



Vulcan Seals Type 22

Technical Data Sheet



Product Description

The Vulcan Seals Type 22 is a resilient, rubber diaphragm-mounted parallel spring seal design with a self-adjusting head to accommodate minor shaft misalignment and run-out.

The seal drive is provided by the diaphragm bellows tightly gripping the shaft and providing positive drive to the seal head and sealing face. The Vulcan Seals diaphragm seal designs are bi-directional "pusher" seals that minimise shaft fretting as the spring is constantly providing energising force to the shaft contact point and sealing face.

Supplied with a Vulcan Seals Type 11 boot-mounted stationary to suit common metric and imperial USA market extended-length seal chambers.

Why Choose the Vulcan Seals Type 22?

- Proficient diaphragm bellows design with dimensions to suit common USA metric or imperial extended-length seal chambers.
- Boot-mounted stationary provides maximum elastomer sealing contact to the housing surface.
- The base plate fitted at the spring drive end provides firm contact against a shaft step or circlip that sets the seal's operating height. This component can be removed if not required.
- A widely utilised mechanical seal type highly suited to general light to medium duties and capable of long service life.

Standard Face Material Combinations

Rotary Face	Stationary Face	Complete Seal Code
VCP1 Carbon	VAW1 Ceramic	C
VCP1 Carbon	VSR1 Silicon Carbide	D
VSR1 Silicon Carbide	VAW1 Ceramic	G
VSR1 Silicon Carbide	VSR1 Silicon Carbide	S
VTN2* Tungsten Carbide	VTN1* Tungsten Carbide	H

Guaranteed Stock/Material Elastomers: Viton™/FKM, EP, Nitrile and Metallurgy 304SS
*Non-stock guarantee

Elastomer Temperature Capabilities

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

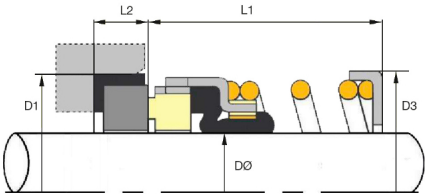
Pressure: Up to 14 bar (203 psi)

Mechanical Seal Replacement Range

Vulcan Seals Type 22 is a dimensional replacement mechanical seal for the following seal ranges:

