



Vulcan Conical Spring Type Seals

3



Section 3

Introduction

The Conical Spring Type Seals offered by Vulcan are an extremely popular seal. These robust, technically proficient, seals are designed to suit DIN and common, standard housing dimensions.

Applications

The proven efficient design and wide choice of 'O'-Ring and face materials enable these seals to be utilised in a large variety of applications. Suited for pumps, mixers, agitators, compressors and other rotary shaft equipment.

Standard Vulcan Conical Spring Types

Type 8, Type 8DIN and Type 82

Inserted rotary faced, 'O'-Ring mounted, conical spring seals, to suit standard common or DIN fitting dimensions. The Type 82 is a balanced version of Type 8 DIN, suitable for stepped shafts.

Type 8B

'O'-Ring mounted, conical spring seals seal of similar design to the standard Type 8 but with a solid stainless steel head and carbon stationary.

Type 9 and Type 9L

Conical spring 'O'-Ring mounted seal, with a monolithic seal head and a choice of 8 standard or long DIN seat.

Type 12 and Type 12DIN

'O'-Ring mounted, conical spring seals, available with solid stainless head as standard, or inserted SIC/TC ring face. Suitable for standard or DIN housings.

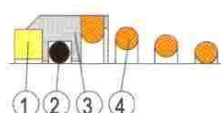
Type 13 and Type 13DIN

'O'-Ring mounted, conical spring seals with pressed in, 'O'-Ring mounted, rotary face, enabling face material interchangeability, to suit common standard or DIN dimensions.

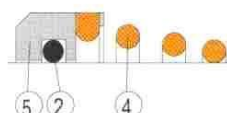
Type 7D

As above Type 13 DIN but with a machined, rather than pressed seal head retainer. Designed to suit DIN 24960 (EN12756) standard.

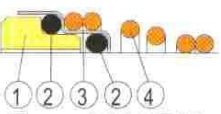
STANDARD COMPONENTS.



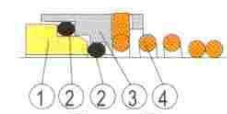
Types 8/8 DIN



Types 8b & 12/12 DIN



Types 13/13 DIN



Type 7D

No	Description	3	Retainer
1	Face Ring	4	Coil
2	'O'-Ring	5	Monolithic Face

Vulcan Design Advantages

Positive Drive

Seal is shaft driven, via the coil, providing a positive drive at its base and eliminating common drive pin failures.

Standard springs are right hand wound for clockwise shafts. Please specify left-hand coils for anti-clockwise shaft or "back to back" combinations. The spring coil end is turned upwards to protect the shaft from scoring.

Materials

Suitable for a large variety of applications, through a wide choice of 'O'-Ring and face materials.

Design

Single conical spring, stainless steel, head retainer provides a strong and effective seal, suitable for many duties, including clogging media and hygienic applications.

Self-Aligning

The combination of a resilient 'O'-Ring and single spring design results in a technically efficient and versatile design, that accommodates both misalignment and vibrations.

'O'-Ring Housing

The 'O'-Ring is held within a completely recessed groove providing performance benefits, compared to competitor designs that use a separate drive ring.

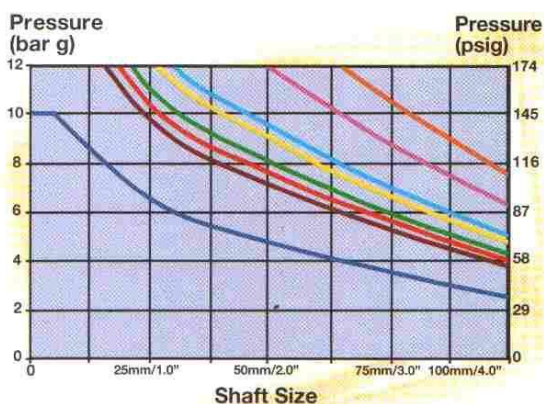
Customisable

Can be specially produced to any working length and seat housing dimensions.

Reliable

Robust, non-clogging, self-adjusting and durable giving highly effective performance.

VULCAN CONICAL SPRING TYPE SEALS PV CHART

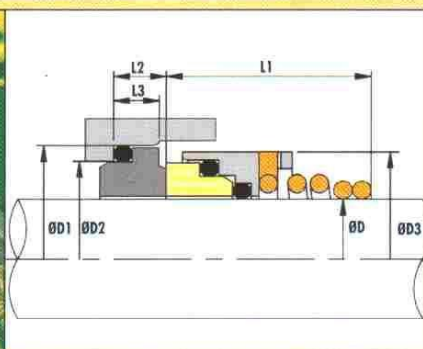


Carbon/Ceramic
Carbon/SIC
Carbon/TC
SC/TC
SC/SC
TC/TC
Carbon/SS (Ni-Resist)
Type 13 (Carbon/Ceramic)

Notes:
1. Type 82 multiply by factor 1.4
For information on how to utilise this pV chart please refer to the technical section.



