

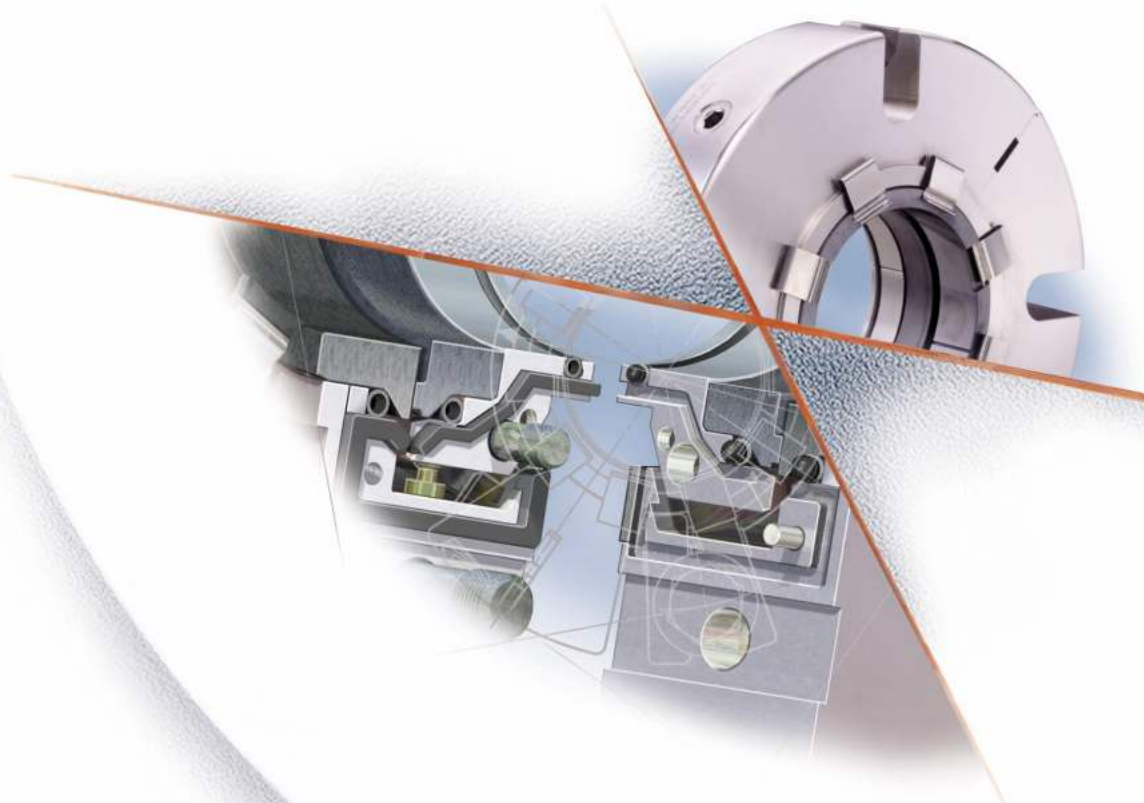
# CHESTERTON®

ISO 9001  
CERTIFIED

## 442M™ Split Mixer Seal Patented



- No equipment disassembly
- Designed to handle the high runout conditions of mixers and agitators
- Patented automatic centering
- Exclusive design features ensure maximum performance
- Compact seal design occupies minimum space



*The ultimate split seal  
for mixers, agitators and  
specialty equipment*

## 442M™ Split Mixer Seal



### The Ultimate Split Seal For Mixers, Agitators and Other High-Runout Equipment

The Chesterton 442M Split Mixer Seal has been designed from the ground-up to be the benchmark for split seal performance in mixing and agitating equipment. Designed specifically with high-runout equipment in mind, the 442M is capable of handling the rigors of mixer and agitator service without compromising reliability. Split design allows quick, economical installation without equipment disassembly. Economical repair kits allow the seal to be field refurbished for rapid turn-around. The 442M Split Mixer Seal is designed to be the reliable mainstay of your plant's mixer sealing program.

#### Large radial motion capability

Mixers and agitators are known for having large shaft runout during operation. This is why conventional pump seals are not well suited for these services. The 442M split mixer seal is specifically designed to reliably perform in those services which routinely exhibit large amounts of radial shaft runout. Large internal clearances allow radial shaft movement without damaging seal components.

#### Patented Automatic Centering

Maximum radial runout performance demands perfect centering. Unique centering "buttons" positively center the gland about the rotating element. This ensures maximum radial travel in all directions.



#### Face "Wiping" minimized

In rotating narrow face designs, if the equipment shaft is not concentric to the stuffing box bore, particles are prevented from being transported across seal face wear track due to the wiping action created. This protects the lapped seal faces from damage.

#### Predictable Performance Across Vacuum and Pressure Ranges

Large runout creates varied conditions for the seal. Chesterton engineers have derived performance data curves for your exact operating runout conditions. Impressive positive pressure rating combined with full vacuum capability allow the 442M to reliably operate in widely varying conditions. Hydraulically balanced faces minimize face loading, heat generation and wear.

