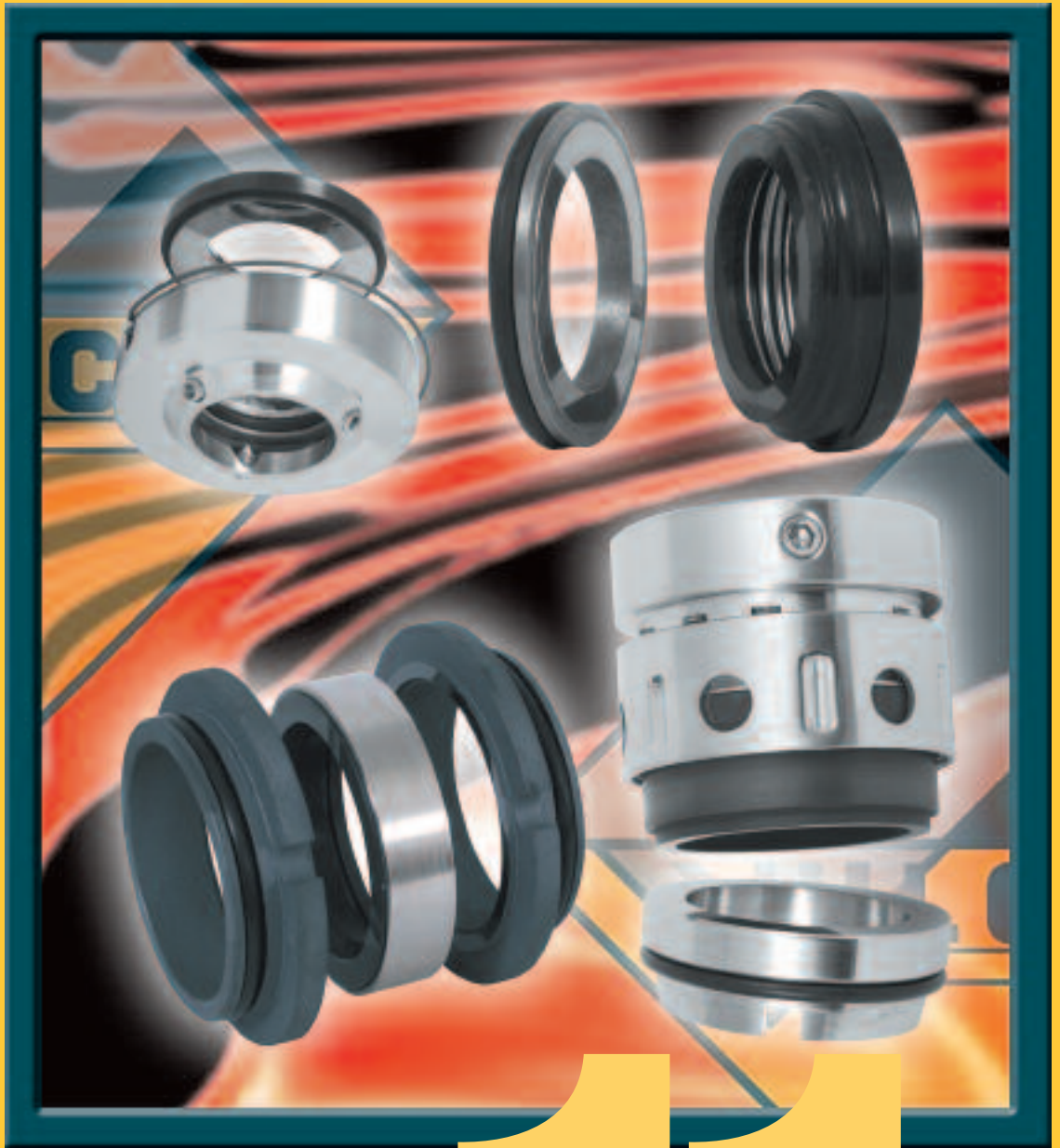




# Vulcan Direct Replacement Seals For Common O.E.M Pumps









Section 11a

# VULCAN O.E.M. SEALS

In addition to our standard range of stock seal types, Vulcan also manufacture and stock many thousands of individual seal designs for specific pumps and applications.

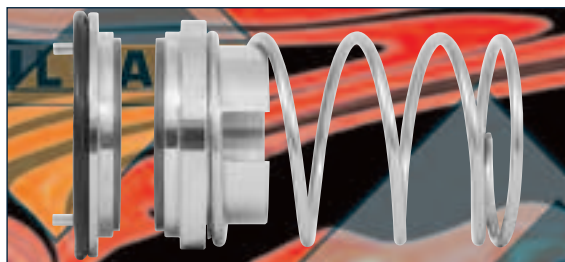
We are leading providers of seals for O.E.M. Equipment due to the following principal advantages;

-  Ability to design and manufacture, almost any, seal to customer requirements.
-  In-house production of practically all materials, components and the tools/moulds for the same.
-  Vertically integrated, in-house design, production and quality control, allows small runs and fast turn-round.
-  A Can-Do Philosophy linked to a commercial readiness to produce specials.
-  Agreements to produce a specific design/detail, that are not made available for sale to anybody else.
-  The best Range, Quality, Service and Price available from any one manufacturer.

Selected examples of pump marques that Vulcan have stock seals for are listed below. Some of the most common, stocked, special designs are illustrated, in further detail, in this and the next section.