TYPE 7D



Resilient, conical spring, 'O'-Ring mounted DIN standard seal. With the advantage of being able to replace the faces. The seal is very versatile and is suitable for a large variety of general and arduous duty applications, through a choice of face material combinations

VULCAN STANDARD SIZES

Metric Shaft Size D	Size Code	D1	D2	D3	L1	L2	L3
10	0100	21.00	17.00	19.00	15.00	7.00	4.00
12	0120	23.00	19.00	21.00	18.00	7.00	4.00
14	0140	25.00	21.00	23.00	22.00	7.00	4.00
16	0160	27.00	23.00	26.00	23.00	7.00	4.00
18	0180	33.00	27.00	29.00	24.00	10.00	5.00
20	0200	35.00	29.00	31.00	25.00	10.00	5.00
22	0220	37.00	31.00	33.00	25.00	10.00	5.00
24	0240	39.00	33.00	35.00	27.00	10.00	5.00
25	0250	40.00	34.00	36.00	27.00	10.00	5.00
28	0280	43.00	37.00	40.00	29.00	10.00	5.00
30	0300	45.00	39.00	43.00	30.00	10.00	5.00
32	0320	48.00	42.00	46.00	30.00	10.00	5.00
33	0330	48.00	42.00	46.00	39.00	10.00	5.00
35	0350	50.00	44.00	49.00	39.00	10.00	5.00
38	0380	56.00	49.00	53.00	42.00	13.00	6.00
40	0400	58.00	51.00	56.00	42.00	13.00	6.00
43	0430	61.00	54.00	59.00	47.00	13.00	6.00
45	0450	63.00	56.00	61.00	47.00	13.00	6.00
48	0480	66.00	59.00	64.00	47.00	13.00	6.00
50	0500	70.00	62.00	66.00	46.00	14.00	6.00
53	0530	73.00	65.00	69.00	56.00	14.00	6.00
55	0550	75.00	67.00	71.00	56.00	14.00	6.00
58	0580	78.00	70.00	76.00	56.00	14.00	6.00
60	0600	80.00	72.00	78.00	56.00	14.00	6.00
63	0630	83.00	75.00	81.00	56.00	14.00	6.00
65	0650	85.00	77.00	84.00	66.00	14.00	6.00
68	0680	90.00	81.00	88.00	64.00	16.00	7.00
70	0700	92.00	83.00	89.60	64.00	16.00	7.00
75	0750	97.00	88.00	98.00	64.00	16.00	7.00
80	0800	105.00	95.00	100.00	72.00	18.00	7.00
85	0850	110.00	100.00	107.50	72.00	18.00	7.00
90	0900	115.00	105.00	111.00	72.00	18.00	7.00
95	0950	120.00	110.00	119.00	72.00	18.00	7.00
100	1000	125.00	115.00	123.80	72.00	18.00	7.00

STANDARD STOCK FACE MATERIALS

Rotary Face: Ceramic, Silicon Carbide.

Seat: Carbon, Silicon Carbide.

OTHER FACE MATERIALS TO ORDER

Suggested Operating Limits

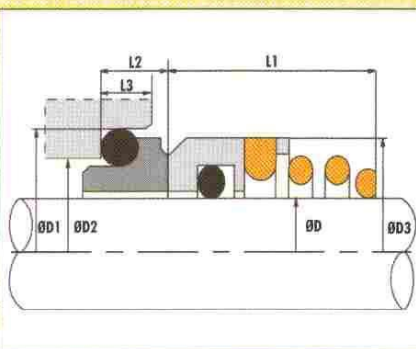
PRESSURE 170psi

SPEED 15m/s

TEMPERATURE -40 +180°C

Dependent upon shaft diameter and speed + Temperature and media to be sealed

TYPE 8B



Conical spring, 'O'-Ring mounted seal and seat of similar design to the Type 8 but with a solid stainless seal head and 'O'-Ring mounted Carbon Seat. This standard face combination is suitable for general and medium duty applications.