#### Captive Seal Hardware and Shaft O-ring

Ingenious hardware retention features virtually eliminate the worry of dropping nuts and bolts into a vessel during installation. All assembly screws can be installed from either side of the part "half" for easy access. Shaft o-ring is in a captive groove. Simply install the rotary holder around the shaft, and the o-ring is properly positioned. No more worries about dropping elastomers into the vessel on top-mounted applications.

#### External Finger Springs

Finger springs are non-clogging and corrosion resistant. They provide an automatic engagement, anti-rotation device for the stationary seal ring. They can also be used as a wear gauge to determine overall face wear and axial shaft positioning.

#### No Equipment Disassembly required

Since the Split Mixer Seal is assembled around the equipment shaft, costly downtime associated with major equipment disassembly is virtually eliminated. The 442M makes removal of the drive assembly for seal installation a thing of the past.

#### Dual Environmental Control Ports

The 442M incorporates two flush ports in the gland for ease of piping.

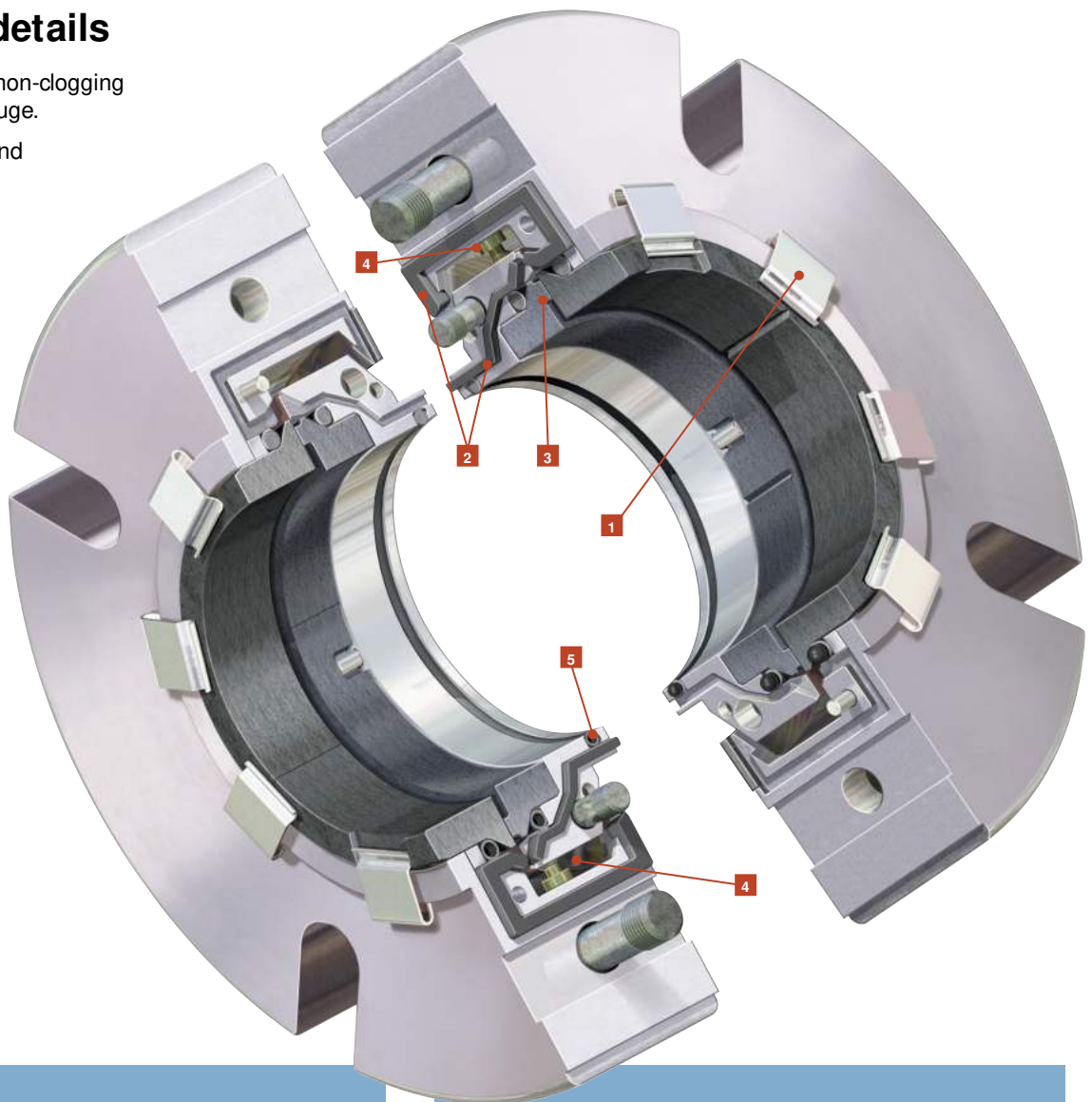
## Construction details

- 1 External springs are non-clogging and act as a wear gauge.
- 2 Double captured gland and holder gaskets resist extrusion.
- 3 Narrow face rotates to minimize wiping effect.
- 4 Patented centering buttons provide automatic centering and are FDA approved for sanitary conditions.