A.B.S.®	D.A.B.®	Hamworthy.®	I.T.T. Marlow.®	Pacific Fabrications.®	Thune-Eureka.®
A.P.V.®	Doughboy.®	Holden & Brooke.®	Ibex.®	Pullen.®	Tri-Clover.®
Alfa Laval.®	Duveljarr.®	Hydra Bath.®	Inoxpa.®	S.S.P.®	Tuchenhagen.®
Allweiler.®	E.M.U.®	Hidrostal.®	Iron.®	Scanpump.®	Tuthill.®
Armstrong.®	Ebara.®	I.T.T. Bell & Gossett.®	Jacuzzi.®	Sihi.®	Varley.®
Beresford.®	Flygt.®	I.T.T. Gemini.®	Johnson.®	Silverstone.®	Viking.®
Biral.®	Fristam.®	I.T.T. Goulds.®	K.S.B.®	Sta-Rite Industries.®	Wade.®
Calpeda.®	Girdlestone.®	I.T.T. Jabsco.®	Lee Howl.®	Svanehoj.®	Weir.®
Crane.®	Grindex.®	I.T.T. Lowara.®	Mission.®	Swimmey.®	Worthington-Deepwell.®

## VULCAN TYPE 89 SEALS TO SUIT VIKING® PUMPS



### VULCAN STANDARD SIZES

Shaft Size DØ	Size Code	Rotary O.D.		Seat O.D.		Pin P.C.D.		Seat W/L		
		Inch	Metric	Metric	Inch	Metric	Inch	Metric	Inch	
1.125	28.58	0286	47.20	1.858	50.30	1.980	34.87	1.373	9.40	0.370
1.437	36.50	0365	56.50	2.224	58.00	2.283	43.73	1.722	9.40	0.370

Vulcan produce and stock a range of seals to suit several Viking® pumps, including the Positive Displacement and Rotary Lobe pumps. The Vulcan Type 89 is a specific design to replace the original seals found in the popular Viking® 4225 pump range, and has the double-pinned seat required for the housings on this pump type. Seals are available from stock with inserted silicon carbide faces on both the rotary and stationary. Fitted with Viton® 'O'-Rings. Other 'O'-Ring and face materials are available, if specified at time of order.

### VULCAN CODES

Where XXXX is stated in the code, replace with appropriate shaft size code. Available with Viton® 'O'-Rings as standard, if E.P. or Nitrile is required, replace the V character in the code with E or N.

XXXX.89.V.S. Type 89 complete seal, with inserted silicon carbide rotary face vs. silicon carbide inserted stationary face, Viton® 'O'-Rings.

XXXX.89.V.H. Type 89 complete seal, with inserted tungsten carbide rotary face vs. tungsten carbide inserted stationary face, Viton® 'O'-Rings.

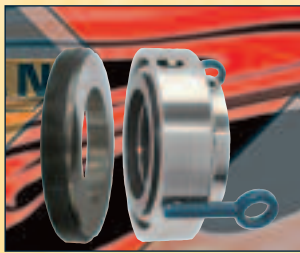


# TYPE 06 RANGE TO SUIT FLYGT® PUMP APPLICATIONS

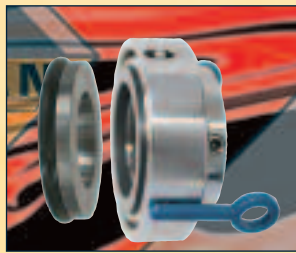
The Vulcan range of Type 06 seals are designed as superior replacement seals for Flygt® and Grindex® submersible pumps and mixers, with no pump modifications necessary. The Type 06 designs require no additional fitting tool and most types have pre-set working lengths, operated by removable setting clips for easy installation.

All Vulcan Type 06 seals are supplied fitted with Nitrile elastomers and Carbon vs. T.C or SIC faces for Upper Seals as well as Viton® elastomers and T.C vs. T.C or SIC vs. SIC faces for Lower Seals. The Stock Codes listed below are for a complete seal and seat.

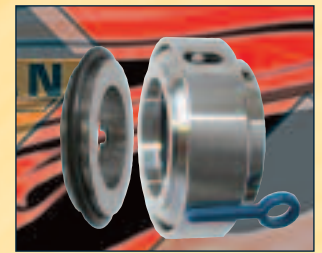
Vulcan also stock complete kits of sealing parts for Flygt® pumps. These repair kits include the relevant Vulcan Type 06 seals, 'O'-rings, bearings, lip seals, cable seals and other consumable items required during pump refurbishment. The contents of each kit is dependent on pump model; the Vulcan code is constructed from the shaft size of the Upper seal, and the Flygt® pump model preceded by a "V", and the suffix ".KIT". e.g. To order Vulcan repair kit for pump model "2102-40", use Vulcan code "0220.V2102-040.KIT".