VULCAN STANDARD SIZES

Metric Shaft Size D	Size Code	D1	D2	D3	L1	L2	L3
10	0100	19.20	15.50	19.00	15.50	7.10	5.00
12	0120	21.60	17.50	21.00	15.50	7.60	5.00
14	0140	24.60	20.50	23.00	15.50	7.60	5.00
15	0150	24.60	20.50	24.00	15.50	8.60	5.00
16	0160	28.00	22.00	26.00	17.50	9.00	6.50
18	0180	30.00	24.00	29.00	18.50	10.00	6.50
19	0190	31.00	25.00	31.00	20.00	9.00	6.50
20	0200	35.00	29.50	31.00	20.00	9.50	6.50
22	0220	35.00	29.50	33.00	21.50	9.50	6.50
24	0240	38.00	32.00	35.00	23.00	9.50	6.50
25	0250	38.00	32.00	36.00	24.50	9.50	6.50
26	0260	40.00	34.00	37.00	24.50	10.00	6.50
28	0280	42.00	36.00	40.00	24.50	11.00	6.50
30	0300	45.00	39.20	43.00	24.50	11.00	6.50
32	0320	48.00	42.20	46.00	28.00	11.00	6.50
35	0350	52.00	46.20	49.00	28.00	11.50	6.50
38	0380	55.00	49.20	53.00	31.00	11.50	6.50
40	0400	58.00	52.20	56.00	34.00	11.50	6.50
42	0420	62.00	53.30	59.00	35.00	14.30	8.00
43	0430	62.00	54.30	59.00	35.00	14.30	8.00
45	0450	64.00	55.30	61.00	36.50	14.30	8.00
48	0480	68.40	59.70	64.00	42.00	14.30	8.00
50	0500	69.30	60.80	66.00	43.00	14.30	8.00
55	0550	75.40	66.50	71.00	47.00	15.30	8.00
58	0580	78.40	69.50	76.00	50.00	15.30	8.00
60	0600	80.40	71.50	78.00	51.00	15.30	8.00
65	0650	85.40	76.50	84.00	52.00	15.30	8.00
68	0680	91.50	82.70	88.00	53.00	16.00	8.00
70	0700	92.00	83.00	90.00	54.00	15.30	8.00
75	0750	99.00	90.20	98.00	55.00	15.30	8.00
80	0800	104.00	95.20	100.00	58.00	16.30	8.00

Suggested Operating Limits

PRESSURE 160psi

SPEED 15m/s

TEMPERATURE -40 +180°C

Dependent upon shaft diameter and speed + Temperature and media to be sealed

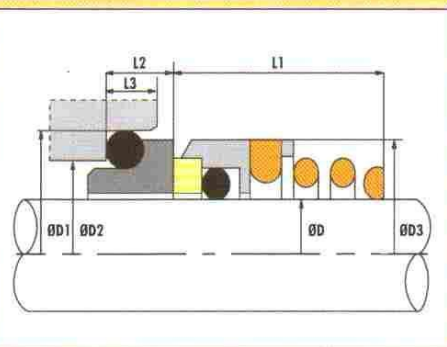
STANDARD STOCK FACE MATERIALS

Rotary Face: Stainless Steel.

Stat Ring: Carbon.

OTHER FACE MATERIALS TO ORDER

TYPE 8



Conical spring, 'O'-Ring mounted seal with a wide choice of elastomers and face materials. Suitable for a large variety of general duties and arduous duty applications, including those needing high pV value face combinations.

VULCAN STANDARD SIZES

Metric Shaft Size D	Size Code	D1	D2	D3	L1	L2	L3
10	0100	19.20	15.50	19.00	15.50	6.60	5.00
12	0120	21.60	17.50	21.00	15.50	5.60	5.00
14	0140	24.60	20.50	23.00	15.50	5.60	5.00
15	0150	24.60	20.50	24.00	15.50	6.60	5.00
16	0160	28.00	22.00	26.00	17.50	7.50	6.50
18	0180	30.00	24.00	29.00	18.50	8.00	6.50
19	0190	31.00	25.00	31.00	20.00	7.50	6.50
20	0200	35.00	29.50	31.00	20.00	7.50	6.50
22	0220	35.00	29.50	33.00	21.50	7.50	6.50
24	0240	38.00	32.00	35.00	23.00	7.50	6.50
25	0250	38.00	32.00	36.00	24.50	7.50	6.50
26	0260	40.00	34.00	37.00	24.50	8.00	6.50
28	0280	42.00	36.00	40.00	24.50	9.00	6.50
30	0300	45.00	39.20	43.00	24.50	10.50	6.50
32	0320	48.00	42.20	46.00	28.00	10.50	6.50
35	0350	52.00	46.20	49.00	28.00	11.00	6.50
38	0380	55.00	49.20	53.00	31.00	10.30	6.50
40	0400	58.00	52.20	56.00	34.00	10.80	6.50
42	0420	62.00	53.30	59.00	35.00	12.00	8.00
43	0430	62.00	54.30	59.00	35.00	12.00	8.00
45	0450	64.00	55.30	61.00	36.50	11.60	8.00
48	0480	68.40	59.70	64.00	42.00	11.60	8.00
50	0500	69.30	60.80	66.00	43.00	11.60	8.00
55	0550	75.40	66.50	71.00	47.00	13.30	8.00
58	0580	78.40	69.50	76.00	50.00	13.30	8.00
60	0600	80.40	71.50	78.00	51.00	13.30	8.00
65	0650	85.40	76.50	84.00	52.00	13.00	8.00
68	0680	91.50	82.70	88.00	53.00	13.70	8.00
70	0700	92.00	83.00	90.00	54.00	13.00	8.00
75	0750	99.00	92.20	98.00	55.00	14.00	8.00
80	0800	104.00	95.20	100.00	58.00	15.00	8.00

STANDARD STOCK FACE MATERIALS

Rotary Face: Carbon, Silicon Carbide, Tungsten Carbide.

Stat Ring: Ceramic, Silicon Carbide, Tungsten Carbide.

