

ELASTOMER O-RING MIXER SEAL

Applications

Type 32 Seals are outside-mounted ID balanced seals with the seal faces in contact during operation. No auxiliary equipment is required for lubrication. These seals are excellent for operation in vacuum conditions, and meet the needs of pharmaceutical and chemical processing industries.

- For mixers, agitators and reactor vessels.
- Seal design eliminates the need for double seals with ancillary equipment in mixer applications.
- Type 32 Seals can be repaired in the field to minimize replacement costs, downtime and lost revenue.

Operating Conditions

- **Temperatures:** -45°C to 150°C/
-50°F to 300°F
depending on
materials used
- **Pressures:** Full vacuum to
15 bar g/225 psig
- **Speeds:** To 2 m/s/400 fpm

32

INCH RANGE



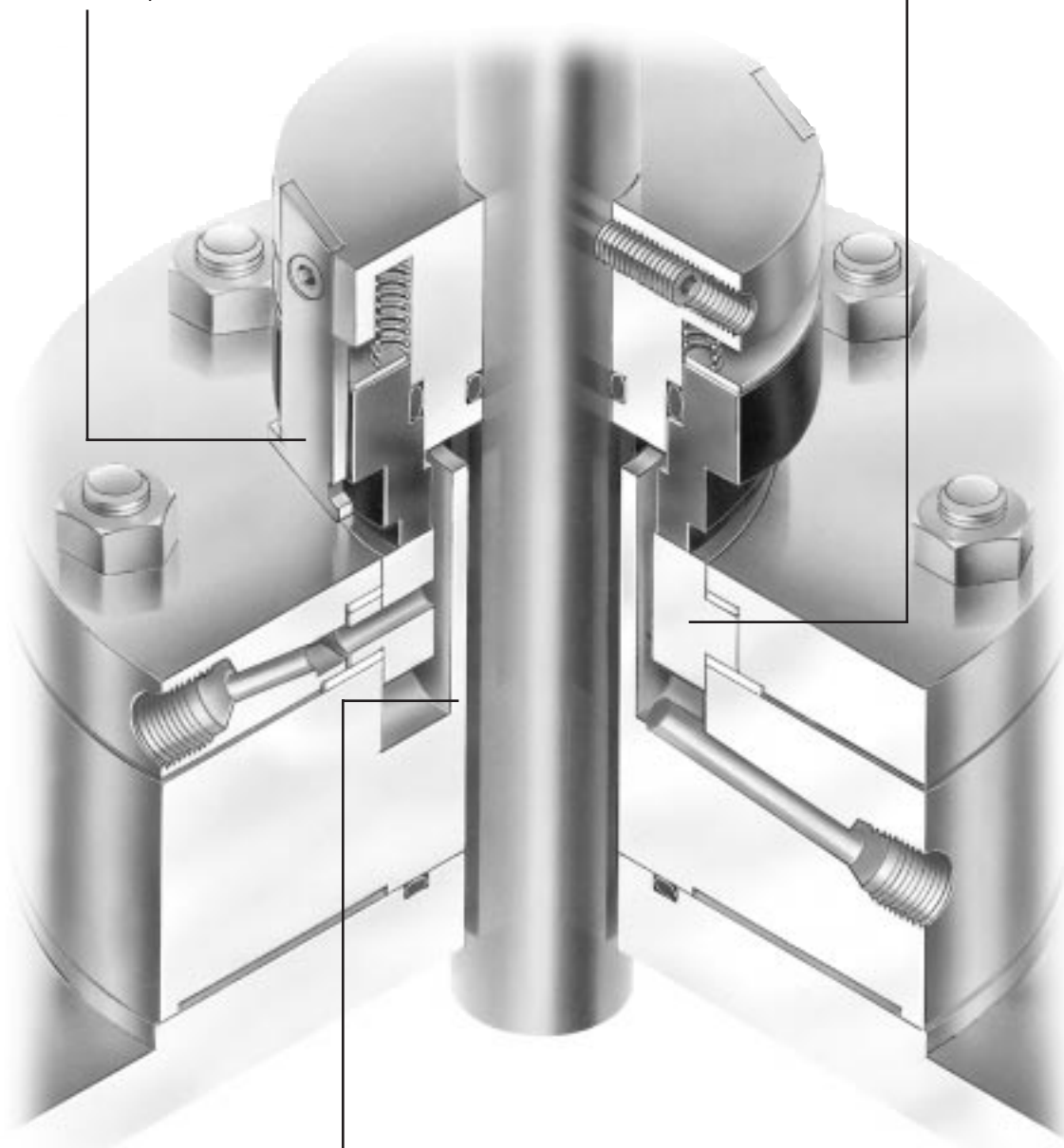
Design Features

“T” Bar Design

Simple, rugged drive design that withstands constant movement and vibrations of mixer applications. The Type 32 has been designed to accommodate up to .150" total runout.

