



## Vulcan Seals Type 52B

### Technical Data Sheet



#### Product Description

The Vulcan Seals Type 52B is a robust, modular construction, 'O'-ring mounted four-bolt gland cartridge seal assembly, without flush connections. The drive from the shaft is by set screws tightened using the supplied Allen key.

The seal assembly is supplied pre-set and only requires mounting on the flange bolts prior to tightening the set screws. 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.

#### Why Choose the Vulcan Seals Type 52B?

- Simple, unitised construction. Minimal internal and external axial length to ensure the seal fits ahead of any shaft obstructions.
- Supplied pre-set, greatly simplifying installation as no setting pieces require removal once the seal is bolted and set screws have been tightened.
- 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.
- Highly suitable for high-solids applications due to its smooth outer profile and springs protected from exposure to the media.
- 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.

#### Standard Face Material Combinations

Rotary Face	Stationary Face	Complete Seal Code
VCD1 Carbon	VSR1 Silicon Carbide	DS
VSS1 Silicon Carbide	VSR1 Silicon Carbide	SS
VTN2* Tungsten Carbide	VTN1* Tungsten Caride	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

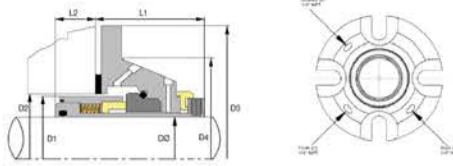
Pressure: Up to 30 bar (435 psi)

#### Compliance & Certificates



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





**Dimensional Data**

DØ (Metr.)	Size Code	D1 Rotary OD	Seal Cham. Min I.D.	Seal Cham. Max I.D.	Gland Height D3	D4 Slot to Slot	L1 Ext W/L	L2 Int W/L	L3 Gland Width	Gland Slot Width
25	0250	42.30	44.00	48.00	98.00	59.50	46.40	11.80	36.00	13.00
28	0280	46.00	47.50	51.00	98.00	65.00	46.40	11.80	36.00	13.00
30	0300	48.90	50.00	55.00	108.00	65.00	46.40	12.30	36.00	13.00
32	0320	48.90	50.00	55.00	108.00	74.00	46.40	12.30	36.00	13.00
33	0330	52.80	53.90	58.50	108.00	74.00	46.40	13.30	36.00	13.00
35	0350	52.80	53.90	58.50	108.00	74.00	46.40	13.30	36.00	13.00
38	0380	56.00	57.20	62.00	117.50	74.00	46.40	13.80	36.00	13.00
40	0400	59.20	60.30	66.00	117.50	78.50	46.40	13.80	36.00	13.00
42	0420	59.20	60.30	66.00	117.50	78.50	46.40	13.80	36.00	13.00
43	0430	62.40	63.50	74.00	133.50	85.00	46.40	13.80	36.00	13.00
44	0440	62.40	63.50	74.00	133.50	85.00	46.40	13.80	36.00	13.00
45	0450	62.40	63.50	74.00	133.50	85.00	46.40	13.80	36.00	13.00
48	0480	65.80	66.70	74.00	133.50	86.00	46.40	15.80	36.00	16.00
50	0500	68.80	69.90	79.00	149.50	96.00	49.40	12.80	39.00	16.00
55	0550	75.20	76.50	85.72	149.50	98.50	49.40	12.80	39.00	16.00
60	0600	78.30	79.40	88.90	162.00	99.00	51.50	11.50	41.00	16.00
63*	0630	84.20	85.70	92.25	171.50	99.00	54.00	12.80	41.00	16.00
65	0650	87.40	88.90	98.42	171.50	114.30	54.00	14.60	41.00	16.00
70	0700	90.60	92.10	98.42	171.50	114.30	54.00	14.60	41.00	16.00
75	0750	96.90	98.40	114.30	187.50	128.00	54.00	15.00	41.00	16.00
80	0800	100.00	101.60	114.30	187.50	129.00	54.00	16.00	41.00	20.00
85	0850	106.40	108.00	120.65	200.00	137.00	54.00	16.00	41.00	20.00
90	0900	112.80	114.30	133.40	200.00	147.00	54.00	16.00	41.00	20.00
95	0950	116.00	117.50	136.52	213.00	149.00	54.00	16.00	41.00	20.00
100	1000	125.60	130.20	146.05	235.50	158.00	57.00	10.80	41.00	20.00