OTHER FACE MATERIALS TO ORDER

Suggested Operating Limits

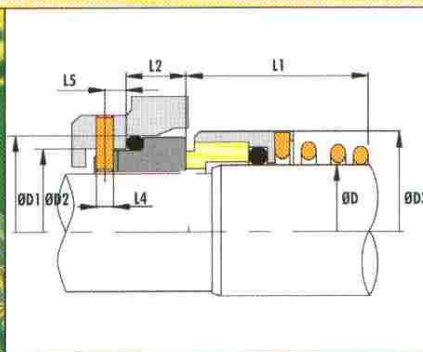
PRESSURE 180psi

SPEED 15m/s

TEMPERATURE -40 +180°C

Dependent upon shaft diameter and speed + Temperature and media to be sealed

TYPE 82



Conical Spring, 'O'-Ring mounted, balanced DIN Standard seal for stepped shafts, with reduced shaft size Type 8 DIN Long seat. This balanced seal arrangement is suitable for a large variety of general and high duty applications, with a wide choice of face material and elastomer combinations.

VULCAN STANDARD SIZES

Metric Shaft Size D	Size Code	Seat Size	D1	D2	D3	L1	L2	L4	L5
14	0140	0100	21.00	17.00	23.00	25.50	10.00	3.00	5.00
16	0160	0120	23.00	19.00	26.00	26.50	10.00	3.00	5.00
18	0180	0140	25.00	21.00	29.00	29.50	10.00	3.00	5.00
20	0200	0160	27.00	23.00	31.00	31.00	10.00	3.00	5.00
22	0220	0180	33.00	27.00	33.00	32.50	11.50	3.00	5.00
24	0240	0200	35.00	29.00	35.00	32.50	11.50	3.00	5.00
26	0260	0220	37.00	31.00	36.00	32.50	11.50	3.00	5.00
28	0280	0240	39.00	33.00	40.00	32.50	11.50	3.00	5.00
30	0300	0250	40.00	34.00	43.00	33.50	11.50	3.00	5.00
33	0330	0280	43.00	37.00	46.00	35.50	11.50	3.00	5.00
35	0350	0300	45.00	39.00	49.00	35.50	11.50	3.00	5.00
38	0380	0330	48.00	42.00	53.00	39.50	11.50	3.00	5.00
40	0400	0350	50.00	44.00	56.00	43.50	11.50	3.00	5.00
43	0430	0380	56.00	49.00	59.00	46.00	14.00	4.00	5.00
45	0450	0400	58.00	51.00	61.00	48.00	14.00	4.00	5.00
48	0480	0430	61.00	54.00	64.00	51.00	14.00	4.00	5.00
50	0500	0450	63.00	56.00	66.00	55.00	14.00	4.00	5.00
53	0530	0480	66.00	59.00	69.00	55.00	14.00	4.00	5.00
55	0550	0500	70.00	62.00	71.00	58.00	15.00	4.00	5.00
58	0580	0530	73.00	65.00	76.00	60.00	15.00	4.00	5.00
60	0600	0550	75.00	67.00	78.00	60.00	15.00	4.00	5.00
63	0630	0580	78.00	70.00	81.00	60.00	15.00	4.00	5.00
65	0650	0600	80.00	72.00	84.00	60.00	15.00	4.00	5.00
68	0680	0630	83.00	75.00	88.00	60.00	15.00	4.00	5.00
70	0700	0650	85.00	77.00	90.00	61.00	15.00	4.00	5.00
75	0750	0700	92.00	83.00	98.00	63.00	18.00	4.00	5.00
80	0800	0750	97.00	88.00	100.00	68.00	18.00	4.00	5.00
85	0850	0800	105.00	95.00	107.50	68.00	18.20	4.00	5.00

Suggested Operating Limits

PRESSURE 200psi

SPEED 20m/s

TEMPERATURE -40 +180°C

Dependent upon shaft diameter and speed + Temperature and media to be sealed.

STANDARD STOCK FACE MATERIALS

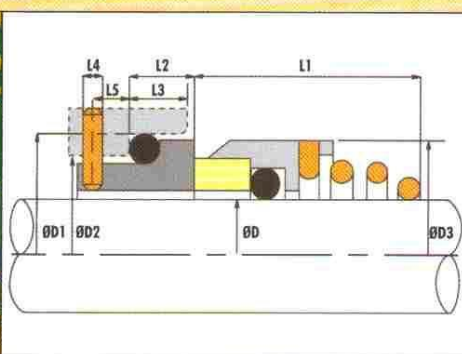
Rotary Face: Carbon, Silicon Carbide, Tungsten Carbide.

Stat Ring: Ceramic, Silicon Carbide, Tungsten Carbide.

OTHER FACE MATERIALS TO ORDER



TYPE 8 DIN



Conical spring, 'O'-Ring mounted, DIN standard seal and DIN long seat with drive slot. Suitable for a large variety of general and high duty applications through a ready choice of face material and elastomer materials.