Clamped-in Mating Ring (Standard)

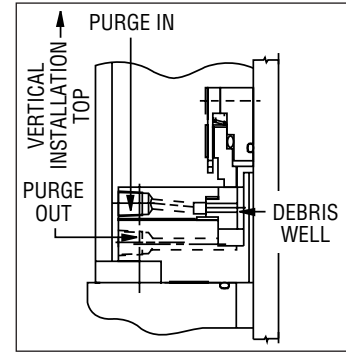
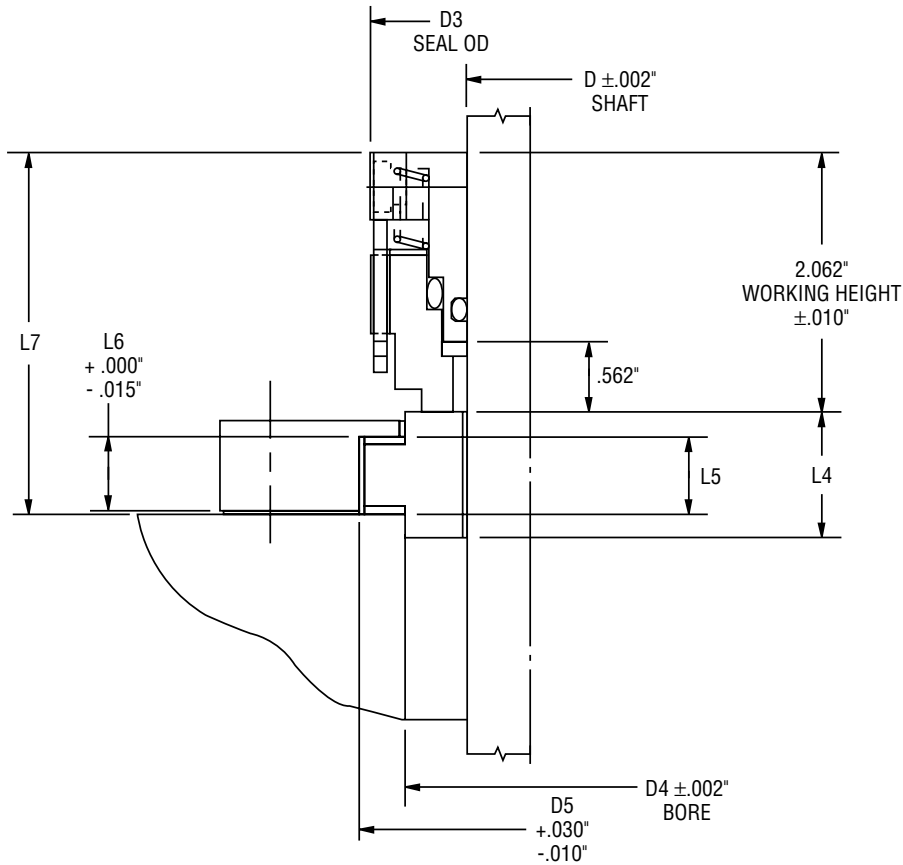
Clamped-in design prevents axial movement of mating ring. Mating ring is available in tungsten carbide or ceramic.



Debris Well Option

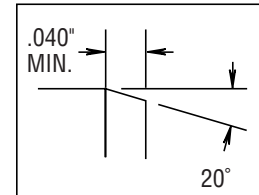
Isolates and captures face wear particles in gland cavity, preventing contamination of process liquid or gas. Pipe taps allow flushing during cleaning cycle.

Type 32 Typical Arrangement/Dimensional Data



Debris Well Option

For space required use dimensions indicated in Chart 1 for seal size 1/2" larger than shaft diameter.



For ease of installation, the lead-in edge of the shaft or sleeve should be chamfered as shown.