XXXX.06.LIP



0220.06C.U.N.E







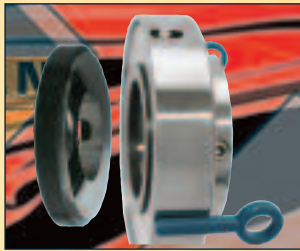
0200.06G.U.N.E

Flygt® Pump Model	Shaft Size Stock Code	Lip Wear Ring Code (If Fitted)	Vulcan Upper Seal Stock Code	Vulcan Lower Seal Stock Code
600	60mm	0600.06.LIP	0600.06Q.U.N.E.	0600.06Q.L.V.H.
605, 615, 665, 670, 680	90-80mm		0900.06S.U.N.H.	0800.06S.L.V.H.
705, 715, 720, 721, 735, 745, 760, 765, 770, 775	90-80mm or 90-120mm		0900.06S.U.N.H.	0800.06S.L.V.H. or 1200.06T.L.V.H.
820, 840, 841, 860, 880, 881, 900	90-80mm or 90-120mm		0900.06S.U.N.H.	0800.06S.L.V.H. or 1200.06T.L.V.H.
2004, 2008, 2012, 2016	15mm		0150.06D.N.Z.	No Lower Seal fitted.
2024	20mm		0200.06A.U.N.E.	0200.06A.L.V.H.
2050, 2052	15mm		0150.06D.N.Z.	No Lower Seal fitted.
2060	20mm		0200.06G.U.N.E.	0200.06G.L.V.H.
2066	20mm		0200.06A.U.N.E.	0200.06A.L.V.H.
2070	22mm		0220.06E.U.N.E.	0220.06E.L.V.H.
2071	22mm		0220.06E.U.N.E.	0220.06F.L.V.H.
2075	20mm		0200.06A.U.N.E.	0200.06A.L.V.H.
2082, 2090, 2125, 2140	28mm		0280.06I.U.N.E.	0280.06I.L.V.H.
2084, 2135	35mm		0350.06K.U.N.E.	0350.06L.L.V.H.
2101	20mm		0200.06A.U.N.E.	0200.06A.L.V.H.
2102-40	22mm		0220.06E.U.N.E.	0220.06E.L.V.H.
2151-10	35mm	0350.06.LIP	0350.06K.U.N.E.	0350.06K.L.V.H.
2151-11, 2151-50	35mm		0350.06K.U.N.E.	0350.06L.L.V.H.
2201-10	45-35mm		0450.06O.U.N.E.	0350.06K.L.V.H.
2201-320, 2201-430, 2201-480, 2201-590, 2201-690	45mm		0450.06N.U.N.E.	0350.06N.L.V.H.
2201-11HT or MT	45mm	0450.06.LIP	0450.06O.U.N.E.	0350.06N.L.V.H.
2201-11LT	45mm		0450.06O.U.N.E.	0450.06O.L.V.H.
2250, 2290	60mm		0600.06P.U.N.E.	0600.06P.L.V.H.
2400	60mm	0600.06.LIP	0600.06R.U.N.E.	0600.06R.L.V.H.
3041-281	20mm		0200.06G.U.N.E.	0200.06G.L.V.H.
3057	20mm		0200.06G.U.N.E.	0200.06H.L.V.H.
3057-180, 3060	20mm		0200.06G.U.N.E.	0200.06G.L.V.H.
3065	20mm		0200.06A.L.V.E.	0200.06A.L.V.H.
3067-170, 3067-250, 3068	20mm		0200.06G.U.N.E.	0200.06G.L.V.H.
3080	20mm		0200.06A.U.N.E.	0200.06A.L.V.H.
3082	22mm		0220.06E.U.N.E.	0220.06E.L.V.H.

Where pumps are fitted with stepped shafts, the first size is always the shaft size at the upper seal point.

# TYPE 06 RANGE TO SUIT FLYGT® PUMP APPLICATIONS

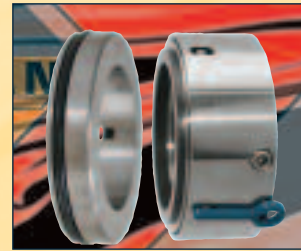
-  Robust, superior mechanical seal designs, with stainless steel parts and monolithic carbide faces, provide higher seal capability, performance, reliability and life.
-  No plastic working seal parts, brazed nor inserted faces, wave-springs etc; all of which are prone to wear and failure, particularly in such arduous applications.
-  Highly successful, proven designs, with over a decade of service, have now been even further developed with the enhancements of improved setting clips, change to cup-ended grub-screws mounted at 90 degrees to the shaft and with the option of SIC faces.
-  The Vulcan Type 06 Flygt Seal® improvements reduces costs of purchase and installation and most especially, by increased reliability and service life.