VULCAN STANDARD SIZES

Metric Shaft Size D	Size Code	D1	D2	D3	L1	L2	L3	L4	L5
10	0100	21.00	17.00	19.00	15.50	10.00	5.50	3.00	5.00
12	0120	23.00	19.00	21.00	16.00	10.00	5.50	3.00	5.00
14	0140	25.00	21.00	23.00	16.50	10.00	5.50	3.00	5.00
16	0160	27.00	23.00	26.00	18.00	10.00	5.50	3.00	5.00
18	0180	33.00	27.00	29.00	19.50	11.50	7.00	3.00	5.00
20	0200	35.00	29.00	31.00	22.00	11.50	7.00	3.00	5.00
22	0220	37.00	31.00	33.00	21.50	11.50	7.00	3.00	5.00
24	0240	39.00	33.00	35.00	23.50	11.50	7.00	3.00	5.00
25	0250	40.00	34.00	36.00	26.50	11.50	7.00	3.00	5.00
28	0280	43.00	37.00	40.00	26.50	11.50	7.00	3.00	5.00
30	0300	45.00	39.00	43.00	26.50	11.50	7.00	3.00	5.00
32	0320	48.00	42.00	46.00	28.50	11.50	7.00	3.00	5.00
35	0350	50.00	44.00	49.00	28.50	11.50	7.00	3.00	5.00
38	0380	56.00	49.00	53.00	33.50	14.00	8.00	4.00	5.00
40	0400	58.00	51.00	56.00	36.00	14.00	8.00	4.00	5.00
43	0430	61.00	54.00	59.00	38.50	14.00	8.00	4.00	5.00
45	0450	63.00	56.00	61.00	39.50	14.00	8.00	4.00	5.00
48	0480	66.00	59.00	64.00	46.00	14.00	8.00	4.00	5.00
50	0500	70.00	62.00	66.00	45.00	15.00	8.50	4.00	5.00
53	0530	73.00	65.00	69.00	47.00	15.00	8.50	4.00	5.00
55	0550	75.00	67.00	71.00	49.00	15.00	8.50	4.00	5.00
58	0580	78.00	70.00	76.00	55.00	15.00	8.50	4.00	5.00
60	0600	80.00	72.00	78.00	55.00	15.00	8.50	4.00	5.00
65	0650	85.00	77.00	84.00	55.00	15.00	8.50	4.00	5.00
68	0680	90.00	81.00	88.00	55.00	18.00	9.50	4.00	5.00
70	0700	92.00	83.00	90.00	57.00	18.00	9.50	4.00	5.00
75	0750	97.00	88.00	98.00	62.00	18.00	9.50	4.00	5.00
80	0800	105.00	95.00	100.00	61.80	18.20	10.00	4.00	5.00

STANDARD STOCK FACE MATERIALS

Rotary Face: Carbon, Silicon Carbide, Tungsten Carbide.

Stat Ring: Ceramic, Carbon, Silicon Carbide, Tungsten Carbide.

OTHER FACE MATERIALS TO ORDER

Suggested Operating Limits

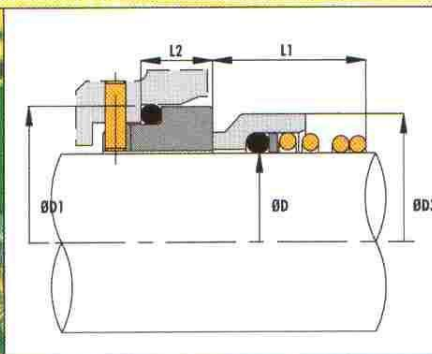
PRESSURE 180psi

SPEED 15m/s

TEMPERATURE -40 +180°C

Dependent upon shaft diameter and speed + Temperature and media to be sealed

TYPE 9/9L



Conical spring, 'O'-Ring mounted seal, with a monolithic rotary face, available as Type 9L with Type 8 DIN Long or Type 9 with Type 19/8 'O'-Ring mounted seat. Also available with Type 8 DIN short 'O'-Ring mounted seat (see Vulcan seat page) as Type 9S

VULCAN STANDARD SIZES

Metric Shaft Size D	Size Code	D3	Type 9 without Slotted Seat			Type 9L With Slotted Seat		
			D1	L1	L2	D1	L1	L2
10	0100	20.00	19.20	15.90	6.60	21.00	17.50	10.00
12	0120	22.00	21.60	16.00	5.60	23.00	17.50	10.00
14	0140	25.00	24.60	16.00	5.60	25.00	17.50	10.00
15	0150	27.00	24.60	17.40	6.60	27.00	17.40	10.00
16	0160	27.00	28.00	19.00	7.50	27.00	19.50	10.00
18	0180	30.00	30.00	20.50	8.00	33.00	20.50	11.50
20	0200	32.00	35.00	22.00	7.50	35.00	22.00	11.50
22	0220	35.00	35.00	23.50	7.50	37.00	23.50	11.50
24	0240	38.00	38.00	25.00	7.50	39.00	25.00	11.50
25	0250	40.00	38.00	26.50	7.50	40.00	26.50	11.50
28	0280	43.00	42.00	26.50	9.00	43.00	26.50	11.50
30	0300	45.00	45.00	25.00	10.50	45.00	25.00	11.50
32	0320	47.00	48.00	28.50	10.50	48.00	28.50	11.50
35	0350	50.00	52.00	28.50	11.00	50.00	28.50	11.50
38	0380	56.00	55.00	32.00	10.30	56.00	32.00	14.00