Chart 1. Type 32 Dimensional Data

Seal Size/D (inches)	D3	D4	D5	L4	L5	L6	L7
1.000	2.500	1.937	2.281	.812	.500	.468	2.718
1.125	2.625	2.000	2.406	.812	.500	.468	2.718
1.250	2.750	2.187	2.656	.875	.500	.468	2.750
1.375	2.875	2.312	2.781	.875	.500	.468	2.750
1.500	3.000	2.500	3.031	.875	.500	.468	2.750
1.625	3.125	2.625	3.156	.875	.500	.468	2.750
1.750	3.250	2.750	3.281	.875	.500	.468	2.750
1.875	3.375	2.875	3.531	1.000	.625	.593	2.875
2.000	3.500	3.125	3.781	1.000	.625	.593	2.875
2.125	3.625	3.250	3.906	1.000	.625	.593	2.875
2.250	3.750	3.375	4.031	1.000	.625	.593	2.875
2.375	3.875	3.500	4.156	1.000	.625	.593	2.875
2.500	4.000	3.625	4.281	1.000	.625	.593	2.875
2.625	4.125	3.750	4.406	1.000	.625	.593	2.875
2.750	4.250	3.875	4.531	1.000	.625	.593	2.875
2.875	4.375	4.000	4.656	1.000	.625	.593	2.875
3.000	4.500	4.062	4.718	1.000	.625	.593	2.875
3.125	4.625	4.250	4.906	1.000	.625	.593	2.875
3.250	4.750	4.375	5.031	1.000	.625	.593	2.875
3.375	4.875	4.500	5.156	1.000	.625	.593	2.875
3.500	5.000	4.625	5.281	1.000	.625	.593	2.875
3.625	5.125	4.750	5.406	1.000	.625	.593	2.875
3.750	5.250	4.875	5.531	1.000	.625	.593	2.875
3.875	5.375	5.000	5.656	1.000	.625	.593	2.875

Note: For larger sizes, contact your John Crane Sales/Service Engineer.

Seal Size/D (inches)	D3	D4	D5	L4	L5	L6	L7
4.000	5.500	5.250	5.906	1.000	.625	.593	2.875
4.125	5.625	5.375	6.031	1.000	.625	.593	2.875
4.250	5.750	5.500	6.156	1.000	.625	.593	2.875
4.375	5.875	5.625	6.281	1.000	.625	.593	2.875
4.500	6.000	5.750	6.406	1.000	.625	.593	2.875
4.625	6.125	5.875	6.531	1.000	.625	.593	2.875
4.750	6.250	6.000	6.656	1.000	.625	.593	2.875
4.875	6.375	6.125	6.781	1.000	.625	.593	2.875
5.000	6.500	6.250	6.906	1.000	.625	.593	2.875
5.125	6.625	6.375	7.031	1.000	.625	.593	2.875
5.250	6.750	6.500	7.156	1.000	.625	.593	2.875
5.375	6.875	6.625	7.281	1.000	.625	.593	2.875
5.500	7.000	6.750	7.406	1.000	.625	.593	2.875
5.625	7.125	6.875	7.531	1.000	.625	.593	2.875
5.750	7.250	7.000	7.656	1.000	.625	.593	2.875
5.875	7.375	7.125	7.781	1.000	.625	.593	2.875
6.000	7.500	7.250	7.906	1.000	.625	.593	2.875
6.125	7.625	7.375	8.031	1.000	.625	.593	2.875
6.250	7.750	7.500	8.156	1.000	.625	.593	2.875
6.375	7.875	7.625	8.281	1.000	.625	.593	2.875
6.500	8.000	7.750	8.406	1.000	.625	.593	2.875
6.625	8.125	7.875	8.531	1.000	.625	.593	2.875
6.750	8.250	8.000	8.656	1.000	.625	.593	2.875
6.875	8.375	8.125	8.781	1.000	.625	.593	2.875
7.000	8.500	8.250	8.906	1.000	.625	.593	2.875
7.125	8.625	8.375	9.031	1.000	.625	.593	2.875
7.250	8.750	8.500	9.156	1.000	.625	.593	2.875

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Chart 2. Type 32 Metric Dimensional Data

