



# Vulcan Seals Type 40

## Technical Data Sheet



### Product Description

The Vulcan Seals Type 40 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 40 rotary is available for metric and imperial shaft sizes and is compatible with a wide range of Vulcan Seals stationary types.

### Why Choose the Vulcan Seals Type 40?

- Advanced compact design with a narrow radial profile suitable for metric DIN24960/EN12756: 2001 and imperial ANSI B73-1024 chambers.
- Highly suitable for high-solids applications due to its smooth outer profile and springs protected from exposure to the media.
- Ideal for demanding applications due to the compact, balanced design, protected springs, and dynamic 'O'-ring.
- The Vulcan Seals Type 40 features differential face designs for carbon and harder silicon or tungsten carbides to ensure optimal performance.
- Compatible with a wide range of Vulcan stationary types to suit installation in any common industrial seal chamber.
- 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   Material	Stationary Face   Material	Complete Material Code
VCD1 Carbon	-	DB
VSS1 Silicon Carbide	-	R
VTN2* Tungsten Carbide	-	H

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

\*Non-stock guarantee

### Elastomer Temperature Capabilities

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

Pressure: Up to 25 bar (362 psi)

### Compliance & Certificates



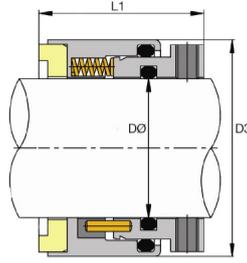
The Vulcan Seals mechanical seal range can be supplied with material combinations designed to meet the compliance standards and certifications listed above. Additional compliance or regulatory requirements can also be considered upon request. Please enquire to discuss your specific application.

### Mechanical Seal Replacement Range

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

- AES® | Type N-M010\*

\*Rotary Face | \*\*Stationary Face



**Dimensional Data**

DØ (Metr.)	Size Code	D3	L1	DØ (Imp.)	Size Code 2	D3 (in)	D3 (mm)	L1 (in)	L1 (mm)
18	0180	32.50	30.00	0.750	0191	1.319	33.50	1.181	30.00
20	0200	34.50	30.00	0.875	0222	1.437	36.50	1.181	30.00
22	0220	36.50	30.00	1.000	0254	1.559	39.60	1.181	30.00
24	0240	38.50	30.00	1.125	0286	1.689	42.90	1.280	32.50
25	0250	39.60	30.00	1.250	0317	1.815	46.10	1.280	32.50
28	0280	42.90	32.50	1.375	0349	1.941	49.30	1.280	32.50
30	0300	44.50	32.50	1.500	0381	2.079	52.80	1.339	34.00
32	0320	46.10	32.50	1.625	0412	2.205	56.00	1.339	34.00
33	0330	46.10	32.50	1.750	0444	2.330	59.20	1.339	34.00
35	0350	49.30	32.50	1.875	0476	2.457	62.40	1.339	34.00
38	0380	52.80	34.00	2.000	0508	2.583	65.60	1.358	34.50
40	0400	56.00	34.00	2.125	0539	2.709	68.80	1.358	34.50
43	0430	59.20	34.00	2.250	0571	2.831	71.90	1.358	34.50
45	0450	59.20	34.00	2.375	0603	2.961	75.20	1.358	34.50
48	0480	62.40	34.00	2.500	0635	3.083	78.30	1.358	34.50
50	0500	65.60	34.50	2.625	0666	3.315	84.20	1.417	36.00
53	0530	68.80	34.50	2.750	0698	3.441	87.40	1.417	36.00
55	0550	70.80	34.50	2.875	0730	3.567	90.60	1.417	36.00
58*	0580	75.20	34.50	3.000	0762	3.689	93.70	1.417	36.00
60	0600	75.20	34.50	3.125	0794	3.818	97.00	1.417	36.00
63*	0630	78.30	34.50	3.250	0825	3.937	100.00	1.417	36.00
65	0650	84.20	36.00	3.375	0857	4.066	103.30	1.417	36.00
70	0700	87.40	36.00	3.500	0889	4.188	106.40	1.417	36.00
75	0750	93.70	36.00	3.625	0921	4.314	109.60	1.417	36.00
80	0800	100.00	36.50	3.750	0953	4.440	112.80	1.437	36.50
85	0850	103.30	36.50	3.875	0984	4.566	116.00	1.437	36.50
90	0900	109.60	36.50	4.000*	1016	4.692	119.20	1.437	36.50
95	0950	112.80	36.50						
100	1000	119.20	36.50						

DØ = Metric & Imperial size shaft  
 Dimensions in mm and inches  
 \*Non-stock guarantee



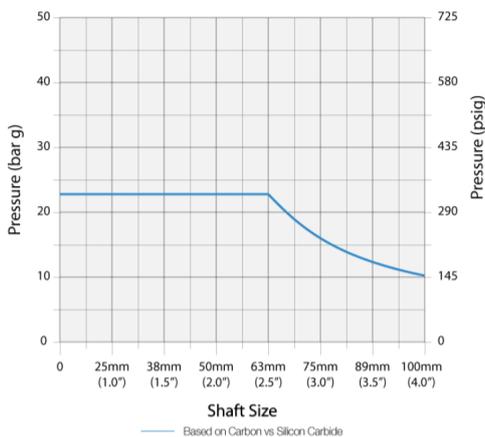
**Maximum Operating Pressure**

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 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

**Example Calculation for Vulcan Seals Type 40**

- 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 40 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.