Suggested Operating Limits

PRESSURE 160psi

SPEED 15m/s

TEMPERATURE -40 +180°C

Dependent upon shaft diameter and speed + Temperature and media to be sealed

STANDARD STOCK FACE MATERIALS

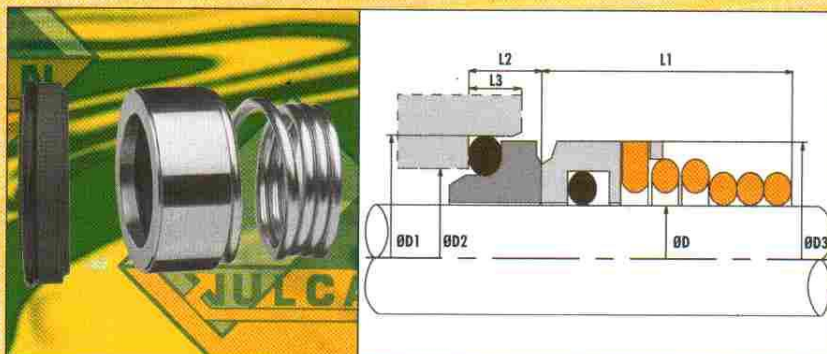
Rotary Face: Carbon, Silicon Carbide.

Stat Ring: Carbon, Ceramic, Silicon Carbide.

OTHER FACE MATERIALS TO ORDER



TYPE 12 DIN



A range of highly proficient, widely utilised, 'O'-Ring mounted, conical spring seals with solid, stainless steel head and carbon seat. Available to suit DIN 24960 (EN12756) housings. Suitable for a wide variety of general and medium duties.

VULCAN STANDARD SIZES

Metric Shaft Size D	Size Code	D1	D2	D3	L1	L2	L3
10	0100	21.00	17.00	19.00	15.00	7.00	4.00
12	0120	23.00	19.00	21.00	18.00	7.00	4.00
14	0140	25.00	21.00	23.00	22.00	7.00	4.00
16	0160	27.00	23.00	26.00	23.00	7.00	4.00
18	0180	33.00	27.00	29.00	24.00	10.00	5.00
20	0200	35.00	29.00	31.00	25.00	10.00	5.00
22	0220	37.00	31.00	33.00	25.00	10.00	5.00
24	0240	39.00	33.00	35.00	27.00	10.00	5.00
25	0250	40.00	34.00	36.00	27.00	10.00	5.00
28	0280	43.00	37.00	40.00	29.00	10.00	5.00
30	0300	45.00	39.00	43.00	30.00	10.00	5.00
32	0320	48.00	42.00	46.00	30.00	10.00	5.00
33	0330	48.00	42.00	46.00	39.00	10.00	5.00
35	0350	50.00	44.00	49.00	39.00	10.00	5.00
38	0380	56.00	49.00	53.00	42.00	13.00	6.00
40	0400	58.00	51.00	56.00	42.00	13.00	6.00
43	0430	61.00	54.00	59.00	47.00	13.00	6.00
45	0450	63.00	56.00	61.00	47.00	13.00	6.00
48	0480	66.00	59.00	64.00	47.00	13.00	6.00
50	0500	70.00	62.00	66.00	46.00	14.00	6.00
53	0530	73.00	65.00	69.00	56.00	14.00	6.00
55	0550	75.00	67.00	71.00	56.00	14.00	6.00
58	0580	78.00	70.00	76.00	56.00	14.00	6.00
60	0600	80.00	72.00	78.00	56.00	14.00	6.00
63	0630	83.00	75.00	81.00	56.00	14.00	6.00
65	0650	85.00	77.00	84.00	66.00	14.00	6.00
68	0680	90.00	81.00	88.00	64.00	16.00	7.00
70	0700	92.00	83.00	89.60	64.00	16.00	7.00
75	0750	97.00	88.00	98.00	64.00	16.00	7.00
80	0800	105.00	95.00	100.00	72.00	18.00	7.00
85	0850	110.00	100.00	107.50	72.00	18.00	7.00
90	0900	115.00	105.00	111.00	72.00	18.00	7.00
95	0950	120.00	110.00	119.00	72.00	18.00	7.00
100	1000	125.00	115.00	123.80	72.00	18.00	7.00

STANDARD STOCK FACE MATERIALS

Rotary Face: Stainless Steel, Silicon Carbide.

Stat Ring: Carbon, Silicon Carbide.

