



Vulcan Seals Type 9

Technical Data Sheet



Product Description

The Vulcan Seals Type 9 seal is a simplified 'O'-ring mounted "pusher" seal design with a narrow cross-section monolithic head.

The seal drive is provided by the conical spring tightly gripping the equipment shaft at its drive end. Conical spring seals are mono-directional and have differential part codes for clockwise or anti-clockwise operation.

The Vulcan Seals Type 9 complete seal is supplied with the Vulcan Seals Type 8.STD stationary to suit pre-DIN European housing sizes.

Why Choose the Vulcan Seals Type 9?

- Monolithic carbon or silicon carbon head for maximum simplicity, minimum components, and high-temperature capability.
- Non-clogging, self-adjusting and durable giving highly effective performance.
- 'O'-ring design allows a wide choice of elastomer materials.
- Narrow cross-section to maximise seal chamber suitability.
- Suitable for light-duty applications.

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	VSR1 Silicon Carbide	S
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
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 12 bar (174 psi)

Compliance & Certificates



Also available with built materials that adhere to the above compliance standards and certificates. Please enquire about your requirements.

Mechanical Seal Replacement Range

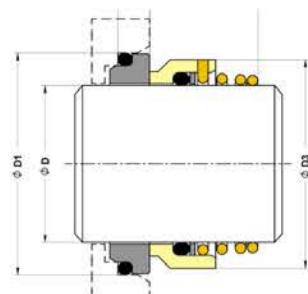
Vulcan Seals Type 9 is a dimensional replacement mechanical seal for the following seal ranges:

- AES® | Type N-T07*
- U.S. Seal® | Type VGMD*
- Burgmann® | Type M2*

*Rotary Face | **Stationary Face

Embrace Excellence - Vulcan Service, Quality and Value

Mechanical Seals | FEP/PFA Encapsulated 'O'-rings | Gland Packing | Expanded PTFE Gasketing
UK/World: +44 (0) 114 249 3333 | USA: +1 952 955 8800 | www.vulcanseals.com | contact@vulcanseals.com

**Dimensional Data**

DØ (Metric)	Seal Size Code	D1 (mm)	D3 (mm)	L1 (mm)	L2 (mm)
10	0100	19.20	20.00	15.90	6.60
12	0120	21.60	22.00	16.00	5.60
14	0140	24.60	25.00	16.00	5.60
15	0150	24.60	27.00	17.40	6.60
16	0160	28.00	27.00	19.00	7.50
18	0180	30.00	30.00	20.50	8.00
20	0200	35.00	32.00	22.00	7.50
22	0220	35.00	35.00	23.50	7.50
24	0240	38.00	38.00	25.00	7.50
25	0250	38.00	40.00	26.50	7.50
28	0280	42.00	43.00	26.50	9.00
30	0300	45.00	45.00	25.00	10.50
32	0320	48.00	47.00	28.50	10.50
35	0350	52.00	50.00	28.50	11.00
38	0380	55.00	56.00	32.00	10.30

Dimensions in mm

*Non-stock guarantee



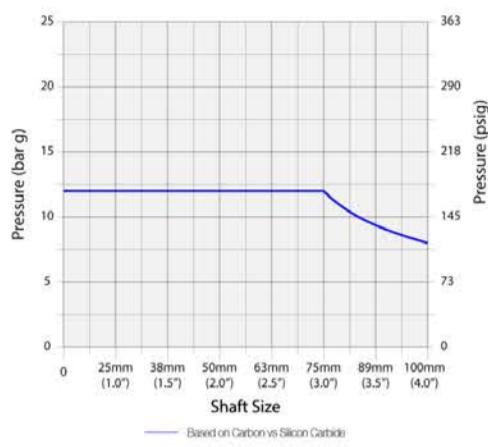
Maximum Operating Pressure

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

Example Calculation for Vulcan Seals Type 9

- 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 9 seal size, the calculation for the approximate guidance maximum operating pressure would be:

$$A \times B \times C \times D \times E \\ 12 \text{ bar} \times 0.85 \times 1.00 \times 1.00 \times 1.00 = 10.20 \text{ bar}$$

Face and Seat Materials

Combination	Multiplier
Carbon vs Ceramic	x 0.50
Carbon vs Silicon Carbide	x 1.00
Silicon Carbide vs Silicon Carbide	x 0.50
Tungsten Carbide vs Tungsten Carbide	x 0.50

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.