



Tel: 800-243-5489  
Fax: 877-849-7325  
[www.ussealmfg.com](http://www.ussealmfg.com)



# U.S. SEAL MFG. MATERIAL CODE

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



AFLAS® is a registered trademark of Asahi Glass Co., Ltd.  
Kalrez® is a registered trademark of DuPont Performance Elastomers, LLC

Monel® is a registered trademark of Special Metals Corporation  
Viton® is a registered trademark of DuPont Performance Elastomers, LLC

## SECONDARY SEAL TEMPERATURE LIMITS

**AFLAS® +450°F**

**Buna +225°F**

**EPR +300°F**

**Neoprene +175°F**

**Viton® +400°F**

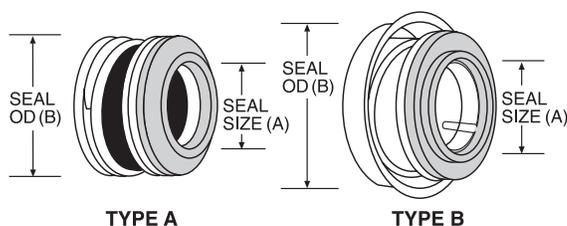


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# SEAL SIZING GUIDE

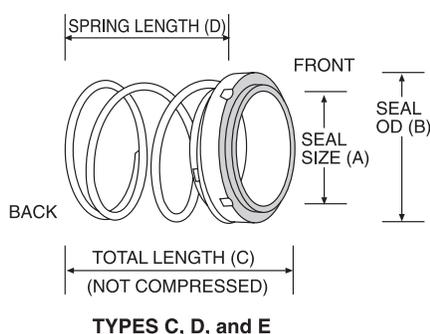
1. Remove seal to be replaced from shaft and/or sleeve.
2. Make note of materials used for the old seal parts using U.S. Seal Mfg. Material Code found in the front of this catalog.
3. Identify Head type (see front cover fold-out.) Use caliper to measure inside diameter (ID) and outside diameter (OD).



## SEAL HEADS – TYPES A and B

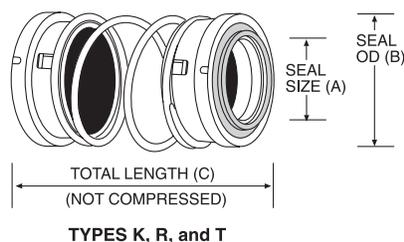
- Identify seal head type - Determine Seal Size:
- Measure the inside diameter (ID) (dimension A)
- Measure the outside diameter (OD) (dimension B)

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 U.S. Seal Mfg.



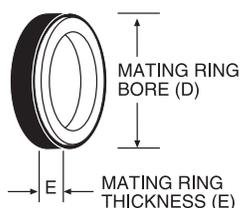
## SEAL HEADS – TYPES C, D and E

- Identify seal head type - Determine Seal Size:
- Measure ID of the bellows (dimension A) as installed in the seal head. Add approximately .016" additional for rubber squeeze.
- Measure the head OD (dimension B)
  - Step 1. Measure the total free length (dimension C) of the rotating portion of the assembled seal. (Do not include the mating ring).
  - Step 2. Disassemble seal and measure the free length of the spring (dimension D).
  - Step 3. Take half of the measurement obtained in step 2.
  - Step 4. Subtract the figure obtained in step 3 from the measurement (dimension C) in step 1. The result is the approximate operating height of the seal.



## SEAL HEADS – TYPES K, R and T

- Identify seal head type - Determine Seal Size:
- Measure the inside diameter of the bellows (dimension A).
- Add approximately .016" additional for rubber squeeze.
- Measure the head OD (dimension B)
- Calculate the operating height of the seal as follows:
  - Step 1. Measure the total length of the rotating seal (dimension C). (Not compressed).
  - Step 2. Multiply the total length (dimension C) by .73. The result is the approximate operating height of the seal.

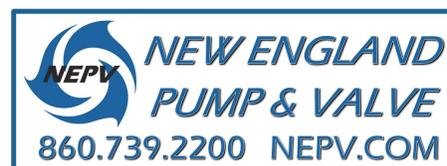


## MATING RING and GASKET

- Identify the mating ring design from those shown on inside of front cover.
- Measure OD of the gasket while assembled on mating ring and subtract approximately .016" additional for rubber squeeze to obtain bore dimension (dimension D).
- Measure the combined insert and gasket width (dimension E).
- Use the Dimensional Cross Reference guide (pages 112-161) to find the part number of the seal you need. Start with Seal Size and find the line in the tables that matches the dimensions and material code.



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# FEATURES OF SEAL TYPES A, B, C, D, E, G, Q, W, X

## TYPE A (Seal Sizes .312-1.000)

**FEATURES:** Compact, unitized, single spring, elastomer bellows seal. The factory-assembled, one piece design permits fast, easy installation and the full-convolution elastomer bellows provides maximum flexibility in compensating for shaft movement and wear.

**SERVICES:** Centrifugal water pumps, deep and shallow well jet pumps, swimming pool and wastewater pumps. Pressures to 75 PSI. Temperature: -40°F to +400°F.



## TYPE B (Seal Sizes .375-1.000)

**FEATURES:** A full-convolution elastomer bellows provide maximum flexibility in compensating for shaft movement while torsional stress on the bellows is controlled by a dent and groove positive drive arrangement.

