



# Vulcan Seals Type 13

## Technical Data Sheet



### Product Description

The Vulcan Seals Type 13 seal is a resilient, 'O'-ring mounted "pusher" seal design with an 'O'-ring mounted sealing face in a narrow cross-section stainless steel pressed 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 13 complete seal is supplied with the Vulcan Seals Type 13 stationary to suit pre-DIN Italian standard housing sizes.

### Why Choose the Vulcan Seals Type 13?

- The 'O'-ring mounted seal face offers enhanced versatility.
- Cost-effective seal option for light-duty water circulators.
- Ceramic seal face provides improved sealing performance compared to standard stainless steel.
- Offers high-temperature capability when fitted with suitable 'O'-rings.
- Suitable for light-duty applications.

### Standard Face Material Combinations

Rotary Face	Stationary Face	Complete Seal Code
VAW1 Ceramic	VCP1 Carbon	B
VSR1 Silicon Carbide	VCP1 Carbon	T
VSR1 Silicon Carbide	VSR1 Silicon Carbide	S
VTN2* Tungsten Carbide	VTN2* Tungsten Carbide	H

### Elastomer Temperature Capabilities

	Minimum	Maximum
Nitrile	-30°C	+120°C
Viton™/FKM	-30°C	+180°C
EP	-40°C	+140°C

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

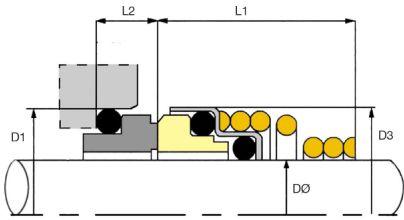
Pressure: Up to 12 bar (174 psi)

### Mechanical Seal Replacement Range

Vulcan Seals Type 13 is a dimensional replacement mechanical seal for the following seal ranges:

- AES® | Type N-T04\*
  - Lidering® | Type FN\*
  - Lidering® | Type LS15\*
  - Roten® | Roten® 3\*
- Burgmann® | Type BT-FN\*
  - Lidering® | Type 155\*
  - M.T.U.® | SIMPLEX\*
  - U.S. Seal® | Type VGMB\*

\*Rotary Face | \*\*Stationary Face



Dimensional Data

DØ (Metric)	Seal Size Code	D1 (mm)	D3 (mm)	L1 (mm)	L2 (mm)
10	0100	18.10	19.50	15.00	5.50
11	0110	20.60	22.00	18.00	5.50
12	0120	20.60	22.00	18.00	5.50
13	0130	23.10	24.00	22.00	6.00
14	0140	23.10	24.00	22.00	6.00
15	0150	26.90	26.00	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	32.00	24.00	8.00
19	0190	30.90	32.70	25.00	8.00
20	0200	30.90	32.70	25.00	8.00
21	0210	35.40	36.00	25.00	8.00
22	0220	35.40	36.00	25.00	8.00
23	0230	35.40	36.00	27.00	8.00
24	0240	35.40	37.40	27.00	8.00
25	0250	38.20	38.00	27.00	8.50
28	0280	43.30	42.00	29.00	9.00
30	0300	43.30	44.00	30.00	9.00
32	0320	43.30	45.50	30.00	9.00
33	0330	53.50	46.50	39.00	11.50
35	0350	53.50	49.00	39.00	11.50
38	0380	60.50	56.00	39.00	11.50
40	0400	60.50	58.00	39.00	11.50

Dimensions in mm  
\\*Non-stock guarantee



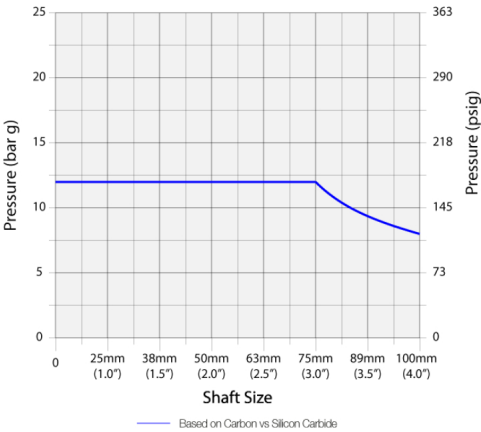
Maximum Operating Pressure

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
Carbon vs Ceramic	x 0.50
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 13

- A. Shaft size: 38mm therefore pressure is 12 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 13 seal size, the calculation for the approximate guidance maximum operating pressure would be:

A x B x C x D x E  
12 bar x 0.85 x 1.00 x 1.00 x 1.00 = 10.20 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.