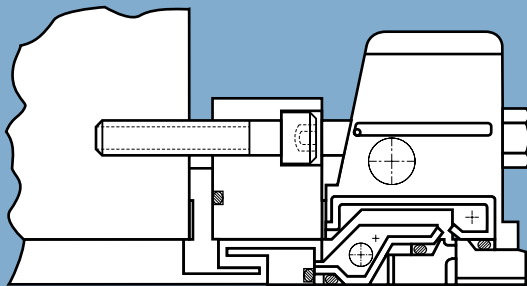


Captive shaft O-ring makes installation simple.

- 5 Dual flush ports allow piping from either side.

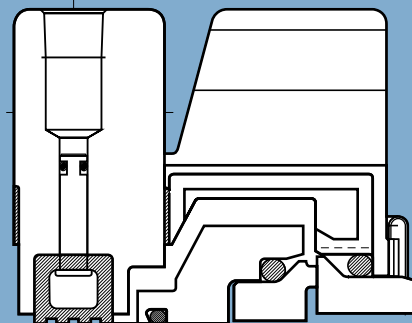


## Compact Design



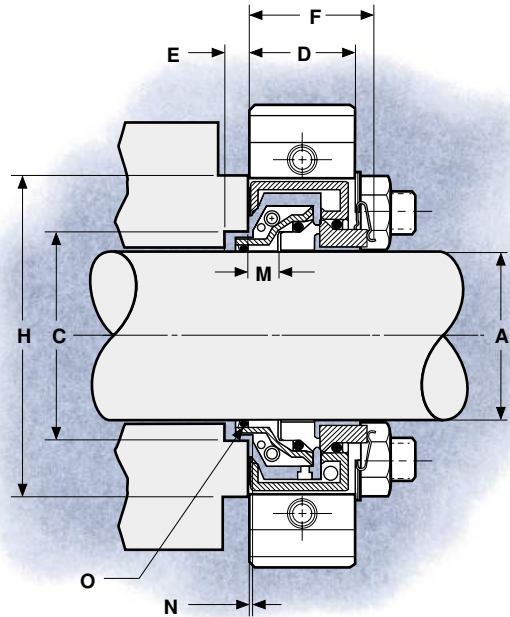
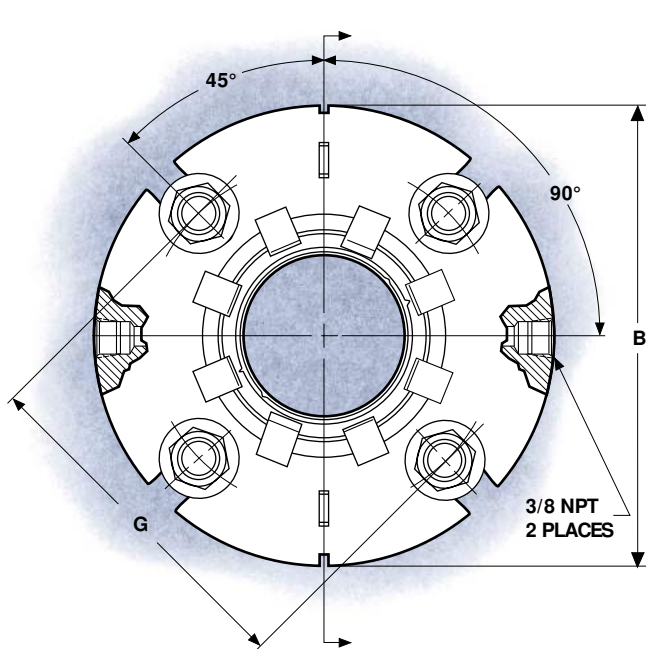
The 442M can occupy less than two inches of axial space from the mating flange for installation. This extremely compact design has been engineered to fit the smallest of installation envelopes for maximum flexibility of application. Leaves space to combine the 442M with a sanitary labyrinth (inset) or Chesterton's Inflatable Safety Seal™ (right).

## Inflatable Safety Seal



The 442M can be coupled with Chesterton's Inflatable Safety Seal for an extra measure of reliability in side and bottom entering applications. These 2 products combine to offer an extra measure of reliability in sealing critical, costly product batches. If the seal needs to be rebuilt in mid-process, the ISS can be inflated on a static shaft to seal the process fluid while the seal is rebuilt. There is no need to drain the tank to rebuild the seal.

