



Vulcan Seals Type 193S

Technical Data Sheet



Product Description

Vulcan Seals Type 193S is a robust elastomer bellows "non-pusher" design, with wide radial profile and high flexibility to readily accommodate service misalignment and provide extended resilience and durability in service.

The seal drive is provided by the elastomer bellows tightly gripping the shaft from a contact point under the coil end, providing bi-directional "non-pusher" performance that minimises shaft fretting.

Supplied with a Vulcan Seals Type 8.DINS 'O'-ring-mounted stationary to suit DIN24960/EN12756 L1N-length seal chambers.

Why Choose the Vulcan Seals Type 193S?

- Robust, highly resilient elastomer bellows design provides high performance in an easy to handle and install unit.
- Ideal for applications with variable pressures and axial movement due to the fast adjusting non-pusher design.
- Robust, non-clogging, self adjusting and durable giving highly effective performance in medias with particulates.
- Larger than DIN24960/EN12756 radial profile gives greater strength and resilience compared to fully compliant seal designs, such as the Vulcan Seals Type 142DINS.
- Suitable for medium to heavy duty applications.

Standard Face Material Combinations

Rotary Face Material	Stationary Face Material	Complete Material Code
VCP1 Carbon	VAW1 Ceramic	C
VCP1 Carbon	VSR1 Silicon Carbide	D
VSS1 Silicon Carbide	VSR1 Silicon Carbide	SS
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 16 bar (232 psi)

Compliance & Certificates



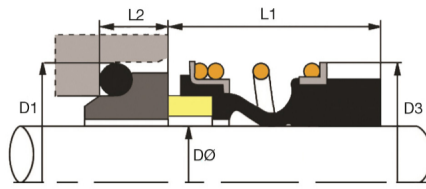
The Vulcan Seals mechanical seal range can be supplied with material combinations designed to meet the compliance standards and certifications listed above. Additional compliance or regulatory requirements can also be considered upon request. Please enquire to discuss your specific application.

Mechanical Seal Replacement Range

Vulcan Seals Type 193S is a dimensional replacement mechanical seal for the following seal ranges:

- AES® | Type N-B013SS*

*Rotary Face | **Stationary Face



Dimensional Data

DØ (Metric)	Seal Size Code	D1 (mm)	D3 (mm)	L1 (mm)	L2 (mm)	L1N
10	0100	21.00	20.00	33.40	6.60	40.00
12	0120	23.00	24.30	33.40	6.50	40.00
14	0140	25.00	28.50	33.40	6.50	40.00
15	0150	27.00	28.50	33.40	6.60	40.00
16	0160	27.00	28.50	33.40	7.50	40.00
18	0180	33.00	31.00	37.50	7.50	45.00
20	0200	35.00	36.50	37.50	7.50	45.00
22	0220	37.00	36.50	37.50	7.50	45.00
24	0240	39.00	41.10	42.50	7.50	50.00
25	0250	40.00	41.10	42.50	7.50	50.00
28	0280	43.00	47.60	42.50	7.50	50.00
30	0300	45.00	47.60	42.00	7.50	55.00
32	0320	48.00	51.00	47.50	7.50	55.00
33	0330	48.00	51.00	47.50	7.50	55.00
35	0350	50.00	54.50	47.50	9.00	55.00
38	0380	56.00	57.90	46.00	9.00	55.00
40	0400	58.00	60.00	48.00	9.00	55.00
43	0430	61.00	63.80	51.00	9.00	60.00
45	0450	63.00	65.70	51.00	9.00	60.00
48	0480	66.00	69.30	51.00	9.50	60.00
50	0500	70.00	71.80	50.50	11.00	60.00
53	0530	73.00	76.00	59.00	11.00	70.00
55	0550	75.00	78.30	59.00	11.00	70.00
58	0580	78.00	82.50	59.00	11.00	70.00
60	0600	80.00	85.50	59.00	11.00	70.00
65*	0650	85.00	90.30	69.00	11.30	80.00
68*	0680	90.00	94.00	68.70	11.30	80.00
70*	0700	92.00	97.00	68.70	11.30	80.00
75*	0750	97.00	102.00	68.70	11.30	80.00
80*	0800	105.00	109.50	78.00	12.00	90.00
85*	0850	110.00	116.70	76.00	14.00	90.00
90*	0900	115.00	122.30	76.00	14.00	90.00
95*	0950	120.00	127.60	76.00	14.00	90.00
100*	1000	125.00	132.00	76.00	14.00	90.00

Dimensions in mm
 *Non-stock guarantee



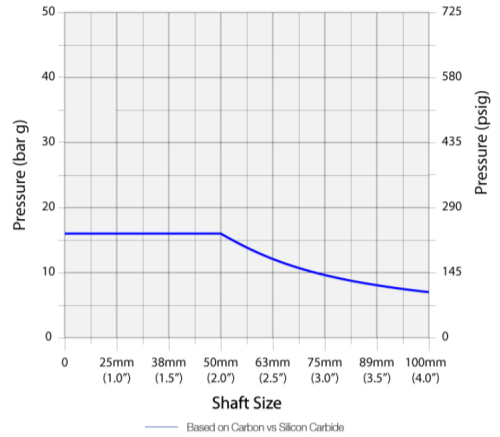
Maximum Operating Pressure

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

Face and Seat Materials

Combination	Multiplier
Carbon vs Ceramic	x 0.50
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 193S

- A. Shaft size: 38mm therefore pressure is 16 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 193S seal size, the calculation for the approximate guidance maximum operating pressure would be:

A x B x C x D x E
 16 bar x 0.85 x 1.00 x 1.00 x 1.00 = 13.60 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.