0200.06H.L.V.H



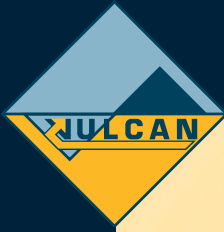
0250.06J.L.V.H



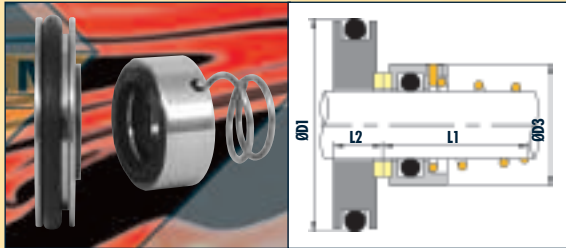
0350.06L.L.V.H

Flygt® Pump Model	Shaft Size Stock Code	Lip Wear Ring Code (If Fitted)	Vulcan Upper Seal Stock Code	Vulcan Lower Seal Stock Code
3085-91, 3085-120, 3085-170, 3085-171, 3085-181, 3085-280, 3082-290, 3085-890	20mm		0200.06G.U.N.E.	0200.06G.L.V.H.
3101	28mm		0280.06B.U.N.E.	0280.06B.L.V.H.
3102	25mm		0250.06J.U.N.E.	0250.06J.L.V.H.
3126-90, 3126-180	35mm	0350.06.LIP	0350.06K.U.N.E.	0350.06K.L.V.H.
3126-91, 3126-280, 3126-290	35mm		0350.06K.U.N.E.	0350.06M.L.V.H.
3126-181, 3127	35mm		0350.06M.U.N.E.	0350.06M.L.V.H.
3140, 3152	45mm	0450.06.LIP	0450.06O.U.N.E.	0450.06O.L.V.H.
3170, 3201	60mm	0600.06.LIP	0600.06Q.U.N.E.	0600.06Q.L.V.H.
3200	60mm		0600.06P.U.N.E.	0600.06P.L.V.H.
3230, 3300-91, 3300-181, 3300-280, 3300-980, 3305	90mm		0900.06S.U.N.H.	0800.06S.L.V.H.
3310, 3311, 3312, 3350, 3351	90-120mm		0900.06S.U.N.H.	1200.06T.L.V.H.
3355, 3356, 3357	90mm		0900.06S.U.N.H.	0800.06S.L.V.H.
3500, 3501, 3530, 3531, 3600, 3601, 3602	90-120mm		0900.06S.U.N.H.	1200.06T.L.V.H.
4351, 4352, 4400	20mm		0200.06G.U.N.E.	0200.06H.L.V.H.
4410, 4430	60mm	0600.06.LIP	No Upper Seal	0600.06Q.L.V.H.
4440, 5530	35mm		0350.06M.U.N.E.	0350.06M.L.V.H.
4650, 4660	45mm	0450.06.LIP	0450.06O.U.N.E.	0450.06O.L.V.H.
4670, 4680, 7045	60mm	0600.06.LIP	0600.06Q.U.N.E.	0600.06Q.L.V.H.
7050, 7051, 7055, 7060, 7061, 7076, 7556	90mm		0900.06S.U.N.H.	0800.06S.L.V.H.
7080, 7115	90-80mm or 90-120mm		0900.06S.U.N.H.	0800.06S.L.V.H. or 1200.06T.L.V.H.
7570, 7585	90-120mm		0900.06S.U.N.H.	1200.06T.L.V.H.
Grindex® Major, Master, Matador, Midi, Minette, Salvador	25-24mm		0250.06Z.U.N.E.	0240.06Z.L.V.H.
Grindex® Maxi	45mm		0450.06O.U.N.E.	0450.06N.L.V.H.
Ready® models 4, 8, 12, & 16	15mm		0150.06D.N.Z.	No Lower Seal fitted.
Ready® 24	20mm		0200.06A.U.N.E.	0200.06A.L.V.H.
Ready® 90	28mm		0280.06I.U.N.E.	0280.06I.L.V.H.
Steady® 7	20mm		0200.06G.U.N.E.	0200.06G.L.V.H.

Where pumps are fitted with stepped shafts, the first size is always the shaft size at the upper seal point.



## VULCAN TYPE 8W TO SUIT ALLWEILER® SPF10 AND SPF20 PUMPS.



Vulcan produce and stock seals to suit the Allweiler® SPF10 and SPF20 pumps. Seals have tapered right-hand springs with inserted carbon or tungsten carbide faces vs. inserted silicon or tungsten carbide stationaries. Viton® 'O'-Rings are supplied as standard, if you require another elastomer please specify at time of order.

### VULCAN CODES

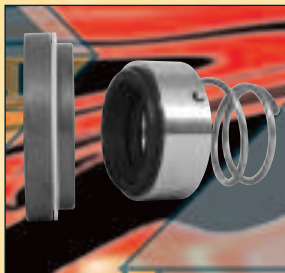
If E.P. or Nitrile is required, replace the V character in the code with an E or N. Where xxxx appears in the code, please replace with 0150 for SPF10, and 0200 for SPF20 pumps.

xxxx.8W.V.D. Type 8W, with carbon faced rotary and inserted silicon seat  
 xxxx.8W.V.H. Type 8W, with tungsten carbide faces to rotary and seat

### VULCAN STANDARD SIZES

Shaft Size	D1	D3	L1	L2
15	38.00	24.00	15.00	8.00
20	45.00	31.00	19.50	8.50

## VULCAN TYPE 95 AND 8X TO SUIT HAMWORTHY® PUMPS.

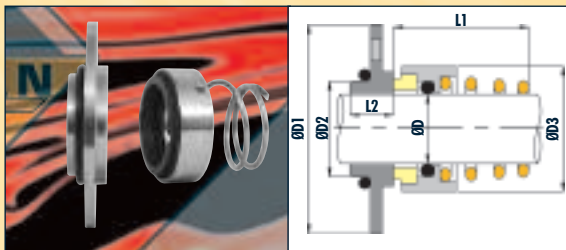


Vulcan manufacture a complete range of standard and special Type 95 and Type 97 seals to suit Hamworthy® pumps; please contact us with the pump or seal part number. Vulcan also produce a special seal to suit the Hamworthy® JOB 22 pump. Seals have tapered right-hand springs, with inserted carbon faces vs. monolithic silicon carbide, gasket mounted, seat. Viton® 'O'-Rings and P.T.F.E. gasket are supplied as standard, if you require another elastomer please specify at time of order.

### VULCAN CODES

If E.P. or nitrile is required, replace the V character in the code with an E or N  
 0220.8X.V.D. Type 8X, with inserted carbon faced rotary, and monolithic silicon seat

## VULCAN TYPE 8Y TO SUIT ANEMA® PUMPS.



Vulcan produce and stock seals to suit Anema® pumps. Available in 30mm and 35mm sizes, seals have tapered right-hand springs with inserted carbon faces vs. monolithic stainless steel plate seats. Nitrile 'O'-Rings are supplied as standard, if you require another elastomer please specify at time of order.