# 442M Seal Specifications



442M DIMENSIONAL DATA (INCH)

Shaft Sizes: 1.500" to 4.750"

SHAFT SIZE	GLAND OD	STUFFING BOX BORE		GLAND LENGTH	SB DEPTH	OB SPACE	BOLT CIRCLE BY BOLT SIZE				SB OD	HOLDER DIM	INST DIM	O-RING			
		C					D	E	F	MIN							
		MIN	MAX							3/8"					1/2"	5/8"	3/4"
1.500	5.28	2.11	2.66	1.48	0.17	1.78	3.60	3.73			2.91	0.53	0.094	223			
1.625	5.41	2.24	2.77	1.48	0.17	1.78	3.70	3.82			3.00	0.53	0.094	224			
1.750	5.53	2.36	2.89	1.48	0.17	1.78	3.82	3.94			3.12	0.53	0.094	225			
1.875	5.66	2.49	3.02	1.48	0.17	1.78	3.95	4.07			3.25	0.53	0.094	226			
2.000	5.78	2.61	3.16	1.48	0.17	1.78	4.10	4.23	4.35		3.40	0.53	0.094	227			
2.125	5.91	2.74	3.28	1.48	0.17	1.78	4.23	4.36	4.48		3.53	0.53	0.094	228			
2.250	6.03	2.86	3.42	1.48	0.17	1.78	4.35	4.48	4.60		3.65	0.53	0.094	229			
2.375	6.16	2.99	3.71	1.48	0.17	1.78	4.70	4.83	4.95		4.00	0.53	0.094	230			
2.500	6.28	3.11	3.71	1.48	0.17	1.78	4.70	4.83	4.95		4.00	0.53	0.094	231			
2.625	8.03	3.46	4.53	1.84	0.26	2.24	5.73	5.86	5.98		5.03	0.53	0.094	232			
2.750	8.03	3.46	4.53	1.84	0.26	2.24	5.73	5.86	5.98		5.03	0.53	0.094	233			
2.875	8.28	3.71	4.78	1.84	0.26	2.24	5.98	6.11	6.23		5.28	0.53	0.094	234			
3.000	8.28	3.71	4.78	1.84	0.26	2.24	5.98	6.11	6.23		5.28	0.53	0.094	235			
3.125	8.53	3.96	5.03	1.84	0.26	2.24	6.23	6.35	6.48	6.60	5.53	0.53	0.094	236			
3.250	8.53	3.96	5.03	1.84	0.26	2.24	6.23	6.35	6.48	6.60	5.53	0.53	0.094	237			
3.375	8.78	4.21	5.28	1.84	0.26	2.24	6.48	6.60	6.73	6.85	5.78	0.53	0.094	238			
3.500	8.78	4.21	5.28	1.84	0.26	2.24	6.48	6.60	6.73	6.85	5.78	0.53	0.094	239			
3.625	9.03	4.46	5.53	1.84	0.26	2.24	6.73	6.85	6.98	7.10	6.03	0.53	0.094	240			
3.750	9.03	4.46	5.53	1.84	0.26	2.24	6.73	6.85	6.98	7.10	6.03	0.53	0.094	241			
3.875	9.28	4.71	5.78	1.84	0.26	2.24	6.98	7.10	7.23	7.35	6.28	0.53	0.094	242			
4.000	9.28	4.71	5.78	1.84	0.26	2.24	6.98	7.10	7.23	7.35	6.28	0.53	0.094	243			
4.125	9.53	4.96	6.03	1.84	0.26	2.24	7.23	7.35	7.48	7.60	6.53	0.53	0.094	244			
4.250	9.53	4.96	6.03	1.84	0.26	2.24	7.23	7.35	7.48	7.60	6.53	0.53	0.094	245			
4.375	9.78	5.21	6.28	1.84	0.26	2.24	7.48	7.60	7.73	7.85	6.78	0.53	0.094	246			
4.500	9.78	5.21	6.28	1.84	0.26	2.24	7.48	7.60	7.73	7.85	6.78	0.53	0.094	247			
4.625	10.03	5.46	6.28	1.84	0.26	2.24	7.48	7.60	7.73	7.85	6.78	0.53	0.094	248			
4.750	10.03	5.46	6.28	1.84	0.26	2.24	7.48	7.60	7.73	7.85	6.78	0.53	0.094	249			

# Specifications

## STANDARD MATERIALS

### Rotary Faces:

- Carbon
- Reaction bonded Silicon Carbide.

### Stationary Face:

- Reaction bonded Silicon Carbide.

### Elastomers:

- AFLAST<sup>†</sup>, Ethylene Propylene, Fluorocarbon.

### All Metal Parts:

- 316SS

### Springs:

- Egiloy\*

Other material available.

Contact Chesterton for other options.

## OPERATING LIMITS

### Speed Limits:

- To 4000 FPM (20 mps)

### Temperature Limits:

- To 250°F (120°C)

### Pressure Limits:

- To 225 psig/ 15 bar g

\* Egiloy is a Registered Trademark of Egiloy Limited partnership.

