



Vulcan Seals Type A42J

Technical Data Sheet



Product Description

The Vulcan Seals Type A42J is a robust, hydraulically balanced rubber diaphragm mounted parallel spring double seal design, developed from the proven Vulcan Seals Type A4 platform and dimensionally interchangeable with common Type 2 double configurations.

The seal drive is provided by the diaphragm bellows tightly gripping the shaft and providing positive drive to both seal heads and sealing faces. The Vulcan Seals diaphragm mechanical seal designs are bi-directional ‘pusher’ seals that minimise shaft fretting, as the springs continuously provide energising force to the sealing faces and secondary seals.

The double seal arrangement allows operation with buffer or barrier fluid systems, providing improved lubrication of the seal faces and enhanced sealing performance in demanding process environments. Where barrier fluid systems are utilised, the barrier pressure is typically maintained above the process pressure to ensure positive barrier fluid flow across the seal faces, commonly around 1 bar (14.5 psi) depending on application and support system design.

Supplied with a Vulcan Seals Type 31 'O'-ring-mounted stationary to suit common USA market imperial regular length seal chambers with anti-rotation provision. For the equivalent design using Boot-mounted stationary seats, refer to the Vulcan Seals Type A42.

Why Choose the Vulcan Seals Type A42J?

- Robust, regular working length, highly accommodating, and reliable double rubber diaphragm seal
- Enhanced containment capability for applications requiring flush, buffer, or barrier systems
- Featuring a self-adjusting seal head design with face retention and hydraulic face balancing to maximise primary and secondary sealing performance.
- '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

Impeller Side		Bearing Side		Complete Material Code
Rotary Face	Seal Face	Rotary Face	Seal Face	
VCP1 Carbon	VAW1 Ceramic	VCP1 Carbon	VAW1 Ceramic	WB
VCP1 Carbon	304 Stainless Steel	VCP1 Carbon	304 Stainless Steel	WF
VCP1 Carbon	VIN1 Ni-Resist	VCP1 Carbon	VIN1 Ni-Resist	WJ
VCP1 Carbon	VSR1 Silicon Carbide	VCP1 Carbon	VAW1 Ceramic	WI
VCP1 Carbon	VSR1 Silicon Carbide	VCP1 Carbon	VSR1 Silicon Carbide	YC
VCP1 Carbon	VTN1* Tungsten Carbide	VCP1 Carbon	VTN1* Tungsten Carbide	YH
VSR1 Silicon Carbide	VSR1 Silicon Carbide	VCP1 Carbon	VAW1 Ceramic	WA
VSR1 Silicon Carbide	VSR1 Silicon Carbide	VSR1 Silicon Carbide	VSR1 Silicon Carbide	ZS
VTN2* Tungsten Carbide	VTN1* Tungsten Carbide	VTN2* Tungsten Carbide	VTN1* Tungsten Carbide	ZH

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



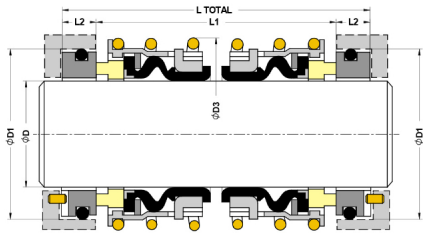
The Vulcan Seals mechanical seal range can be supplied with material combinations designed to meet the compliance standards and certifications listed above. Additional compliance or regulatory requirements can also be considered upon request. Please enquire to discuss your specific application.

Mechanical Seal Replacement Range

Vulcan Seals Type A42J is a dimensional replacement mechanical seal for the following seal ranges:

