



Vulcan Seals Type 97

Technical Data Sheet



Product Description

The Vulcan Seals Type 97 seal is a robust, 'O'-ring mounted "pusher" seal design with parallel spring and either monolithic stainless steel or interference-fitted sealing faces. The Vulcan Seals Type 97 has a narrow cross-section seal head and heavy-duty spring in a design that is optimised for performance and durability and highly suited to marine pump applications.

The seal drive is provided by the set-screw mounted drive collar that mounts on the equipment shaft to set the seal operating length. Parallel spring 'O'-ring mounted seals are mono-directional and have differential part codes for clockwise or anti-clockwise operation.

The Vulcan Seals Type 97 complete seal is supplied with the Vulcan Seals Type 95 'O'-ring-mounted stationary featuring anti-rotation provision.

Why Choose the Vulcan Seals Type 97?

- Robust design optimised for durability.
- Inserted silicon carbide head design provides improved sealing performance compared to monolithic stainless steel in seawater and related applications.
- Optional monolithic stainless steel head design is available for high-temperature and lubricating media applications.
- Narrow section design allows use in equipment with restricted seal chambers.
- Set-screw mounted drive collar allows the rotary to locate and drive from a straight profile equipment shaft.
- 'O'-ring stationary with anti-rotation provision provides security in high-torque applications such as viscous or high solids medias.

Standard Face Material Combinations

Rotary Face	Stationary Face	Complete Seal Code
304 Stainless Stee	VCP1 Carbon	P
VSR1 Silicon Carbide	VCP1 Carbon	T
VTN2* Tungsten Carbide	VCP1 Carbon	U
VSR1 Silicon Carbide	VSR1* Silicon Carbide	S
VSR1 Silicon Carbide	VTN1* Tungsten Carbide	I
VTN2* Tungsten Carbide	VSR1* Silicon Carbide	J
VTN2* Tungsten Carbide	VTN1* Tungsten Carbide	H

Guaranteed Stock/Material Elastomers: Viton™/FKM, EP, Nitrile and Metallurgy 304SS
Specify right hand clockwise or left hand anti-clockwise coil upon ordering
*Non-stock guarantee

Elastomer Temperature Capabilities

	Minimum	Maximum
Nitrile	-30°C	+120°C
EP	-40°C	+140°C
Viton™/FKM	-30°C	+180°C

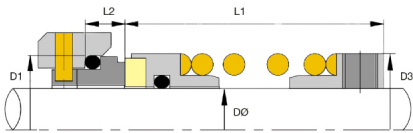
Pressure: Up to 12.5 bar (180 psi)

Mechanical Seal Replacement Range

Vulcan Seals Type 97 is a dimensional replacement mechanical seal for the following seal ranges:

- AES® | Type N-C03*
- John Crane® | Type R20x*

*Rotary Face | **Stationary Face



Dimensional Data

DØ (Imperial)	DØ (Metric)	Seal Size Code	D1 (mm)	D3 (mm)	L1 (mm)	L2 (mm)	Slot Width	Slot Depth
0.625	-	0158	28.57	29.00	32.50	9.00	5.00	5.00
0.750	-	0191	31.75	32.50	32.50	9.00	5.00	5.00
-	20	0200	33.32	34.50	35.50	9.00	5.00	5.00
0.875	-	0222	34.93	34.93	35.50	9.00	5.00	5.00
-	25	0250	39.85	38.10	39.00	10.00	5.00	5.00
1.000	-	0254	39.85	38.10	39.00	10.00	5.00	5.00
-	28	0280	43.05	42.60	41.00	10.00	5.00	5.00
1.125	-	0286	43.05	42.60	41.00	10.00	5.00	5.00
-	30	0300	44.63	45.50	41.00	10.00	5.00	5.00
1.250	-	0317	46.32	46.20	44.00	10.00	5.00	5.00
-	32	0320	46.32	46.20	44.00	10.00	5.00	5.00
1.375	-	0349	49.48	49.50	47.00	10.00	5.00	5.00
-	35	0350	49.48	49.50	47.00	10.00	5.00	5.00
-	38	0380	52.56	52.50	47.00	10.00	5.00	5.00
1.500	-	0381	52.56	52.50	47.00	10.00	5.00	5.00
-	40	0400	54.25	55.00	47.00	10.00	5.00	5.00
1.625	-	0412	55.83	55.50	47.00	10.00	5.00	5.00
-	42*	0420	55.83	55.50	47.00	10.00	5.00	5.00
-	44*	0440	59.02	59.20	47.00	10.00	5.00	5.00
1.750	-	0444	59.02	59.20	47.00	10.00	5.00	5.00
-	45	0450	59.02	59.20	47.00	10.00	5.00	5.00
1.875	-	0476	63.68	59.20	55.00	10.00	5.00	6.50
-	50	0500	65.37	66.00	58.50	10.00	5.00	6.50
2.000	-	0508	66.85	66.68	58.50	10.00	5.00	6.50
2.125	-	0539	70.03	70.20	60.00	10.00	5.00	6.50
-	55	0550	70.03	70.20	60.00	10.00	5.00	6.50
2.250	-	0571	73.20	73.02	60.00	10.00	5.00	6.50
-	60	0600	76.38	77.00	63.00	10.00	5.00	6.50
2.375	-	0603	76.38	76.20	63.00	10.00	5.00	6.50
2.500	-	0635	79.56	79.38	63.00	10.00	5.00	6.50
-	65	0650	81.23	82.00	66.00	10.00	5.00	6.50
2.625	-	0666	82.73	82.55	66.00	10.00	5.00	6.50
2.750	-	0698	85.90	85.73	66.00	10.00	5.00	6.50
-	70	0700	85.90	87.00	66.00	10.00	5.00	6.50
2.875	-	0730	89.08	90.00	71.00	10.00	5.00	6.50
-	75	0750	90.77	91.50	71.00	10.00	5.00	6.50
3.000	-	0762	95.43	95.25	77.50	10.00	5.00	6.50
-	80	0800	100.29	99.50	77.50	10.00	5.00	6.50
3.250*	-	0825	101.78	101.60	77.50	10.00	5.00	6.50
-	85*	0850	104.77	105.50	77.50	10.00	5.00	6.50
3.500*	-	0889	108.13	107.95	77.50	10.00	5.00	6.50
-	90*	0900	109.82	110.50	82.00	10.00	5.00	6.50
-	95*	0950	114.30	115.50	82.00	10.00	5.00	6.50
-	100*	1000	119.33	120.00	82.00	10.00	5.00	6.50
4.000*	-	1016	124.00	124.50	88.50	10.00	5.00	6.50
-	110*	1100	131.77	133.00	88.50	10.00	5.00	6.50
-	115*	1150	136.52	137.50	88.50	10.00	5.00	6.50
-	120*	1200	142.87	144.00	95.00	10.00	5.00	6.50