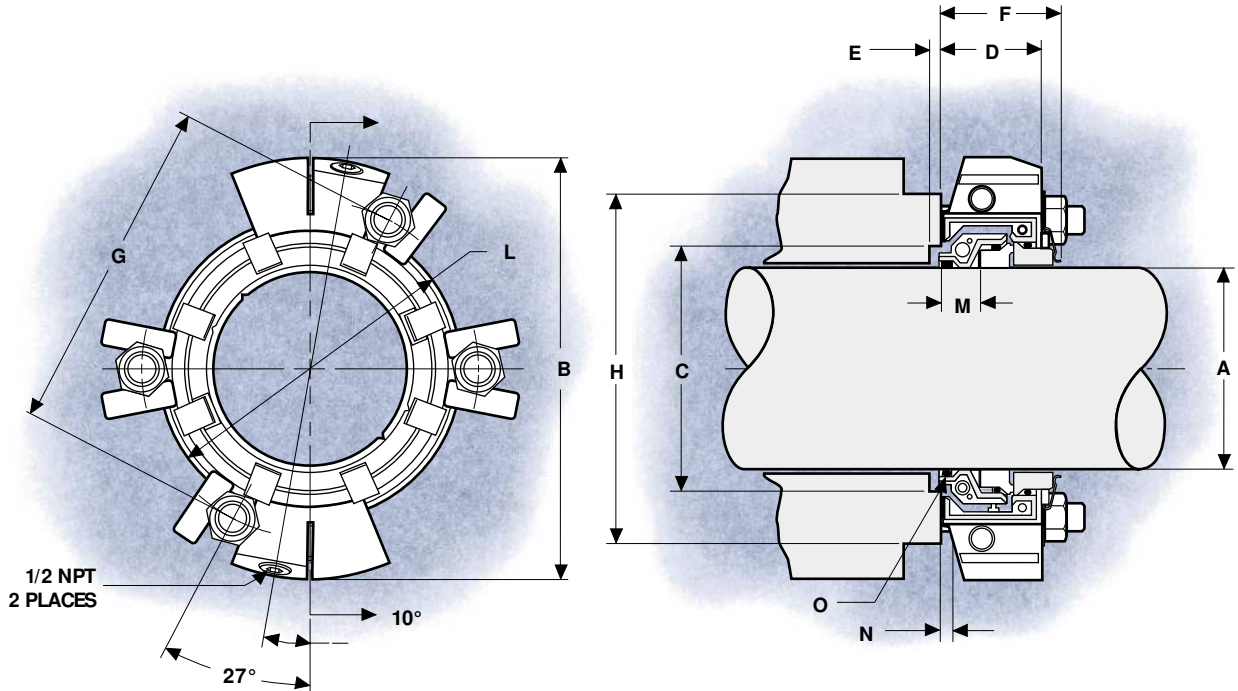
† Asahi Glass Company Ltd. Registered Trademark.

## 442M DIMENSIONAL DATA (METRIC)

Shaft Sizes: 38 mm to 120 mm

SHAFT SIZE	GLAND OD	STUFFING BOX BORE		GLAND LENGTH	SB DEPTH	OB SPACE	BOLT CIRCLE BY BOLT SIZE						SB OD	HOLDER DIM	INST DIM	O-RING				
							MIN										H	M	N	O
							8 mm	10 mm	12 mm	14 mm	16 mm	18 mm								
38,0	134,1	53,6	67,4	37,6	4,3	45,2	90,6	92,6	94,6				73,8	13,5	2,4	223				
40,0	137,3	56,8	70,2	37,6	4,3	45,2	93,0	95,0	97,0				76,2	13,5	2,4	223				
43,0	140,5	60,0	73,4	37,6	4,3	45,2	96,1	98,1	100,1				79,2	13,5	2,4	224				
45,0	140,5	60,0	73,4	37,6	4,3	45,2	96,1	98,1	100,1				79,2	13,5	2,4	225				
48,0	143,6	63,1	76,6	37,6	4,3	45,2	99,4	101,4	103,4				82,6	13,5	2,4	226				
50,0	146,8	66,3	80,3	37,6	4,3	45,2	104,5	106,5	108,5	110,5			86,4	13,5	2,4	226				
55,0	150,0	69,5	83,3	37,6	4,3	45,2	107,8	109,8	111,8	113,8			89,7	13,5	2,4	228				
60,0	156,3	75,8	94,1	37,6	4,3	45,2	119,7	121,7	123,7	125,7			101,6	13,5	2,4	230				
65,0	204,1	87,9	115,1	46,7	6,6	56,9	145,9	147,9	149,9	151,9			127,8	13,5	2,4	231				
70,0	204,1	87,9	115,1	46,7	6,6	56,9	145,9	147,9	149,9	151,9			127,8	13,5	2,4	233				
75,0	210,4	94,2	121,4	46,7	6,6	56,9	152,2	154,2	156,2	158,2			134,1	13,5	2,4	234				
80,0	216,8	100,6	127,8	46,7	6,6	56,9	157,6	159,6	161,6	163,6	165,6	167,6	140,5	13,5	2,4	236				
85,0	223,1	106,9	134,1	46,7	6,6	56,9	164,0	166,0	168,0	170,0	172,0	174,0	146,8	13,5	2,4	237				
90,0	223,1	106,9	134,1	46,7	6,6	56,9	164,0	166,0	168,0	170,0	172,0	174,0	146,8	13,5	2,4	239				
95,0	229,5	113,3	140,5	46,7	6,6	56,9	170,3	172,3	174,3	176,3	178,3	180,3	153,2	13,5	2,4	241				
100,0	235,8	119,6	146,8	46,7	6,6	56,9	176,7	178,7	180,7	182,7	184,7	186,7	159,5	13,5	2,4	242				
110,0	248,5	132,3	159,5	46,7	6,6	56,9	189,4	191,4	193,4	195,4	197,4	199,4	172,2	13,5	2,4	245				
115,0	248,5	132,3	159,5	46,7	6,6	56,9	189,4	191,4	193,4	195,4	197,4	199,4	172,2	13,5	2,4	247				
120,0	254,9	138,7	159,5	46,7	6,6	56,9	189,4	191,4	193,4	195,4	197,4	199,4	172,2	13,5	2,4	248				