### VULCAN CODES

If E.P. or Viton® is required, replace the N character in the code with an E or V. Where xxxx appears in the code, please replace with 0300 or 0350 for 30 or 35mm shaft size.

xxxx.8Y.N.Q. Type 8Y, with inserted carbon faced rotary and stainless steel seat

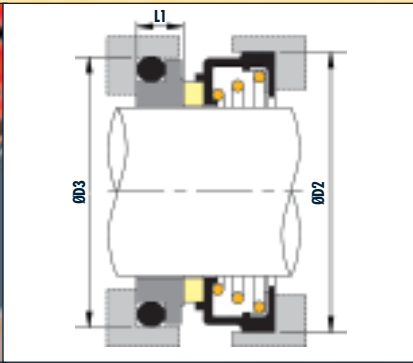
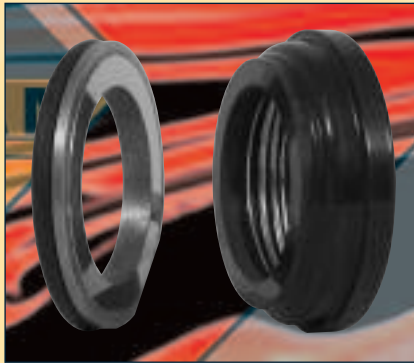
### VULCAN STANDARD SIZES

Shaft Size D	D1	D2	D3	L1	L2
30	77.50	38.70	43.00	24.50	15.00
35	77.50	45.80	49.00	28.00	15.00

## VULCAN TYPES 8, 8B AND 12 TO SUIT HILGE® PUMPS.

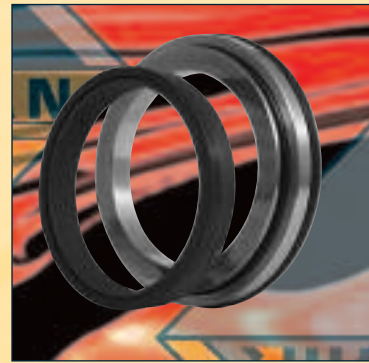
Vulcan produce a full range of seals to suit all common Hilge® pumps. Please contact us with your specific requirement, quoting the Hilge® code reference or ask for our code and price list. All Hilge® codes consist of a group of four digits beginning with 123x, followed by two digits which designate the shaft size, followed by three letters for the material code, and a final two digits for the coil style. An example code would be 1232-28-KIE-F3®.

## VULCAN TYPE 28 SEALS TO SUIT HAIGH® MACERATORS.



### TYPE 28 STANDARD SIZES

Shaft Size D	D2	D3	L1
31.7	57.50	-	-
44.4	70.00	67.00	7.50



Vulcan Type 281

Vulcan produce and stock 1.1/4" rotaries, and 1.3/4" complete seals, to suit Haigh® macerators. Rotaries have carbon faces with Nitrile elastomers, complete seals have a Ni-Resist steel seat with Nitrile 'O'-Ring.

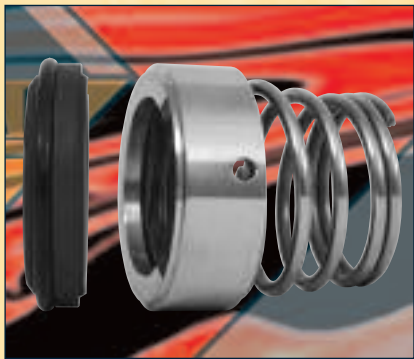
### VULCAN CODES

- 0317.28.N.C.SEAL 1.1/4" Rotary seal only, with carbon face and Nitrile rubber bellows.  
 0444.28.N.C.SEAL 1.3/4" Rotary seal only, with carbon face and Nitrile rubber bellows.  
 0444.28.N.F. 1.3/4" Complete seal, with carbon face rotary vs. Ni-Resist seat

## VULCAN TYPE 281 SEALS

Vulcan also offer a complete 53mm shaft seal to suit Imperial Machine Company® waste-disposal units, model numbers 1204 and 1604. Seals have stainless steel rotary faces vs. carbon seats, with Viton® elastomers. Please contact us for details.

## VULCAN TYPE 121 TO SUIT SIHI® PUMPS.



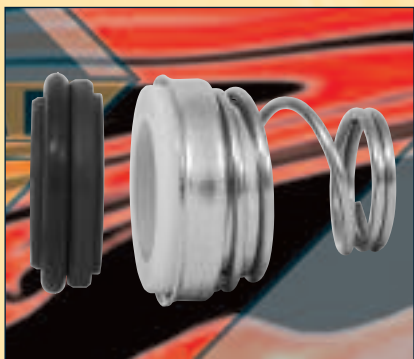
Vulcan produce and stock a modified 38mm Type 12 seal to suit the reduced housing size found on Sihi® pumps. Available from stock in the usual face and elastomer combinations for Type 12.

### VULCAN CODES

If E.P. or Viton® is required, replace the N character in the code with an E or V.

- 0380.121.L.N.P. 38mm Type 121, left-hand coil with stainless rotary face, carbon seat  
 0380.121.R.N.P. 38mm Type 121, right-hand coil with stainless rotary face, carbon seat

## VULCAN TYPE 13 SERIES TO SUIT LOWARA® PUMPS



Vulcan also produce and stock Type 131 seals to suit Lowara® CEA/A, BG/A, CO/A and HM/A pumps fitted with the new SM motor. They are modified Type 13 tapered right-hand spring seals, with Silicon or Tungsten Carbide faces vs. Silicon or Tungsten Carbide stationaries supplied with the usual choice of 'O'-Rings, please specify at time of order. Other face material combinations available to order.

Practically all common Lowara® pumps can be fitted with a direct replacement Vulcan Type 13/13DIN seal or similar. Please contact us with the pump model number or sample seal.

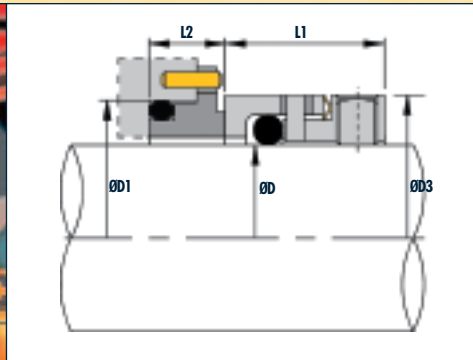
### VULCAN CODES

If E.P. or Nitrile is required, replace the V character in the code with an E or N.