Seal Size/D (mm)	Seal Size Code	D3	D4	D5	L4	L5	L6	L7	Seal Size/D (mm)	Seal Size Code	D3	D4	D5	L4	L5	L6	L7
25	0250	63.5	47.6	57.9	20.6	12.7	11.9	69.0	80	0800	120.6	111.1	127.8	25.4	15.9	15.1	73.0
28	0280	66.6	50.8	61.1	20.6	12.7	11.9	69.0	85	0850	123.8	114.3	131.0	25.4	15.9	15.1	73.0
30	0300	69.8	53.9	67.5	20.6	12.7	11.9	69.9	90	0900	130.2	120.6	137.3	25.4	15.9	15.1	73.0
32	0320	69.8	53.9	67.5	20.6	12.7	11.9	69.9	95	0950	133.3	123.8	140.5	25.4	15.9	15.1	73.0
33	0330	73.0	57.1	70.6	22.2	12.7	11.9	69.9	100	1000	139.7	133.3	150.0	25.4	15.9	15.1	73.0
35	0350	73.0	57.1	70.6	22.2	12.7	11.9	69.9	105	1050	142.9	136.5	153.2	25.4	15.9	15.1	73.0
38	0380	76.2	63.5	77.0	22.2	12.7	11.9	69.9	110	1100	149.2	142.8	159.5	25.4	15.9	15.1	73.0
40	0400	79.3	66.6	80.2	22.2	12.7	11.9	69.9	115	1150	155.5	149.2	165.9	25.4	15.9	15.1	73.0
43	0430	82.5	69.8	83.3	22.2	12.7	11.9	69.9	120	1200	158.7	152.4	169.1	25.4	15.9	15.1	73.0
45	0450	85.7	73.0	89.7	22.2	12.7	11.9	69.9	125	1250	165.1	158.7	175.4	25.4	15.9	15.1	73.0
50	0500	88.9	79.3	96.0	25.4	15.9	15.1	73.0	130	1300	168.2	168.2	184.9	25.4	15.9	15.1	73.0
53	0530	92.0	82.5	99.2	25.4	15.9	15.1	73.0	135	1350	174.6	174.6	191.3	25.4	15.9	15.1	73.0
55	0550	95.2	85.7	102.4	25.4	15.9	15.1	73.0	140	1400	180.9	180.9	197.6	25.4	15.9	15.1	73.0
58	0580	98.4	88.9	105.6	25.4	15.9	15.1	73.0	145	1450	184.1	184.1	200.8	25.4	15.9	15.1	73.0
60	0600	98.4	88.9	105.6	25.4	15.9	15.1	73.0	150	1500	190.5	190.5	207.2	25.4	15.9	15.1	73.0
63	0630	101.6	92.0	108.7	25.4	15.9	15.1	73.0	155	1550	193.6	193.6	210.3	25.4	15.9	15.1	73.0
65	0650	104.7	95.2	111.9	25.4	15.9	15.1	73.0	160	1600	200.0	200.0	216.7	25.4	15.9	15.1	73.0
68	0680	107.9	98.4	115.1	25.4	15.9	15.1	73.0	165	1650	203.2	203.2	219.9	25.4	15.9	15.1	73.0
70	0700	107.9	98.4	115.1	25.4	15.9	15.1	73.0	170	1700	209.5	209.5	226.2	25.4	15.9	15.1	73.0
75	0750	114.3	103.2	119.8	25.4	15.9	15.1	73.0	175	1750	215.9	215.9	232.6	25.4	15.9	15.1	73.0

Note: For larger sizes, contact your John Crane Sales/Service Engineer.

Chart 3. Pressure/Velocity (PV) Limits

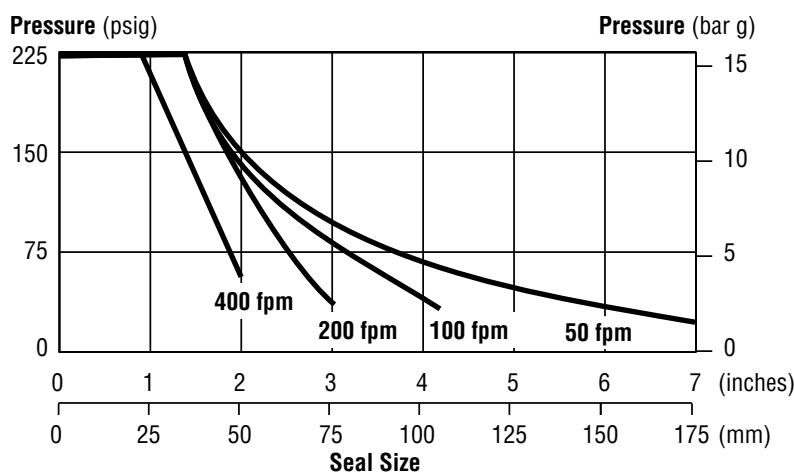


Chart 4. Multiplier Factors

To determine the maximum pressure for the size Type 32 Seal required, multiply the maximum pressure from Chart 3 by the following factors to obtain the maximum operating pressure.