# 442M Seal Specifications



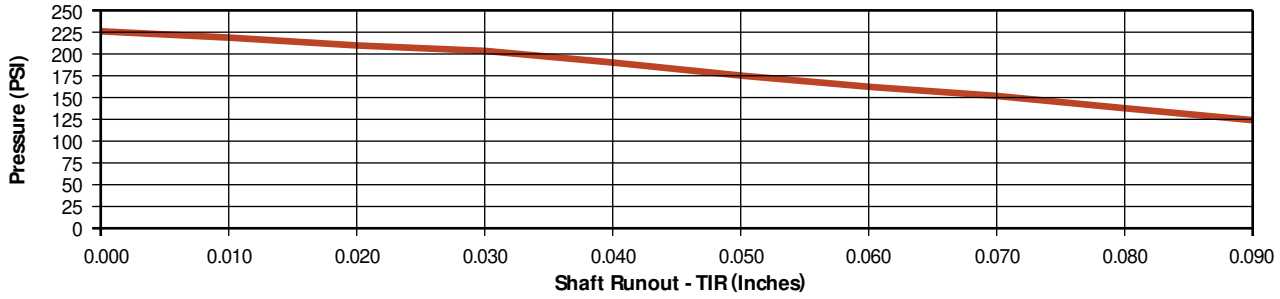
442M DIMENSIONAL DATA (INCH)

Shaft Sizes: 4.875" to 7.500"

SHAFT SIZE	GLAND OD	STUFFING BOX BORE		GLAND LENGTH	SB DEPTH	OB SPACE	BOLT CIRCLE BY BOLT SIZE			SB OD	GLAND HUB OD	HOLDER DIM	INST DIM	O-RING		
		C	D				E	F	MIN							
									MIN						MAX	MIN
A	B	C		D	E	F	MIN			H	L	M	N	O		
	MAX	MIN	MAX		MIN		5/8"	3/4"	7/8"	MIN	MAX					
4.875	11.53	5.93	7.15	2.91	0.29	3.45	8.63	8.75	8.88	7.75	7.99	1.03	0.188	3.53		
5.000	11.53	6.05	7.15	2.91	0.29	3.45	8.63	8.75	8.88	7.75	7.99	1.03	0.188	3.54		
5.125	11.78	6.18	7.40	2.91	0.29	3.45	8.88	9.00	9.13	8.00	8.24	1.03	0.188	3.55		
5.250	11.78	6.30	7.40	2.91	0.29	3.45	8.88	9.00	9.13	8.00	8.24	1.03	0.188	3.56		
5.375	12.03	6.43	7.65	2.91	0.29	3.45	9.13	9.25	9.38	8.25	8.49	1.03	0.188	3.57		
5.500	12.03	6.55	7.65	2.91	0.29	3.45	9.13	9.25	9.38	8.25	8.49	1.03	0.188	3.58		
5.625	12.28	6.68	7.90	2.91	0.29	3.45	9.38	9.50	9.63	8.50	8.74	1.03	0.188	3.59		
5.750	12.28	6.80	7.90	2.91	0.29	3.45	9.38	9.50	9.63	8.50	8.74	1.03	0.188	3.60		
5.875	12.53	6.93	8.15	2.91	0.29	3.45	9.63	9.75	9.88	8.75	8.99	1.03	0.188	3.61		
6.000	12.53	7.05	8.15	2.91	0.29	3.45	9.63	9.75	9.88	8.75	8.99	1.03	0.188	3.62		
6.125	12.78	7.18	8.40	2.91	0.29	3.45	9.88	10.00	10.13	9.00	9.25	1.03	0.188	3.62		
6.250	12.78	7.30	8.40	2.91	0.29	3.45	9.88	10.00	10.13	9.00	9.25	1.03	0.188	3.63		
6.375	13.03	7.43	8.65	2.91	0.29	3.45	10.13	10.25	10.38	9.25	9.50	1.03	0.188	3.63		
6.500	13.03	7.55	8.65	2.91	0.29	3.45	10.13	10.25	10.38	9.25	9.50	1.03	0.188	3.64		
6.625	13.29	7.68	8.90	2.91	0.29	3.45	10.38	10.50	10.63	9.50	9.75	1.03	0.188	3.64		
6.750	13.29	7.80	8.90	2.91	0.29	3.45	10.38	10.50	10.63	9.50	9.75	1.03	0.188	3.65		
6.875	13.54	7.93	9.15	2.91	0.29	3.45	10.63	10.75	10.88	9.75	10.00	1.03	0.188	3.65		
7.000	13.54	8.05	9.15	2.91	0.29	3.45	10.63	10.75	10.88	9.75	10.00	1.03	0.188	3.66		
7.125	13.79	8.18	9.40	2.91	0.29	3.45	10.88	11.00	11.13	10.00	10.25	1.03	0.188	3.66		
7.250	13.79	8.30	9.40	2.91	0.29	3.45	10.88	11.00	11.13	10.00	10.25	1.03	0.188	3.67		
7.375	14.04	8.43	9.65	2.91	0.29	3.45	11.13	11.25	11.38	10.25	10.50	1.03	0.188	3.67		
7.500	14.04	8.55	9.65	2.91	0.29	3.45	11.13	11.25	11.38	10.25	10.50	1.03	0.188	3.68		

