



Vulcan Seals Type 40S

Technical Data Sheet



Product Description

The Vulcan Seals Type 40S is a robust, narrow-profile, 'O'-ring mounted "non-pusher" seal design with multiple springs and hydraulically balanced inserted rotary face. The drive from the shaft and the seal working length are by set screws tightened using the supplied Allen key.

The set screws provide bi-directional rotation capability. The multi-spring array and rotary face profile provide even closing forces and hydraulic balancing giving improved pV capability, higher sealing performance, and longer seal life in challenging industrial applications when compared to single-spring seal designs.

The Vulcan Seals Type 40S complete seal is supplied with the Vulcan Seals Type 24.DINS 'O'-ring-mounted stationary.

Why Choose the Vulcan Seals Type 40S?

- Advanced compact design with a narrow radial profile suitable for metric DIN24960/EN12756 seal chambers without anti-rotation provision.
- Highly suitable for high-solids applications due to its smooth outer profile and springs protected from exposure to the media.
- The Vulcan Seals Type 40 rotary features differential face designs for carbon and harder silicon or tungsten carbides to ensure optimal performance.
- Multiple springs for even face loading, isolated from the product, prevent clogging. Hastelloy® C-springs are fitted as standard for maximum corrosion resistance and life.
- A larger diameter static 'O'-ring seal will not fret or damage the shaft sleeve and can be sealed on shaft sleeves previously slightly worn by other seals or gland packing.

Standard Face Material Combinations

Rotary Face	Stationary Face	Complete Seal Code
VCD1 Carbon	VAW1 Ceramic	DB
VCD1 Carbon	VSR1 Silicon Carbide	DS
VSS1 Silicon Carbide	VSS1 Silicon Carbide	R
VSS1 Silicon Carbide	VSR1 Silicon Carbide	SS
VTN2* Tungsten Carbide	VTN1* Tungsten Carbide	H

Guaranteed Stock/Material Elastomers: Viton™/FKM, EP, Nitrile and Metallurgy 316SS with Hastelloy®-C Springs

*Non-stock guarantee

Elastomer Temperature Capabilities

Elastomer	Minimum	Maximum
Nitrile	-30°C	+120°C
EPDM	-40°C	+140°C
Viton™/FKM	-30°C	+180°C
FEP/AFLAS®	-10°C	+180°C
FFKM	-50°C	+180°C

Pressure: Up to 25 bar (362 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

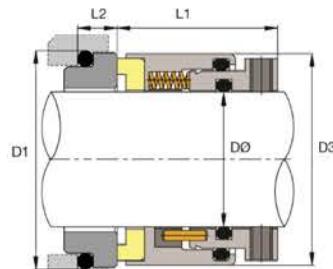
Vulcan Seals Type 40S is a dimensional replacement mechanical seal for the following seal ranges:

- Lidering® | Type GR SA SUP*

*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**

D \varnothing (Metric)	Seal Size Code	D1 (mm)	D3 (mm)	L1 (mm)	L2 (mm)
18	0180	33.00	32.50	30.00	10.00
20	0200	35.00	34.50	30.00	10.00
22	0220	37.00	36.50	30.00	10.00
24	0240	39.00	38.50	30.00	10.00
25	0250	40.00	39.60	30.00	10.00
28	0280	43.00	42.90	32.50	10.00
30	0300	45.00	44.50	32.50	10.00
32	0320	48.00	46.10	32.50	10.00
33	0330	48.00	46.10	32.50	10.00
35	0350	50.00	49.30	32.50	10.00
38	0380	56.00	52.80	34.00	11.00
40	0400	58.00	56.00	34.00	11.00
43	0430	61.00	59.20	34.00	11.00
45	0450	63.00	59.20	34.00	11.00
48	0480	66.00	62.40	34.00	11.00
50	0500	70.00	65.60	34.50	13.00
53	0530	73.00	68.80	34.50	13.00
55	0550	75.00	70.80	34.50	13.00
58*	0580	78.00	75.20	34.50	13.00
60	0600	80.00	75.20	34.50	13.00
63*	0630	83.00	78.30	34.50	13.00
65	0650	85.00	84.20	36.00	13.00
70	0700	92.00	87.40	36.00	15.30
75	0750	97.00	93.70	36.00	15.30
80	0800	105.00	100.00	36.50	15.70
85	0850	110.00	103.30	36.50	15.70
90	0900	115.00	109.60	36.50	15.70
95	0950	120.00	112.80	36.50	15.70
100	1000	125.00	119.20	36.50	15.70

D \varnothing = Metric size shaft

Dimensions in mm

*Non-stock guarantee



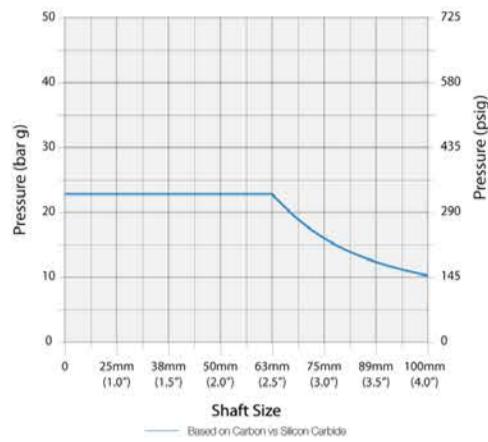
Maximum Operating Pressure

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 40S

- 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 40S seal size, the calculation for the approximate guidance maximum operating pressure would be:

$$A \times B \times C \times D \times E \\ 25 \text{ bar} \times 0.85 \times 1.00 \times 1.00 \times 1.00 = 21.25 \text{ bar}$$

Face and Seat Materials

Combination	Multiplier
Carbon vs Ceramic	x 0.50
Carbon vs RB Silicon Carbide	x 1.00
SiSiC vs SiSiC	x 0.41
SiSiC vs RB Silicon Carbide	x 0.41
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.