- John Crane® | Type 2 (USA)/Type 3 seat* - Double Seal

*Rotary Face | **Stationary Face



Dimensional Data

DØ (Imperial)	DØ (Metric)	D1 (in)	D1 (mm)	D3 (in)	D3 (mm)	L1 (in)	L1 (mm)	L2 (in)	L2 (mm)	L Total (in)	L Total (mm)
0.500"	0127	1.000	25.40	1.187	30.14	1.500	38.10	0.312	7.93	2.124	53.95
0.625"	0158	1.250	31.75	1.312	33.32	1.500	38.10	0.405	10.28	2.310	58.67
0.750"	0191	1.375	34.93	1.438	36.52	1.500	38.10	0.405	10.28	2.310	58.67
0.875"	0222	1.500	38.10	1.564	39.72	1.563	39.70	0.405	10.28	2.373	60.27
1.000"	0254	1.625	41.28	1.783	45.30	1.875	47.63	0.437	11.10	2.749	69.82
1.125"	0286	1.750	44.44	1.908	48.47	1.875	47.63	0.437	11.10	2.749	69.82
1.250"	0317	1.875	47.63	2.079	52.80	1.875	47.63	0.437	11.10	2.749	69.82
1.375"	0349	2.000	50.80	2.204	55.98	1.875	47.63	0.437	11.10	2.749	69.82
1.500"	0381	2.125	53.98	2.329	59.15	1.875	47.63	0.437	11.10	2.749	69.82
1.625"	0412	2.375	60.33	2.636	66.96	2.250	57.15	0.500	12.70	3.250	82.55
1.750"	0444	2.500	63.50	2.761	70.12	2.250	57.15	0.500	12.70	3.250	82.55
1.875"	0476	2.625	66.68	2.880	73.16	2.250	57.15	0.500	12.70	3.250	82.55
2.000"	0508	2.750	69.85	3.011	76.48	2.250	57.15	0.500	12.70	3.250	82.55
2.125"	0539	3.000	76.20	3.256	82.71	2.563	65.10	0.562	14.28	3.687	93.65
2.250"	0571	3.125	79.38	3.381	85.89	2.563	65.10	0.562	14.28	3.687	93.65
2.375"	0603	3.250	82.55	3.506	89.06	2.563	65.10	0.562	14.28	3.687	93.65
2.500"	0635	3.375	85.73	3.631	92.24	2.563	65.10	0.562	14.28	3.687	93.65
2.625"	0666	3.375	85.73	3.875	98.43	2.750	69.85	0.625	15.88	4.000	101.60
2.750"	0698	3.500	88.90	4.000	101.60	2.750	69.85	0.625	15.88	4.000	101.60
2.875"	0730	3.750	95.25	4.125	104.78	2.813	71.45	0.625	15.88	4.063	103.20
3.000"	0762	3.875	98.43	4.250	107.95	2.813	71.45	0.625	15.88	4.063	103.20
3.125"	0794*	4.000	101.60	4.375	111.13	2.813	71.45	0.783	19.88	4.379	111.23
3.250"	0825*	4.125	104.78	4.687	119.05	2.813	71.45	0.783	19.88	4.379	111.23
3.375"	0857*	4.250	107.95	4.813	122.25	2.813	71.45	0.783	19.88	4.379	111.23
3.500"	0889*	4.375	111.13	4.941	125.50	2.813	71.45	0.783	19.88	4.379	111.23
3.625"	0920*	4.500	114.30	5.126	130.20	2.938	74.63	0.783	19.88	4.504	114.40
3.750"	0952*	4.625	117.48	5.250	133.35	2.938	74.63	0.783	19.88	4.504	114.40
3.875"	0984*	4.750	120.65	5.437	138.10	3.000	76.20	0.783	19.88	4.566	115.98
4.000"	1016*	4.875	123.83	5.563	141.30	3.000	76.20	0.783	19.88	4.566	115.98

Dimensions in mm
*Non-stock guarantee



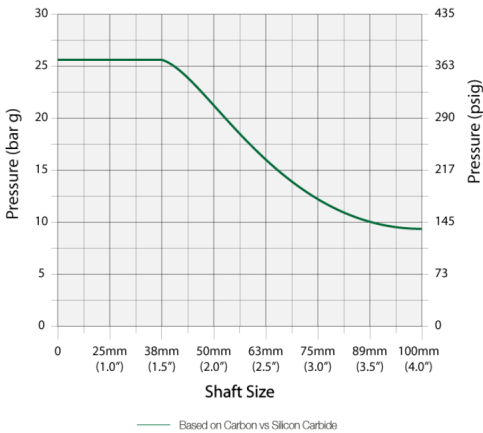
Maximum Operating Pressure

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 A42J

- 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 A42J 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.