- AES® | Type N-P05*
- Pac-Seal® | Type 52*
- Burgmann® | Type MG901*

*Rotary Face | **Stationary Face



Dimensional Data

DØ (Metr.)	Size Code	D1	D3	L1	L2	DØ (Imp.)	Size Code 2	D1 (in)	D1 (mm)	D3 (in)	D3 (mm)	L1 (in)	L1 (mm)	L2 (in)	L2 (mm)
12	0120	25.40	23.50	31.75	7.93	0.375	0095	0.875	22.23	0.858	21.80	-	-	0.313	7.95
14	0140	31.75	27.00	34.93	10.28	0.500	0127	1.000	25.40	0.925	23.50	1.250	31.75	0.312	7.93
16	0160	31.75	27.00	34.93	10.28	0.625	0158	1.250	31.75	1.063	27.00	1.375	34.93	0.405	10.28
18	0180	34.93	30.70	34.93	10.28	0.750	0191	1.375	34.93	1.209	30.70	1.375	34.93	0.405	10.28
20	0200	38.10	33.40	36.50	10.28	0.875	0222	1.500	38.10	1.315	33.40	1.437	36.50	0.405	10.28
22	0220	38.10	33.40	36.50	10.28	1.000	0254	1.625	41.28	1.701	43.20	1.625	41.28	0.437	11.10
24	0240	41.28	39.20	41.28	11.10	1.125	0286	1.750	44.44	1.795	45.60	1.687	42.85	0.437	11.10
25	0250	41.28	39.20	41.28	11.10	1.250	0317	1.875	47.63	1.902	48.30	1.687	42.85	0.437	11.10
28	0280	44.44	45.60	42.85	11.10	1.375	0349	2.000	50.80	2.047	52.00	1.687	42.85	0.437	11.10
30	0300	47.63	47.40	42.85	11.10	1.500	0381	2.125	53.98	2.197	55.80	1.687	42.85	0.437	11.10
32	0320	47.63	47.40	42.85	11.10	1.625	0412	2.375	60.33	2.331	59.20	2.000	50.80	0.500	12.70
33	0330	50.80	52.00	42.85	11.10	1.750	0444	2.500	63.50	2.563	65.10	2.000	50.80	0.500	12.70
35	0350	50.80	52.00	42.85	11.10	1.875	0476	2.625	66.68	2.626	66.70	2.125	53.98	0.500	12.70
38	0380	53.98	55.60	42.85	11.10	2.000	0508	2.750	69.85	2.886	73.30	2.125	53.98	0.500	12.70
40	0400	60.33	59.20	50.80	12.70	2.125	0539	3.000	76.20	2.886	73.30	2.375	60.32	0.562	14.28
43	0430	63.50	65.10	50.80	12.70	2.250	0571	3.125	79.38	3.094	78.60	2.375	60.32	0.562	14.28
45	0450	66.68	65.10	53.98	12.70	2.375	0603	3.250	82.55	3.232	82.10	2.500	63.50	0.562	14.28
48	0480	69.85	66.70	53.98	12.70	2.500	0635	3.375	85.73	3.331	84.60	2.500	63.50	0.562	14.28
50	0500	69.85	71.00	53.98	12.70	2.625	0666	3.375	85.73	3.488	88.60	2.750	69.85	0.625	15.88
53	0530	76.20	73.30	60.32	14.28	2.750	0698	3.500	88.90	3.543	90.00	2.750	69.85	0.625	15.88
55	0550	79.38	78.60	60.32	14.28	2.875	0730	3.750	95.25	3.748	95.20	2.875	73.03	0.625	15.88
60	0600	82.55	82.10	63.50	14.28	3.000	0762	3.875	98.43	4.043	102.70	2.875	73.03	0.625	15.88
65	0650	85.73	88.60	69.85	15.88	3.125	0794	4.000	101.60	4.094	104.00	3.125	79.37	0.783	19.88
70	0700	88.90	90.00	69.85	15.88	3.250	0825	4.125	104.78	4.094	104.00	3.125	79.37	0.783	19.88
75	0750	98.43	102.70	73.03	15.88	3.375	0857	4.250	107.95	4.252	108.00	3.125	79.37	0.783	19.88
						3.500	0889	4.375	111.13	4.409	112.00	3.125	79.37	0.783	19.88
						3.625*	0921	4.500	114.30	4.488	114.00	3.250	82.55	0.783	19.88
						3.750	0953	4.625	117.48	4.685	119.00	3.250	82.55	0.783	19.88
						3.875*	0984	4.750	120.65	4.764	121.00	3.375	85.72	0.783	19.88
						4.000	1016	4.875	123.83	4.882	124.00	3.375	85.72	0.783	19.88

Dimensions in mm and inches
*Non-stock guarantee



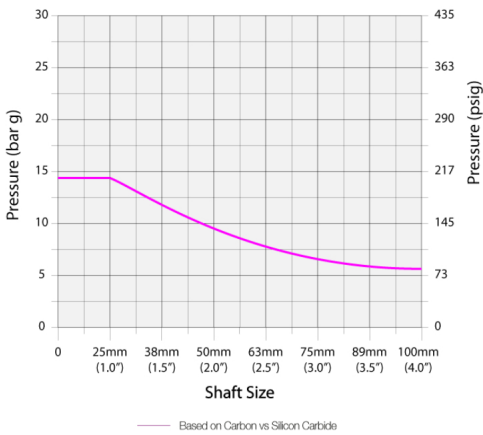
Maximum Operating Pressure

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
Carbon vs Ceramic	x 0.50
Carbon vs Silicon Carbide	x 1.00
Silicon Carbide vs Ceramic	x 0.35
Silicon Carbide vs Silicon Carbide	x 0.50
Tungsten Carbide vs Tungsten Carbide	x 0.50

Example Calculation for Vulcan Seals Type 22

- A. Shaft size: 38mm therefore pressure is 12 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 22 seal size, the calculation for the approximate guidance maximum operating pressure would be:

A x B x C x D x E
12 bar x 0.85 x 1.00 x 1.00 x 1.00 = 10.20 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.