OTHER FACE MATERIALS TO ORDER

Suggested Operating Limits

PRESSURE 160psi

SPEED 15m/s

TEMPERATURE -40 +200°C

Dependent upon shaft diameter and speed + Temperature and media to be sealed



TYPE 12

A range of highly proficient, widely utilised, 'O'-Ring mounted, conical spring seals with solid, stainless steel head and carbon seat. To suit standard housings. Suitable for a wide variety of duties. For photo and line drawing see Type 12 DIN page (opposite)

VULCAN STANDARD SIZES

Metric Shaft Size D	Size Code	D1	D2	D3	L1	L2	L3
10	0100	18.10	14.00	19.00	15.00	5.50	4.00
11	0110	20.60	16.50	21.00	18.00	5.50	4.00
12	0120	20.60	16.50	21.00	18.00	5.50	4.00
13	0130	23.10	19.00	23.00	22.00	6.00	4.00
14	0140	23.10	19.00	23.00	22.00	6.00	4.00
15	0150	26.90	21.00	24.00	22.00	7.00	5.00
16	0160	26.90	21.00	26.00	23.00	7.00	5.00
17	0170	26.90	21.00	26.00	23.00	7.00	5.00
18	0180	30.90	25.00	29.00	24.00	8.00	5.00
19	0190	30.90	25.00	31.00	25.00	8.00	5.00
20	0200	30.90	25.00	31.00	25.00	8.00	5.00
21	0210	35.40	30.00	33.00	25.00	8.00	5.50
22	0220	35.40	30.00	33.00	25.00	8.00	5.50
23	0230	35.40	30.00	35.00	27.00	8.00	5.50
24	0240	35.40	30.00	35.00	27.00	8.00	5.50
25	0250	38.20	33.00	36.00	27.00	8.50	5.50
26	0260	38.20	33.00	36.00	27.00	8.50	5.50
27	0270	38.20	33.00	36.00	27.00	8.50	5.50
28	0280	43.30	38.00	40.00	29.00	9.00	5.50
29	0290	43.30	38.00	43.00	30.00	9.00	5.50
30	0300	43.30	38.00	43.00	30.00	9.00	5.50
31	0310	43.30	38.00	46.00	30.00	9.00	5.50
32	0320	43.30	38.00	46.00	30.00	9.00	5.50
33	0330	53.50	45.00	46.00	39.00	11.50	7.50
34	0340	53.50	45.00	49.00	39.00	11.50	7.50
35	0350	53.50	45.00	49.00	39.00	11.50	7.50
36	0360	53.50	45.00	49.00	39.00	11.50	7.50
37	0370	53.50	45.00	49.00	39.00	11.50	7.50
38	0380	60.50	52.00	53.00	39.00	11.50	7.50
39	0390	60.50	52.00	56.00	39.00	11.50	7.50
40	0400	60.50	52.00	56.00	39.00	11.50	7.50
41	0410	60.50	52.00	56.00	39.00	11.50	7.50
42	0420	60.50	52.00	59.00	39.00	11.50	7.50
43	0430	60.50	52.00	59.00	39.00	11.50	7.50
44	0440	65.50	57.00	61.00	41.00	11.50	7.50
45	0450	65.50	57.00	61.00	41.00	11.50	7.50
46	0460	65.50	57.00	61.00	41.00	11.50	7.50
47	0470	65.50	57.00	64.00	41.00	11.50	7.50
48	0480	65.50	57.00	64.00	41.00	11.50	7.50
49	0490	65.50	57.00	64.00	41.00	11.50	7.50
50	0500	72.50	64.00	66.00	45.00	11.50	7.50
55	0550	72.50	64.00	71.00	47.00	11.50	7.50
60	0600	79.30	72.00	78.00	49.00	11.50	7.50
65	0650	84.50	77.00	84.00	51.00	11.50	7.50
70	0700	89.50	82.00	89.60	51.00	11.50	7.50
75	0750	94.50	87.00	98.00	57.00	11.50	7.50
80	0800	99.50	92.00	100.00	59.00	11.50	7.50
85	0850	105.50	98.00	107.50	59.00	13.50	8.00
90	0900	111.50	105.00	111.00	62.00	13.50	8.00
95	0950	116.50	110.00	119.00	62.00	13.50	8.00
100	1000	119.50	114.00	123.80	75.00	13.50	8.00

Suggested Operating Limits

PRESSURE 160psi

SPEED 15m/s

TEMPERATURE -40 +200°C

Dependent upon shaft diameter and speed + Temperature and media to be sealed

STANDARD STOCK FACE MATERIALS

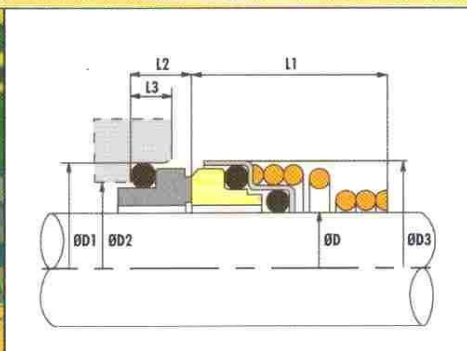
Rotary Face: Stainless Steel, Silicon Carbide.

Stat Ring: Carbon, Silicon Carbide.