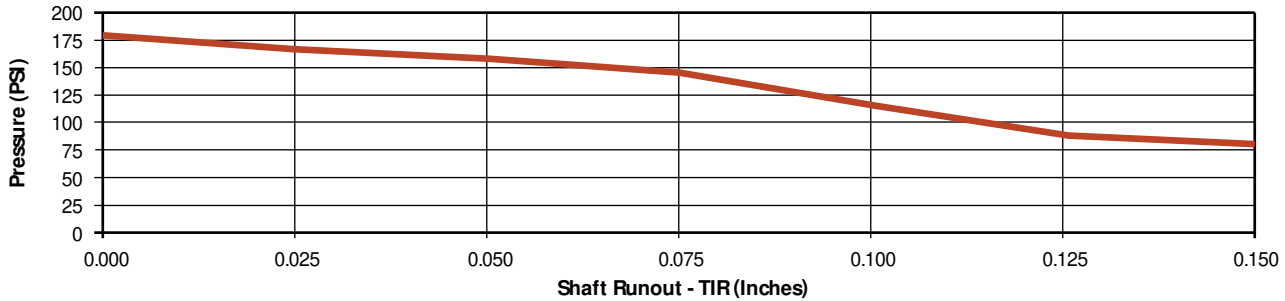
**Radial Motion vs. Pressure Capability**

**Shaft Sizes: 1.500" to 2.500" (38 mm to 60 mm)**



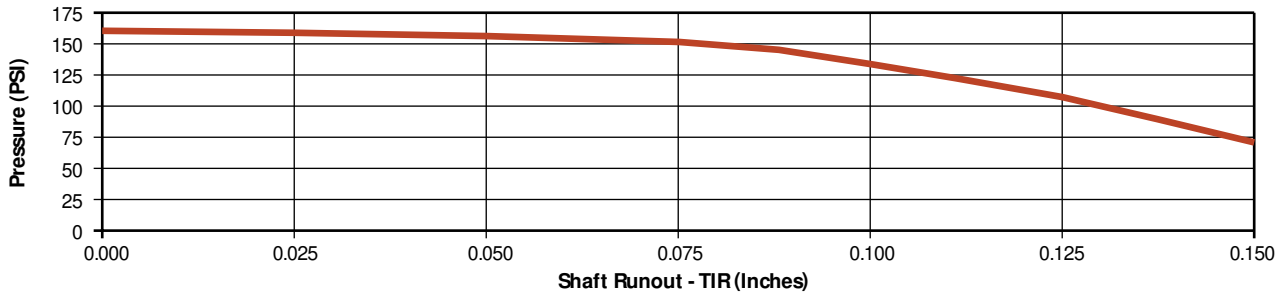
**Radial Motion vs. Pressure Capability**