	Selection Considerations	Multiplier
Sealed Fluid Temperature	Below 79°C/175°F	x 1.00
	Above 79°C to 121°C/175°F to 250°F	x .90
	Above 121°C to 177°C/250°F to 350°F	x .80
	Above 177°C/350°F	x .65

Example for Determining PV Limits:

Seal: 76 mm/3 inch diameter Type 32

Product: Air

Face Material: Carbon vs. Ceramic

Temperature: 65°C/150°F

Speed: 1 m/s/200 fpm

Using Chart 3, the maximum pressure would be 3 bar g/50 psig.

From Chart 4, apply the multipliers for the specific service requirements to determine the maximum operating pressure for the application.

3 bar g/50 psig x 1 = 3 bar g/50 psig

The maximum operating pressure for this 3 inch diameter Type 32 Seal is 3 bar g/50 psig.

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Chart 5. Elastomer Temperature Limits

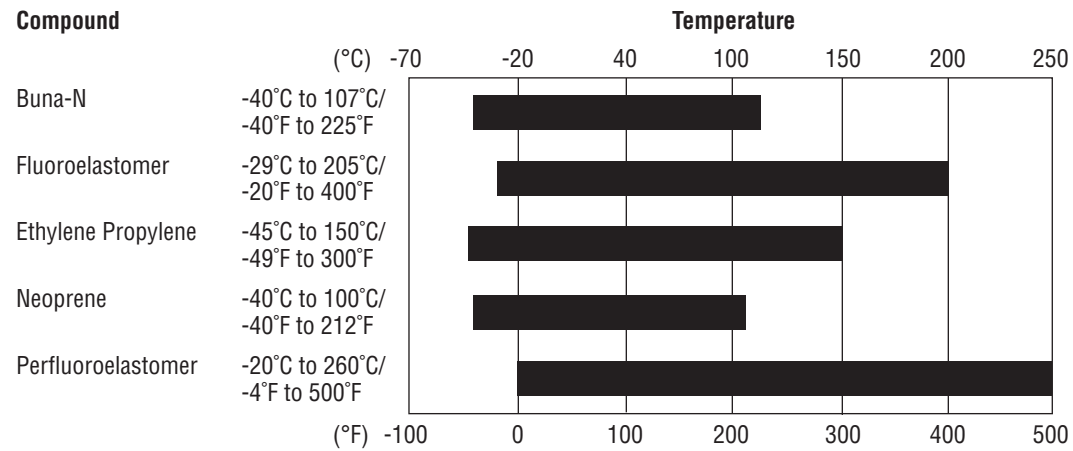


Chart 6. Materials of Construction

Seal Component Materials		Secondary Sealing Elements O-Ring	Primary Ring	Hardware Retainer, Disc, T-Bar, Set Screws, Cap Screws	Mating Ring	Mechanical Loading Device Springs
Material	Standard	Buna-N	Carbon	316 Stainless Steel	Tungsten Carbide Nickel Binder	316 Stainless Steel
		Fluoroelastomer			High Purity Ceramic	
		Ethylene Propylene				
		Neoprene				
	Options	Perfluoroelastomer		Alloy C-276 (UNS N10276)	Hard Face Coatings	Alloy C-276 (UNS N10276)
				Hastelloy B*		Hastelloy B

* Hastelloy B is a registered trademark of Haynes International.

Chart 7. Criteria for Installation

Shaft/Sleeve	Limits
Surface Finish	63 Ra
Ovality/Out of Roundness (Shaft)	0.051 mm/0.002"
End Play/ Axial Float Allowance	± 1.57 mm/0.062"
Shaft Runout	3.81 mm/0.150" T.I.R. max.
Squareness of Seal Housing Face to Shaft	0.78 mm/0.031" T.I.R. max.

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