



# Vulcan Seals Type 12

## Technical Data Sheet



### Product Description

The Vulcan Seals Type 12 seal is a robust, 'O'-ring mounted "pusher" seal design with a narrow cross-section monolithic stainless steel 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 12 complete seal is supplied with the Vulcan Seals Type 12 stationary to suit pre-DIN Italian housing sizes.

### Why Choose the Vulcan Seals Type 12?

- Monolithic stainless steel head for maximum robustness and high-temperature capability.
- Inserted silicon or tungsten carbide sealing faces inserted in stainless steel are available for abrasive medias.
- Positive drive hole to eliminate common drive pin failures caused by excessive slot play.
- Robust, 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, medium, or heavy-duty applications.

### Standard Face Material Combinations

Rotary Face	Stationary Face	Complete Seal Code
304 Stainless Steel	VCP1 Carbon	P
VSR1 Silicon Carbide	VCP1 Carbon	T
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
EP	-40°C	+140°C
Viton™/FKM	-30°C	+180°C

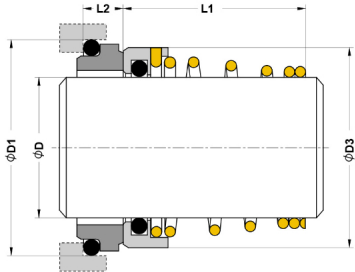
Pressure: Up to 12 bar (174 psi)

### Mechanical Seal Replacement Range

Vulcan Seals Type 12 is a dimensional replacement mechanical seal for the following seal ranges:

- AES® | Type N-T03\*
  - Lidering® | Type 600\*
  - Lidering® | Type RN\*
  - M.T.U.® | Europa 2\*
- Burgmann® | Type BT-RN\*
  - Lidering® | Type LS60\*
  - Lidering® | Type RN 3\*
  - Roten® | Roten® 2\*

\*Rotary Face | \*\*Stationary Face



Dimensional Data

DØ (Metric)	Seal Size Code	D1 (mm)	D3 (mm)	L1 (mm)	L2 (mm)
10	0100	18.10	19.00	15.00	5.50
12	0120	20.60	21.00	18.00	5.50
13	0130	23.10	23.00	22.00	6.00
14	0140	23.10	23.00	22.00	6.00
15	0150	26.90	24.00	22.00	7.00
16	0160	26.90	26.00	23.00	7.00
17	0170	26.90	26.00	23.00	7.00
18	0180	30.90	29.00	24.00	8.00
19	0190	30.90	31.00	25.00	8.00
20	0200	30.90	31.00	25.00	8.00
22	0220	35.40	33.00	25.00	8.00
24	0240	35.40	35.00	27.00	8.00
25	0250	38.20	36.00	27.00	8.50
26	0260	38.20	36.00	27.00	8.50
28	0280	43.30	40.00	29.00	9.00
30	0300	43.30	43.00	30.00	9.00
32	0320	43.30	46.00	30.00	9.00
33	0330	53.50	46.00	39.00	11.50
34	0340	53.50	49.00	39.00	11.50
35	0350	53.50	49.00	39.00	11.50
38	0380	60.50	53.00	39.00	11.50
39	0390	60.50	56.00	39.00	11.50
40	0400	60.50	56.00	39.00	11.50
42	0420	60.50	59.00	39.00	11.50
43	0430	60.50	59.00	39.00	11.50
44	0440	65.50	61.00	41.00	11.50
45	0450	65.50	61.00	41.00	11.50
48	0480	65.50	64.00	41.00	11.50
50	0500	72.50	66.00	45.00	11.50
55	0550	72.50	71.00	47.00	11.50
60	0600	79.30	78.00	49.00	11.50
65	0650	84.50	84.00	51.00	11.50
70	0700	89.50	89.60	51.00	11.50
75	0750	94.50	98.00	57.00	11.50
80	0800	99.50	100.00	59.00	11.50
85	0850	105.50	107.50	59.00	13.50
90	0900	111.50	111.00	62.00	13.50
95	0950	116.50	119.00	62.00	13.50
100	1000	119.50	123.80	75.00	13.50

Dimensions in mm  
\\\*Non-stock guarantee



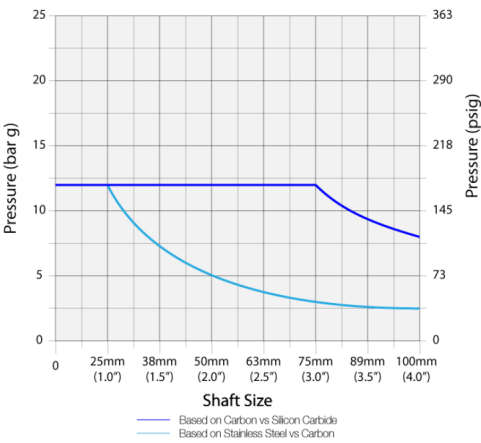
Maximum Operating Pressure

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
Stainless Steel vs Carbon	x 0.30
Carbon vs Silicon Carbide	x 1.00
Silicon Carbide vs Silicon Carbide	x 0.50
Tungsten Carbide vs Tungsten Carbide	x 0.50

Example Calculation for Vulcan Seals Type 12

- A. Shaft size: 38mm therefore pressure is 7 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 12 seal size, the calculation for the approximate guidance maximum operating pressure would be:

A x B x C x D x E  
7 bar x 0.85 x 1.00 x 1.00 x 1.00 = 5.95 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.