**Shaft Sizes: 2.625" to 4.750" (65 mm to 120 mm)**



**Radial Motion vs. Pressure Capability**

**Shaft Sizes: 4.875" to 7.500" (125 mm to 190 mm)**

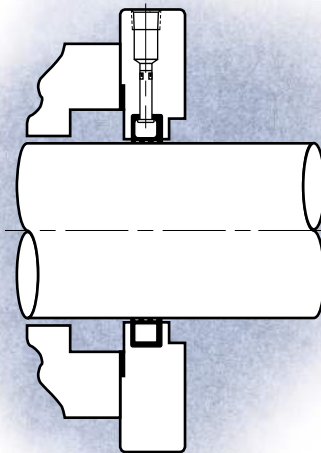
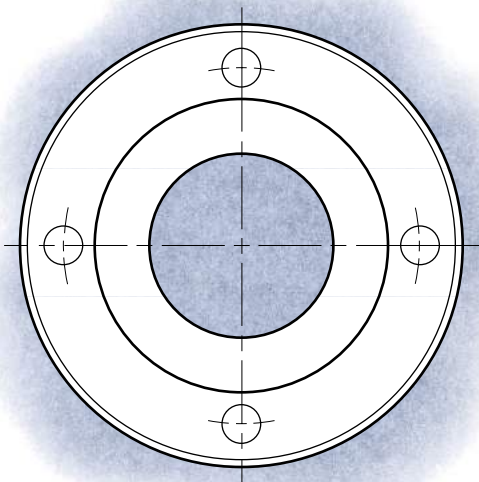


**442M DIMENSIONAL DATA (METRIC)**

**Shaft Sizes: 125 mm to 190 mm**

SHAFT SIZE	GLAND OD	STUFFING BOX BORE		GLAND LENGTH	SB DEPTH	OB SPACE	BOLT CIRCLE BY BOLT SIZE			SB OD	GLAND HUB OD	HOLDER DIM	INST DIM	O-RING
		MIN	MAX				MIN							
							18 mm	20 mm	22 mm					
A	B	C	D	E	F	MIN			H	L	M	N	O	
	MAX	MIN	MAX		MIN					MIN	MAX			
125.0	292.8	153.7	181.6	73.9	7.4	87.6	221.4	223.4	225.4	196.9	202.9	26.2	4.8	354
130.0	299.2	156.8	188.0	73.9	7.4	87.6	227.8	229.8	231.8	203.2	209.3	26.2	4.8	355
135.0	305.6	163.2	194.3	73.9	7.4	87.6	234.1	236.1	238.1	209.6	215.7	26.2	4.8	356
140.0	305.6	166.4	194.3	73.9	7.4	87.6	234.1	236.1	238.1	209.6	215.7	26.2	4.8	358
145.0	312.0	172.7	200.7	73.9	7.4	87.6	240.5	242.5	244.5	215.9	222.1	26.2	4.8	359
150.0	318.3	179.1	207.0	73.9	7.4	87.6	246.8	248.8	250.8	222.3	228.4	26.2	4.8	361
155.0	324.7	182.2	213.4	73.9	7.4	87.6	253.2	255.2	257.2	228.6	234.8	26.2	4.8	362
160.0	331.1	188.6	219.7	73.9	7.4	87.6	259.5	261.5	263.5	235.0	241.2	26.2	4.8	363
165.0	331.1	191.8	219.7	73.9	7.4	87.6	259.5	261.5	263.5	235.0	241.2	26.2	4.8	364
170.0	337.5	198.1	226.1	73.9	7.4	87.6	265.9	267.9	269.9	241.3	247.6	26.2	4.8	364
175.0	343.9	201.3	232.4	73.9	7.4	87.6	272.2	274.2	276.2	247.7	254.0	26.2	4.8	365
180.0	350.2	207.6	238.8	73.9	7.4	87.6	278.6	280.6	282.6	254.0	260.4	26.2	4.8	366
185.0	350.2	210.8	238.8	73.9	7.4	87.6	278.6	280.6	282.6	254.0	260.4	26.2	4.8	367
190.0	356.6	217.2	245.1	73.9	7.4	87.6	284.9	286.9	288.9	260.4	266.8	26.2	4.8	368

## Inflatable Safety Seal™

**Materials:**

- 316ss Gland/retainer

**Materials:**

- Styrene butadiene rubber inflatable element

Consult Chesterton Engineering for other materials

**Pressures:**

- To 100 psig/6.5 bar g

**Sizes:**

- 2.750"/70 mm through 8.00"/200 mm

### On-demand static shaft sealing for added security

The Chesterton Inflatable Safety Seal is a pneumatic inflatable seal used for static shaft sealing. Used in conjunction with a mechanical seal or packing, (optional configuration not shown) the ISS is designed to act as a static seal in the event of unacceptable seal leakage and as an interim static seal during seal rebuild or re-packing. The overall package is very compact and adds minimal axial length to the overall sealing configuration. The gland is designed such that it is firmly affixed to the process equipment, and the seal or packing follower is then bolted to it. The overall system is quite robust, and adds an element of security and safety to any sealing application.

**Classic uses:**

- Side and bottom mounted mixers and agitators
- Stern Tubes
- Larger Pumps

The Chesterton Inflatable Safety Seal can be provided to seal a wide array of sizes and to fit most any equipment bolting pattern. A staple of Chesterton's sealing program, it provides a level of convenience, security and safety that none of these applications should operate without.

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