



Vulcan Seals Type A5J

Technical Data Sheet



Product Description

The Vulcan Seals Type A5J is a robust, hydraulically balanced rubber diaphragm mounted parallel spring seal design with increased drive contact area from the shaft to the head to minimise component wear and hang-up.

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 31 'O'-ring-mounted stationary to suit common USA market imperial extended-length seal chambers with anti-rotation provision.

Why Choose the Vulcan Seals Type A5J?

- Robust, regular working length, highly accommodating, and reliable, rubber diaphragm seal, with enhanced seal capability, performance, and durability.
- Featuring a self-adjusting seal head design with face retention and hydraulic face balancing to maximise primary and secondary sealing performance.
- The Vulcan Seals Type A5J has a narrow profile, allowing clearance into a greater range of pump seal chambers.
- 'O'-ring stationary with anti-rotation provision provides security in high-torque applications such as viscous or high solids medias.
- A widely utilised mechanical seal type suited to medium to heavy duties and capable of long service.

Standard Face Material Combinations

Rotary Face Material	Stationary Face Material	Complete Material Code
VCP1 Carbon	VAW1 Ceramic	C
VCP1 Carbon	304 Stainless Steel	Q
VCP1 Carbon	VIN1 Ni-Resist	F
VCP1 Carbon	VSR1 Silicon Carbide	D
VCP1 Carbon	VTN1* Tungsten Carbide	E
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
EPDM	-40°C	+140°C
Viton™/FKM	-30°C	+230°C
FEPM/AFLAS®	-10°C	+250°C
FFKM	-50°C	+315°C

Pressure: Up to 26 bar (377 psi)

Compliance & Certificates



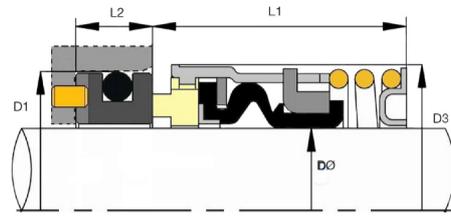
The Vulcan Seals mechanical seal range can be supplied with material combinations designed to meet the compliance standards and certifications listed above. Additional compliance or regulatory requirements can also be considered upon request. Please enquire to discuss your specific application.

Mechanical Seal Replacement Range

Vulcan Seals Type A5J is a dimensional replacement mechanical seal for the following seal ranges:

- John Crane® | Type 1 (USA)/Type 3 seat*

*Rotary Face | **Stationary Face



Dimensional Data

DØ (Imperial)	Seal Size Code	D1 (in)	D1 (mm)	D3 (in)	D3 (mm)	L1 (in)	L1 (mm)	L2 (in)	L2 (mm)
0.500	0127	1.000	25.40	0.937	23.80	1.187	30.16	0.312	7.93
0.625	0158	1.250	31.75	1.093	27.76	1.312	33.32	0.405	10.28
0.750	0191	1.375	34.93	1.218	30.94	1.312	33.32	0.405	10.28
0.875	0222	1.500	38.10	1.343	34.11	1.375	34.93	0.405	10.28
1.000	0254	1.625	41.28	1.500	38.10	1.562	39.67	0.437	11.10
1.125	0286	1.750	44.44	1.625	41.28	1.625	41.28	0.437	11.10
1.250	0317	1.875	47.63	1.812	46.02	1.625	41.28	0.437	11.10
1.375	0349	2.000	50.80	1.917	48.68	1.687	42.85	0.437	11.10
1.500	0381	2.125	53.98	2.041	51.85	1.687	42.85	0.437	11.10
1.625	0412	2.375	60.33	2.287	58.10	2.000	50.80	0.500	12.70
1.750	0444	2.500	63.50	2.412	61.27	2.000	50.80	0.500	12.70
1.875	0476	2.625	66.68	2.537	64.44	2.125	53.98	0.500	12.70
2.000	0508	2.750	69.85	2.646	67.21	2.125	53.98	0.500	12.70
2.125	0539	3.000	76.20	2.835	72.02	2.375	60.33	0.562	14.28
2.250	0571	3.125	79.38	2.965	75.30	2.375	60.33	0.562	14.28
2.375	0603	3.250	82.55	3.083	78.30	2.500	63.50	0.562	14.28
2.500	0635	3.375	85.73	3.210	81.54	2.500	63.50	0.562	14.28
2.625	0666	3.375	85.73	3.394	86.22	2.750	69.85	0.625	15.88
2.750	0698	3.500	88.90	3.520	89.40	2.875	69.85	0.625	15.88
2.875	0730	3.750	95.25	3.644	92.57	2.875	73.03	0.625	15.88
3.000	0762	3.875	98.43	3.770	95.75	2.875	73.03	0.625	15.88
3.125*	0793	4.000	101.60	4.012	101.90	3.125	79.38	0.783	19.88
3.250*	0825	4.125	104.78	4.177	106.10	3.125	79.38	0.783	19.88
3.375*	0857	4.250	107.95	4.303	109.30	3.125	79.38	0.783	19.88
3.500*	0889	4.375	111.13	4.429	112.50	3.125	79.38	0.783	19.88
3.625*	0921	4.500	114.30	4.587	116.50	3.250	82.55	0.783	19.88
3.750*	0953	4.625	117.48	4.677	118.80	3.250	82.55	0.783	19.88
3.875*	0984	4.750	120.65	4.886	124.10	3.375	85.72	0.783	19.88
4.000*	1016	4.875	123.83	5.012	127.30	3.375	85.72	0.783	19.88

Dimensions in mm and inches

Metric shaft size also available, use size code as a reference

*Non-stock guarantee



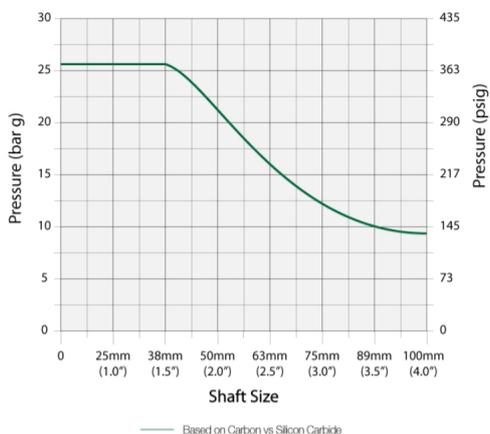
Maximum Operating Pressure

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 Stainless Steel	x 0.30
Carbon vs Ni-Resist	x 0.30
Carbon vs Silicon Carbide	x 1.00
Carbon vs Tungsten Carbide	x 0.90
Silicon Carbide vs Silicon Carbide	x 0.50
Tungsten Carbide vs Tungsten Carbide	x 0.50

Example Calculation for Vulcan Seals Type A5J

- A. Shaft size: 38mm therefore pressure is 25 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 A5J seal size, the calculation for the approximate guidance maximum operating pressure would be:

A x B x C x D x E
 25 bar x 0.85 x 1.00 x 1.00 x 1.00 = 21.25 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.