OTHER FACE MATERIALS TO ORDER



TYPE 13



'O'-Ring mounted, conical spring seal with pressed stainless seal head retainer and pressed carbon seat. Highly productionised seal capable of wide ranging service.

Seal and seat faces can be inter-changed with each other and can be easily replaced.

VULCAN STANDARD SIZES

Metric Shaft Size D	Size Code	D1	D2	D3	L1	L2	L3
10	0100	18.10	14.00	19.50	15.00	5.50	4.00
11	0110	20.60	16.50	22.00	18.00	5.50	4.00
12	0120	20.60	16.50	22.00	18.00	5.50	4.00
13	0130	23.10	19.00	24.00	22.00	6.00	4.00
14	0140	23.10	19.00	24.00	22.00	6.00	4.00
15	0150	26.90	21.00	26.00	22.00	7.00	5.00
16	0160	26.90	21.00	26.00	23.00	7.00	5.00
17	0170	26.90	21.00	26.00	23.00	7.00	5.00
18	0180	30.90	25.00	32.00	24.00	8.00	5.00
19	0190	30.90	25.00	32.70	25.00	8.00	5.00
20	0200	30.90	25.00	32.70	25.00	8.00	5.00
21	0210	35.40	30.00	36.00	25.00	8.00	5.50
22	0220	35.40	30.00	36.00	25.00	8.00	5.50
23	0230	35.40	30.00	36.00	27.00	8.00	5.50
24	0240	35.40	30.00	37.40	27.00	8.00	5.50
25	0250	38.20	33.00	38.00	27.00	8.50	5.50
28	0280	43.30	38.00	42.00	29.00	9.00	5.50
29	0290	43.30	38.00	44.00	30.00	9.00	5.50
30	0300	43.30	38.00	44.00	30.00	9.00	5.50
32	0320	43.30	38.00	45.50	30.00	9.00	5.50
33	0330	53.50	45.00	46.50	39.00	11.50	7.50
35	0350	53.50	45.00	49.00	39.00	11.50	7.50
38	0380	60.50	52.00	56.00	39.00	11.50	7.50
40	0400	60.50	52.00	58.00	39.00	11.50	7.50

STANDARD STOCK FACE MATERIALS

Rotary Face: Ceramic, Silicon Carbide, Tungsten Carbide, Carbon.

Stat Ring: Carbon, Silicon Carbide, Tungsten Carbide, Ceramic.

OTHER FACE MATERIALS TO ORDER

Suggested Operating Limits

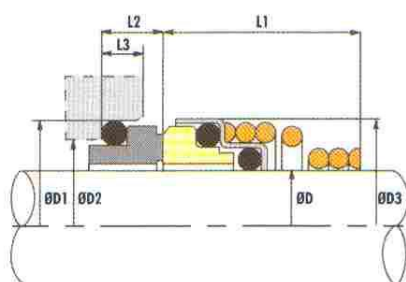
PRESSURE 160psi

SPEED 15m/s

TEMPERATURE -40 +180°C

Dependent upon shaft diameter and speed + Temperature and media to be sealed

TYPE 13 DIN



'O'-Ring mounted, with pressed seal head and seat, plus conical spring, designed to fit DIN 24960 (EN12756) housings. Cost-effective seal suitable for many duties with the option to replace wear faces and 'O'-Rings during over-hauls.

VULCAN STANDARD SIZES

Metric Shaft Size D	Size Code	D1	D2	D3	L1	L2	L3
10	0100	21.00	17.00	19.50	15.00	7.00	5.50
12	0120	23.00	19.00	22.00	18.00	7.00	5.50
14	0140	25.00	21.00	24.00	22.00	7.00	5.50
16	0160	27.00	23.00	26.00	23.00	7.00	5.50
18	0180	33.00	27.00	32.00	24.00	10.00	7.00
20	0200	35.00	29.00	32.70	25.00	10.00	7.00
22	0220	37.00	31.00	36.00	25.00	10.00	7.00
24	0240	39.00	33.00	37.40	27.00	10.00	7.00
25	0250	40.00	34.00	38.00	27.00	10.00	7.00
28	0280	43.00	37.00	42.00	29.00	10.00	7.00
30	0300	45.00	39.00	44.00	30.00	10.00	7.00
32	0320	48.00	42.00	45.50	30.00	10.00	7.00
33	0330	48.00	42.00	46.50	39.00	10.00	7.00
35	0350	50.00	44.00	49.00	39.00	10.00	7.00
38	0380	56.00	49.00	56.00	42.00	13.00	8.00
40	0400	58.00	51.00	58.00	42.00	13.00	8.00

Suggested Operating Limits

PRESSURE 160psi

SPEED 15m/s

TEMPERATURE -40 +180°C

Dependent upon shaft diameter and speed + Temperature and media to be sealed

STANDARD STOCK FACE MATERIALS

Rotary Face: Ceramic, Silicon Carbide, Tungsten Carbide.

Stat Ring: Carbon, Silicon Carbide, Tungsten Carbide.

OTHER FACE MATERIALS TO ORDER