- 0140.131.R.V.H. Tungsten Carbide faced rotary vs. Tungsten Carbide seat  
 0140.131.R.V.I. Silicon Carbide faced rotary vs. Tungsten Carbide seat  
 0140.131.R.V.B. Ceramic faced rotary vs. carbon seat



# TYPE 1688W



## VULCAN STANDARD SIZES

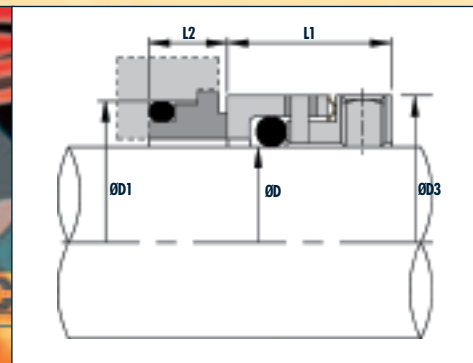
OEM Pump Model	Metric Shaft Size D	Size Code	D1	D3	L1	L2
SR1	20	0200	30.00	31.00	19.10	10.70
SR2	30	0300	41.00	41.00	19.10	10.90
SR3	35	0350	47.00	45.50	19.10	12.20
SR4	45	0450	58.00	58.20	21.10	11.60
SR5	55	0550	70.00	72.00	22.10	13.00
SR6	75	0750	92.00	96.00	25.80	14.50

Vulcan manufacture seals to suit SR® Series Pumps from SSP®. Vulcan Type 1688W seal and seat assemblies are designed to fit the most popular rotary lobe pumps, without any modification. The monolithic Tungsten Carbide or Stainless Steel seal head avoids face spinning problems, associated with competitor designs in common lobe pump duties.

We also make seals to suit the SSP® AP(GP),SRU, ND and NDM Pumps.

Common, popular sizes of Type 1688x seals are fitted with our special, split Sinusoidal Wave-Springs.

# TYPE 1688Y



## VULCAN STANDARD SIZES

OEM Pump Model	Metric Shaft Size D	Size Code	D1	D3	L1	L2
PD10	30	0300	40.00	41.00	19.10	9.30
PD20	35	0350	44.50	45.50	21.10	9.20
PD30	50	0500	62.00	61.90	21.10	10.40
PD40	70	0700	85.00	88.90	25.80	14.10
PD50	80	0800	95.00	101.00	25.80	16.20

Vulcan seals to suit Johnson® Positive Displacement Pumps  
Vulcan Type 1688Y seal and seat suit Johnson® positive displacement pumps, in all standard shaft sizes. Again the monolithic seal head provides seal capability, performance and increased life benefits.

We also produce the Type 1650 seal to suit OL1,2 and 3 pumps, in 24, 38 and 53mm sizes respectively, as well as other Johnson pumps.

### Suggested Operating Limits

PRESSURE 150psi      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, Tungsten Carbide.

Stat Ring: Carbon, Tungsten Carbide.

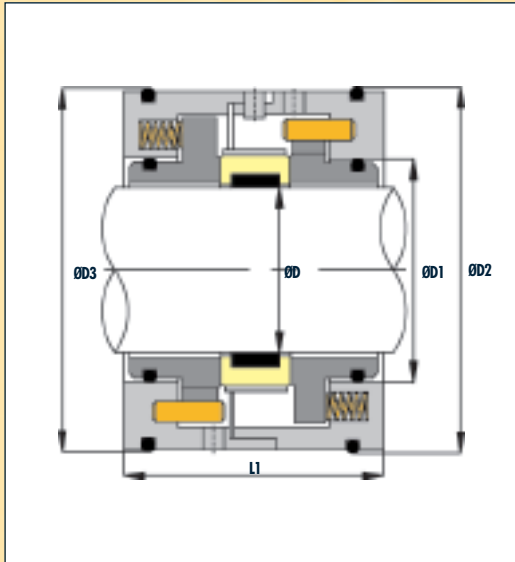
### OTHER FACE MATERIALS TO ORDER



# VULCAN SEALS TO SUIT E.M.U.® PUMPS AND MIXERS.

Vulcan offer a range of seals to suit both EMU® Pump and Mixers applications, including the enclosed block seals.

## TYPE 1640



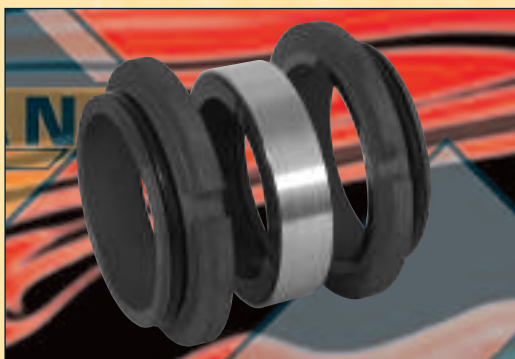
Available in either repair kit form, or as a complete mechanical seal assembly, fitted within the stainless steel outer collet.

The Vulcan Type 1640 is a direct replacement for the E.B.S. Seal fitted to the most common EMU® Pumps.

Repair kits comprise of all wear parts being; two stationaries with 'O'-Rings, central rotary with elastomer diaphragm, anti-rotation pins and springs for stationaries and retaining pins for the collets.

### VULCAN STANDARD SIZES

Metric Shaft Size D	Size Code	D1	D2	D3	L1
35.00	0350	47.00	72.00	72.00	47.00
50.00	0500	63.00	90.00	92.00	52.00
75.00	0750	95.00	128.00	130.00	75.00



REPAIR KIT



COMPLETE TYPE 1640

### VULCAN CODES

All Type 1640 seals are supplied as standard with Viton® Elastomers. Where xxxx is stated in the code add the appropriate shaft size code.

