



# Vulcan Seals Type 24L

## Technical Data Sheet



### Product Description

The Vulcan Seals Type 24L is a resilient, rubber diaphragm mounted parallel spring seal design with 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 24.DINL 'O'-ring-mounted stationary with anti rotation provision, the Vulcan Seals Type 24L is fully DIN24960/EN12756 L1K dimension compatible.

### Why Choose the Vulcan Seals Type 24L?

- Proficient diaphragm bellows design fully compliant to DIN24960/EN12756 L1K dimensions to suit common European metric seal chambers.
- 'O'-ring stationary with anti-rotation provision provides security in high-torque applications such as viscous or high solids medias.
- 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   Material	Stationary Face   Material	Complete Material 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
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 14 bar (203 psi)

### Compliance & Certificates



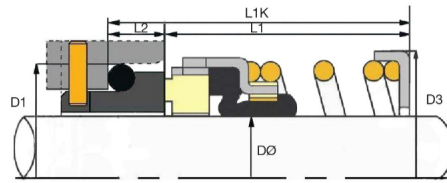
The Vulcan Seals mechanical seal range can be supplied with material combinations designed to meet the compliance standards and certifications listed above. Additional compliance or regulatory requirements can also be considered upon request. Please enquire to discuss your specific application.

### Mechanical Seal Replacement Range

Vulcan Seals Type 24L is a dimensional replacement mechanical seal for the following seal ranges:

- John Crane® | Type 521/BP\*

\*Rotary Face | \*\*Stationary Face



**Dimensional Data**

DØ (Metric)	Seal Size Code	D1 (mm)	D3 (mm)	L1 (mm)	L2 (mm)	Slot Width	Slot Depth	L1K
12	0120	23.00	21.70	23.90	8.60	4.00	5.00	32.50
14	0140	25.00	24.40	26.40	8.60	4.00	5.00	35.00
16	0160	27.00	27.00	26.40	8.60	4.00	5.00	35.00
18	0180	33.00	30.60	27.50	10.00	4.00	5.50	37.50
20	0200	35.00	33.40	27.50	10.00	4.00	5.50	37.50
22	0220	37.00	33.40	27.50	10.00	4.00	5.50	37.50
24	0240	39.00	37.80	30.00	10.00	4.00	5.50	40.00
25	0250	40.00	39.20	30.00	10.00	4.00	5.50	40.00
28	0280	43.00	42.10	32.50	10.00	4.00	5.50	42.50
30	0300	45.00	44.00	32.50	10.00	4.00	5.50	42.50
32	0320	48.00	45.60	32.50	10.00	4.00	5.50	42.50
33	0330	48.00	45.60	32.50	10.00	4.00	5.50	42.50
35	0350	50.00	49.30	32.50	10.00	4.00	5.50	42.50
38	0380	56.00	52.70	34.00	11.00	5.00	5.50	45.00
40	0400	58.00	55.70	34.00	11.00	5.00	5.50	45.00
43	0430	61.00	58.60	34.00	11.00	5.00	5.50	45.00
45	0450	63.00	61.00	34.00	11.00	5.00	5.50	45.00
48	0480	66.00	64.00	34.00	11.00	5.00	5.50	45.00
50	0500	70.00	66.10	34.50	13.00	5.00	5.50	47.50
53	0530	73.00	70.60	34.50	13.00	5.00	5.50	47.50
55	0550	75.00	70.60	34.50	13.00	5.00	5.50	47.50
58	0580	78.00	80.00	39.50	13.00	5.00	5.50	52.50
60	0600	80.00	80.00	39.50	13.00	5.00	5.50	52.50
63	0630	83.00	82.10	39.50	13.00	5.00	5.50	52.50
65	0650	85.00	85.00	39.50	13.00	5.00	5.50	52.50
68	0680	90.00	90.00	37.20	15.30	5.00	5.50	52.50
70	0700	92.00	90.00	44.70	15.30	5.00	5.50	60.00
75	0750	97.00	96.80	44.70	15.30	5.00	5.50	60.00
80	0800	105.00	104.00	44.30	15.70	5.00	5.50	60.00
85	0850	110.00	108.00	44.30	15.70	5.00	5.50	60.00
90	0900	115.00	111.00	49.30	15.70	5.00	5.50	65.00
95	0950	120.00	119.00	49.30	15.70	5.00	5.50	65.00
100	1000	125.00	124.00	49.30	15.70	5.00	5.50	65.00

Dimensions in mm  
 DØ = Metric size shaft  
 \\*Non-stock guarantee



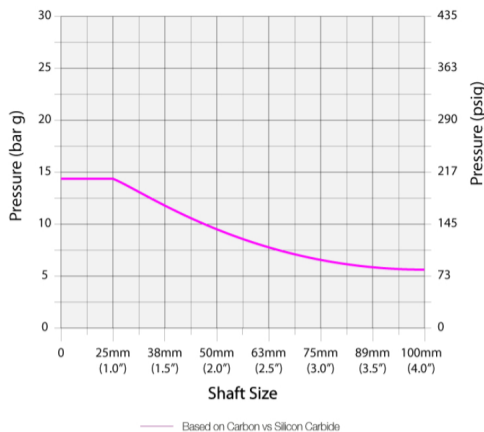
**Maximum Operating Pressure**

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 24L**

- 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 24L 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.