**SERVICES:** Centrifugal water pumps, sump pumps, submersible and swimming pool pumps. Pressures to 75 PSI. Temperature: -40°F to +400°F.



## TYPE C (Seal Sizes .312-5.500)

**FEATURES:** Elastomer bellows seal, non-clogging, single coil spring, The drive band's notch design eliminates overstressing of the bellows.

**SERVICES:** Rotary and turbine pumps, compressors, mixers, blenders and chillers. Pressures to 150 PSI. Temperature: -40°F to +400°F.



## TYPE D, E (Seal Sizes .500-5.625)

**FEATURES:** Self adjusting elastomer bellows compensate for abnormal shaft end play and primary face sealing wear. Effects of radial and axial shaft end play are minimized by uniform spring pressure.

Positive drive is transmitted through the drive band and drive notches, which absorb breakout and running torque. Damaging stresses on the elastomer bellows are prevented. Slippage is eliminated, thus protecting shaft and sleeve against wear and scoring. The result is long seal life.

The seal's large single-coil spring is much sturdier than a multiple spring construction design. The spring is non-clogging, self-cleaning and will not foul up due to fluid contact. Corrosion and clogging problems are eliminated.

**SERVICES:** All types of rotary shaft equipment such as pumps, mixers, blenders, and compressors. Wide range of services from water and steam to chemicals and corrosives.

Pressures to 350 PSI. Temperature: -40°F to +425°F

Balanced Seals - Pressures to 1200 PSI. Temperature: -40°F to +450°F



TYPE D



TYPE E

## TYPE G (Seal Sizes .437-3.500)

**FEATURES:** A compact unitized single spring elastomeric bellows shaft seal. Innovative full convolution bellows and interlocking drive band design allows for positive drive and greater tolerance to misalignment. Interference fit of primary ring insures positive drive while avoiding high face distortions associated with crimped designs.

**SERVICES:** Small centrifugal pumps used in Pool & Spa, Well Water, & HVAC applications. Pressures to 150 PSI. Temperature -30°F to +300°F.



## TYPE Q (Seal Sizes .500-2.250)

**FEATURES:** Press fitted, rubber diaphragm protects metal components, spring loaded

**SERVICES:** Icemaker and appliance applications, general purpose food service. Pressures to 30 PSI. Temperature -40°F to +400°F.



## TYPE W (Seal Sizes .500-6.000)

**FEATURES:** Multi Spring, PTFE wedge design for use in extreme temperatures / chemical applications. Unitized construction. Also available in a balanced design

**SERVICES:** Corrosive fluid applications, extreme temperatures. Pressures to 350 PSI. Temperature -75°F to +500°F.



## TYPE X (Seal Sizes .250-6.000)

**FEATURES:** Multi Spring, O-ring design, unitized construction, flexible design compensates for shaft misalignment for high performance and longer seal life. Also available in a balanced design.

**SERVICES:** Wide usage in chemicals and corrosives. Pressures to 350 PSI. Temperature -20°F to +400°F.



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# UNABLE TO FIND THE SEAL YOU REQUIRE?

## EQUIPMENT DATA

1. Pump Mfg. Name. (Found on Nameplate) \_\_\_\_\_
2. Model Number \_\_\_\_\_
3. Serial Number \_\_\_\_\_
4. Seal Part Number \_\_\_\_\_

## SEAL DESIGN - See Front Cover Fold-Out

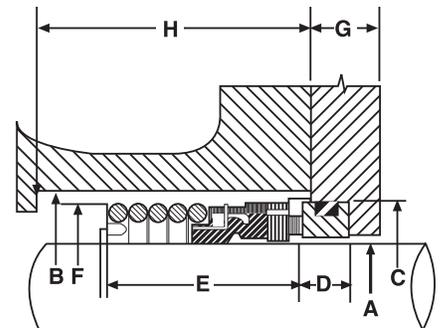
1. Head Type \_\_\_\_\_
2. Mating Ring Type \_\_\_\_\_
3. Manufacturer \_\_\_\_\_
4. Manufacturers' Part Number \_\_\_\_\_

## OPERATING CONDITIONS - \*This Section MUST Be Completed\*

1. Product Handled \_\_\_\_\_
2. If Concentrated, What %? \_\_\_\_\_
3. Temperature F. \_\_\_\_\_ C. \_\_\_\_\_

## DIMENSIONAL DATA

- A. Shaft / Sleeve OD \_\_\_\_\_
- B. Counterbore of Stuffing Box \_\_\_\_\_
- C. Bore of Gland for Mating Ring Unit or Housing \_\_\_\_\_  
If pump is equipped with a stuffing box,  
what is the counterbore? \_\_\_\_\_
- D. Width of Mating Ring \_\_\_\_\_
- E. Operating Height of Seal \_\_\_\_\_
- F. OD of Seal \_\_\_\_\_



Your Name and Company \_\_\_\_\_  
Phone \_\_\_\_\_ Fax \_\_\_\_\_  
E-mail \_\_\_\_\_

## Need To Send a Sample For Identification?

- Please include this completed form.
- It is most important that we know the service conditions. i.e. What Are You Pumping?
- Samples must be clean. Please include a copy of the MSDS form.
- Please Note - **Seals received not cleaned will be returned without identification.**



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