- xxxx.1640.V.ZS. Complete Type 1640 with Silicon Carbide Faces.
- xxxx.1640.V.ZH. Complete Type 1640 with Tungsten Carbide Faces
- xxxx.1640.V.ZS.KIT Repair kit with Silicon Carbide Faces.
- xxxx.1640.V.ZH.KIT Repair kit with Tungsten Carbide Faces.

### STANDARD STOCK FACE MATERIALS

Rotary Face: Silicon Carbide, Tungsten Carbide.

Stat Ring: Silicon Carbide, Tungsten Carbide.

OTHER FACE MATERIALS TO ORDER

### Suggested Operating Limits

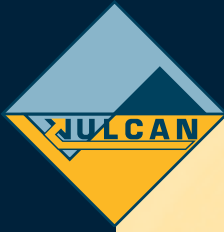
PRESSURE 180psi

SPEED 20m/s

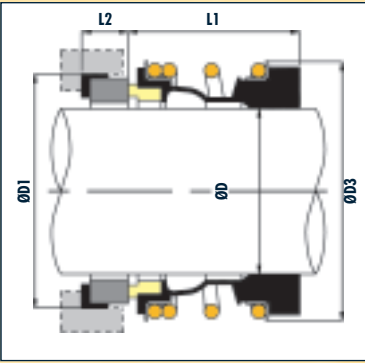
TEMPERATURE -40 +200°C

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





# VULCAN TYPE 192K SEALS TO SUIT KSB® PUMPS



Vulcan produce and stock a range of elastomer bellows seals to suit the most common types of standard KSB® pumps. Available from stock with carbon or silicon carbide rotary faces with silicon carbide seats, in the three standard elastomers.

## VULCAN STANDARD SIZES

Size Code	Metric Shaft Size D	D1	D3	L1	L2
0100	10	19.60	20.00	26.00	6.60
0150	15	25.00	25.00	28.40	6.60
0160	16	27.00	26.00	22.20	8.60
0220	22	37.00	36.00	25.50	12.10
0280	28	43.00	47.00	36.50	14.40
0380	38	56.00	58.00	42.00	13.20
0480	48	66.00	69.00	50.50	9.60

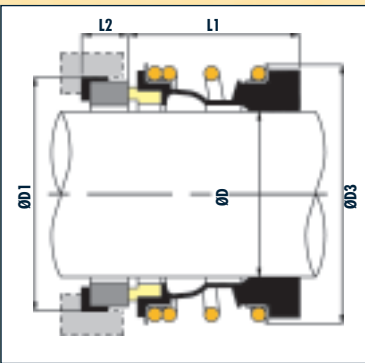
### VULCAN CODING

Where XXXX is stated in the code, add the appropriate size code. If E.P. or Viton® is required, replace the N character in the code with an E or V.

If carbon vs. silicon carbide faces are required, replace the S character in the code with a D.

XXXX.192K.N.S. Complete seal, with silicon carbide rotary face vs. silicon carbide boot seat.

# VULCAN TYPE 197 SEALS TO SUIT KSB® PUMPS



Vulcan produce a range of elastomer bellows seals to replace the "SU" range of KSB® seals. Available to order with carbon or silicon carbide rotary faces with silicon carbide seats, in the three standard elastomers.

## VULCAN STANDARD SIZES

Shaft Size DØ	Size Code	D1	D2	L1	L2	OEM Seal Code
10mm	0100	21.00	22.00	14.40	6.60	SU 010
15mm	0150	24.00	28.00	17.00	7.00	SU 015
28mm	0280	35.50	47.00	26.50	9.00	SU 028
30mm	0300	37.00	48.00	26.50	10.50	SU 030
33mm	0330	38.50	51.00	27.50	11.00	SU 033
43mm	0430	42.00	63.00	30.00	12.00	SU 043
48mm	0480	42.00	69.00	30.50	11.50	SU 048
75mm	0750	54.00	102.00	40.00	14.00	SU 075
90mm	0900	60.00	123.00	45.00	15.00	SU 090

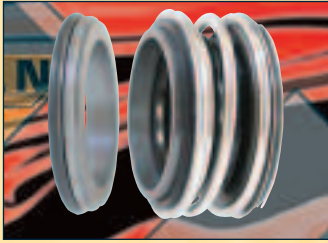
### VULCAN CODING

Where XXXX is stated in the code, add the appropriate size code. If Nitrile or E.P. is required, replace the V character in the code with an N or E.

If carbon vs. silicon carbide faces are required, replace the S character in the code with a D.

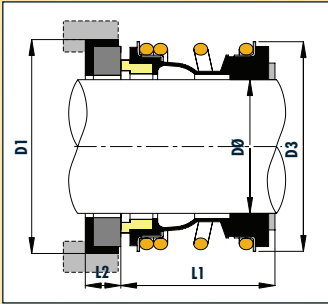
XXXX.197.V.S.

# VULCAN TYPE 195 SEALS FOR ABS® PUMPS



Vulcan produce a range of elastomer bellows seals to replace the bellows lower seals found in common ABS® submersible pumps. Available from stock in silicon carbide rotary faces with silicon carbide seats, in the same style as the OEM seals. Unless stated, all sizes are supplied complete with the necessary back washer to separate the bellows from shaft circlip.