Dimensions in mm and inches
*Non-stock guarantee



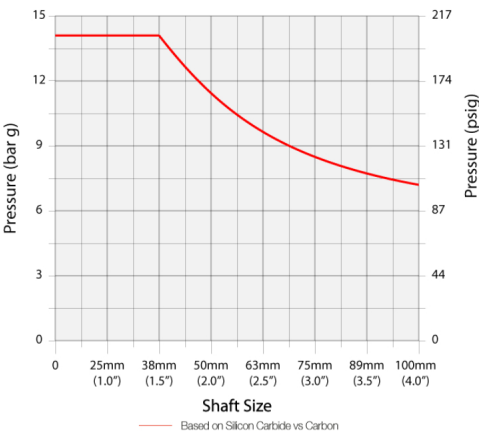
Maximum Operating Pressure

The PV Chart shows the maximum operating pressures of this Vulcan Seals type, based on the seal face materials used. Different lines on the chart indicate different material combinations, as shown underneath.

It also assumes stable operation in a clean, cool, lubricating and nonvolatile fluid with an adequate flush rate.

For more in-depth pressure rating calculations based on specific material combinations and application conditions, please consult us.

PV Chart



Application Conditions

	Criteria	Multiplier
Product Fluid	Lubricating fluids	X 1.00
	Aqueous solutions / Water	X 0.85
Temperature	Below 70°C (158°F)	X 1.00
	71°C to 120°C (160°F to 248°F)	X 0.85
	121°C to 175°C (250°F to 347°F)	X 0.75
	Over 176°C (349°F)	X 0.60
Speed	Up to 1750 rpm	X 1.00
	1750 to 3600 rpm	X 0.80

Face and Seat Materials

Combination	Multiplier
Stainless Steel vs Carbon	x 0.30
Silicon Carbide vs Carbon	x 1.00
Tungsten Carbide vs Carbon	x 0.90
Silicon Carbide vs Silicon Carbide	x 0.50
Silicon Carbide vs Tungsten Carbide	x 0.45
Tungsten Carbide vs Silicon Carbide	x 0.45
Tungsten Carbide vs Tungsten Carbide	x 0.50

Example Calculation for Vulcan Seals Type 97

- A. Shaft size: 38mm therefore pressure is 14 bar (from PV Chart)
- B. Media: Water (multiplier = 0.85)
- C. Temperature: 50°C (multiplier = 1.00)
- D. Speed: 1450 rpm (multiplier = 1.00)
- E. Face combination: Carbon vs Silicon Carbide (multiplier = 1.00)

For this particular Vulcan Seals Type 97 seal size, the calculation for the approximate guidance maximum operating pressure would be:

A x B x C x D x E
14 bar x 0.85 x 1.00 x 1.00 x 1.00 = 11.90 bar

Guidance Only

Please note that due to the many operational and application variables that affect seal performance, the information given on this page is for guidance only.

We therefore strongly recommend careful individual testing and monitoring of all seals and related equipment for any proposed application.

Our policy is one of continuous technical and efficiency improvement. As such, all specifications may be subject to change without prior notice.

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** Important: These limits are the theoretical elastomer or design limitations. For maximum theoretical operating pressure for your specific size and application please refer to calculation example within this data sheet. All performance information given is for guidance only and is dependent on material, operating and application factors that affect seal performance.