DØ (Imp.)	Size Code 2	D1 Rotary OD (in)	D1 Rotary OD (mm)	Seal Cham. Min I.D. (in)	Seal Cham. Min I.D. (mm)	Seal Cham. Max I.D. (in)	Seal Cham. Max I.D. (mm)	Gland Height D3 (in)	Gland Height D3 (mm)	D4 Slot to Slot (in)	D4 Slot to Slot (mm)	L1 Ext W/L (in)	L1 Ext W/L (mm)	L2 Int W/L (in)	L2 Int W/L (mm)	L3 Gland Width (in)	L3 Gland Width (mm)	Gland Slot Width (in)	Gland Slot Width (mm)
1.000	0254	1.66	42.30	1.73	44.00	1.89	48.00	3.86	98.00	2.34	59.50	1.83	46.40	0.46	11.80	1.42	36.00	0.51	13.00
1.125	0286	1.81	46.00	1.87	47.50	2.01	51.00	3.86	98.00	2.56	65.00	1.83	46.40	0.46	11.80	1.42	36.00	0.51	13.00
1.250	0317	1.92	48.90	1.97	50.00	2.17	55.00	4.25	108.00	2.91	74.00	1.83	46.40	0.48	12.30	1.42	36.00	0.51	13.00
1.375	0349	2.07	52.80	2.12	53.90	2.30	58.50	4.25	108.00	2.91	74.00	1.83	46.40	0.52	13.30	1.42	36.00	0.51	13.00
1.500	0381	2.20	56.00	2.25	57.15	2.44	62.00	4.63	117.50	2.91	74.00	1.83	46.40	0.54	13.80	1.42	36.00	0.51	13.00
1.625	0412	2.33	59.20	2.37	60.30	2.60	66.00	4.63	117.50	3.09	78.50	1.83	46.40	0.54	13.80	1.42	36.00	0.51	13.00
1.750	0444	2.45	62.40	2.50	63.50	2.91	74.00	5.26	133.50	3.35	85.00	1.83	46.40	0.54	13.80	1.42	36.00	0.51	13.00
1.875	0476	2.59	65.80	2.62	66.67	2.91	74.00	5.26	133.50	3.39	86.00	1.83	46.40	0.62	15.80	1.42	36.00	0.63	16.00
2.000	0508	2.70	68.80	2.75	69.85	3.11	79.00	5.89	149.50	3.78	96.00	1.94	49.40	0.50	12.80	1.54	39.00	0.63	16.00
2.125	0539	2.83	71.90	2.87	73.02	3.25	82.55	5.89	149.50	3.88	98.50	1.94	49.40	0.50	12.80	1.54	39.00	0.63	16.00
2.250	0571	2.96	75.20	3.01	76.50	3.37	85.72	6.38	162.00	3.88	98.50	1.94	49.40	0.50	12.80	1.54	39.00	0.63	16.00
2.375	0603	3.08	78.30	3.12	79.37	3.50	88.90	6.38	162.00	3.90	99.00	2.03	51.50	0.45	11.50	1.61	41.00	0.63	16.00
2.500	0635	3.31	84.20	3.37	85.72	3.63	92.25	6.75	171.50	3.90	99.00	2.13	54.00	0.50	12.80	1.61	41.00	0.63	16.00
2.625*	0666	3.44	87.40	3.50	88.90	3.87	98.42	6.75	171.50	4.50	114.30	2.13	54.00	0.57	14.60	1.61	41.00	0.63	16.00
2.750*	0698	3.56	90.60	3.62	92.07	3.87	98.42	6.75	171.50	4.50	114.30	2.13	54.00	0.57	14.60	1.61	41.00	0.63	16.00
3.000*	0762	3.81	96.90	3.88	98.43	4.50	114.30	7.38	187.50	5.04	128.00	2.13	54.00	0.59	15.00	1.61	41.00	0.63	16.00
3.125*	0794	3.93	100.00	4.00	101.60	4.50	114.30	7.38	187.50	5.08	129.00	2.13	54.00	0.63	16.00	1.61	41.00	0.79	20.00
3.250*	0825	4.06	103.30	4.13	104.78	4.62	117.47	7.87	200.00	5.08	129.00	2.13	54.00	0.63	16.00	1.61	41.00	0.79	20.00
3.375*	0857	4.18	106.40	4.25	107.95	4.75	120.65	7.87	200.00	5.39	137.00	2.13	54.00	0.63	16.00	1.61	41.00	0.79	20.00
3.500*	0889	4.31	109.60	4.38	111.13	4.75	120.65	7.87	200.00	5.79	147.00	2.13	54.00	0.63	16.00	1.61	41.00	0.79	20.00
3.625*	0921	4.44	112.80	4.50	114.30	5.25	133.40	8.39	213.00	5.79	147.00	2.13	54.00	0.63	16.00	1.61	41.00	0.79	20.00
3.750*	0953	4.56	116.00	4.63	117.48	5.37	136.52	8.39	213.00	5.87	149.00	2.13	54.00	0.63	16.00	1.61	41.00	0.79	20.00
4.000*	1016	4.94	125.60	5.13	130.18	5.75	146.05	9.27	235.50	6.22	158.00	2.24	57.00	0.43	10.80	1.61	41.00	0.79	20.00

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





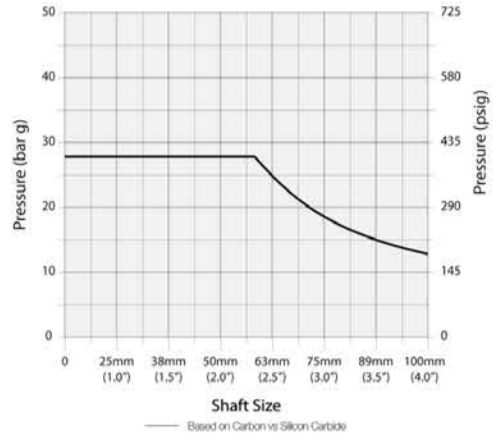
**Maximum Operating Pressure**

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 RB Silicon Carbide	x 1.00
SiSiC vs RB Silicon Carbide	x 0.41
Tungsten Carbide vs Tungsten Carbide	x 0.50

**Example Calculation for Vulcan Seals Type 52B**

- A. Shaft size: 38mm therefore pressure is 30 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 52B seal size, the calculation for the approximate guidance maximum operating pressure would be:

A x B x C x D x E  
 30 bar x 0.85 x 1.00 x 1.00 x 1.00 = 25.50 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.