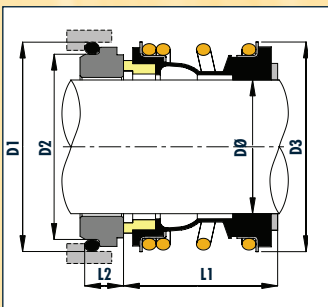
## STYLE A - WITH BOOT MOUNTED SEATS - SILICON CARBIDE VS SILICON CARBIDE



Shaft Size DØ	Size Code	D1	D3	L1	L2	OEM Part No.
20mm*	0200	35.00	29.50	21.50	7.50	11110001
25mm	0250	40.50	41.00	22.50	8.50	11110095
30mm	0300	50.80	47.00	23.50	9.10	11110096
40mm*	0400	58.00	60.00	30.00	9.00	11110144
45mm	0450	65.50	65.00	32.00	12.00	11110093, 11110109
55mm	0550	76.20	78.00	35.00	15.50	11110135, 11110136
80mm	0800	104.00	108.00	40.00	15.00	11110051

NB\* = 20mm & 40mm SIZES ARE CODED AS STANDARD VULCAN TYPE 19B. NOT SUPPLIED WITH WASHER AS IT IS NOT REQUIRED.

## STYLE B - WITH O-RING MOUNTED BEZEL SEATS - SILICON CARBIDE vs. SILICON CARBIDE



Shaft Size DØ	Size Code	D1	D2	D3	L1	L2	OEM Part No.
40mm	0400	58.00	52.00	60.00	27.50	10.50	11110055
48mm	0480	67.00	59.00	69.00	31.50	13.00	11110003
65mm	0650	86.00	77.00	90.00	39.00	12.00	11110050
90mm	0900	114.00	105.20	126.00	45.00	13.30	11110052
100mm	1000	123.30	114.50	131.00	45.70	14.00	11110053

NB - OLDER PART NUMBERS CAN ALSO HAVE ONLY 7 DIGITS, WITH A MIDDLE ZERO MISSING.

### VULCAN CODING

Where XXXX is stated in the code, add the appropriate size code.

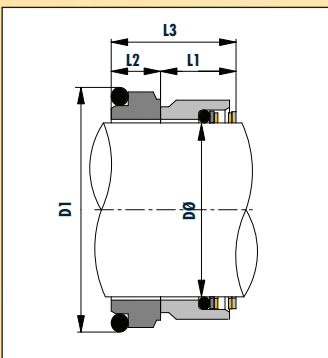
If Viton® is required, replace the N character in the code with a V. If carbon vs. silicon carbide faces are required, replace the S character in the code with a D.

XXXX.195.N.S. Complete seal, with silicon carbide rotary face vs. silicon carbide.

# VULCAN TYPE 1632 SEALS FOR ABS® PUMPS



Vulcan produce a range of 'O'-ring mounted wave-spring seals to replace the upper seals found in common ABS® submersible pumps. Common sizes available from stock with stainless steel rotary faces with carbon seats, in the same style as the OEM seals.



Shaft Size DØ	Size Code	D1	L1	L2	L3	OEM Part No.
20mm	USE VULCAN SEAL CODE 0200.A18.N.Q.					11100066
45mm	0450	65.00	15.60	14.50	30.10	-
48mm	0480	67.00	15.60	14.50	30.10	11100048, 11100058
65mm	0650	86.00	17.80	15.30	33.10	11100059
80mm	0800	104.00	19.50	16.30	35.80	11100053
90mm	0900	114.00	19.50	16.30	35.80	11100055

NB - OLDER PART NUMBERS CAN ALSO HAVE ONLY 7 DIGITS, WITH A MIDDLE ZERO MISSING.

### VULCAN CODING

Where XXXX is stated in the code, add the appropriate size code.

If Viton® is required, replace the N character in the code with a V.

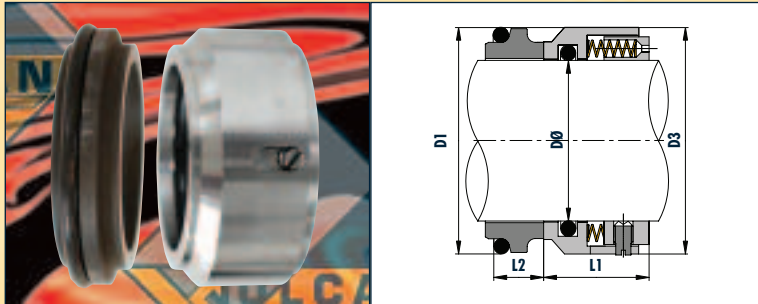
XXXX.1632.N.P. Complete seal, with stainless steel rotary face vs. carbon 'O'-ring seat.



# VULCAN SEALS TO SUIT SARLIN® (GRUNDFOS®) PUMPS

Vulcan manufacture and stock a range of replacements seals to suit all seal types found in common Sarlin® designed pumps.

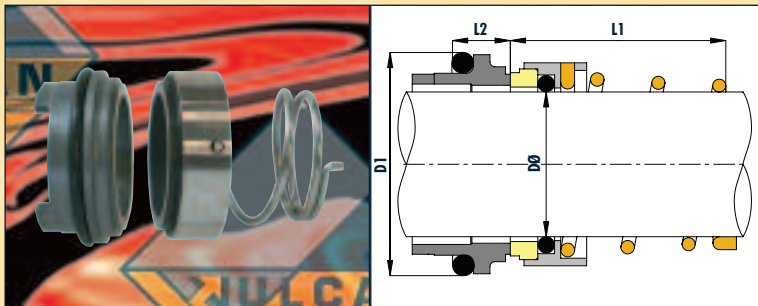
## TYPE 1615



The Vulcan Type 1615 is an 'O'-ring mounted multi-spring seal to replace the upper seals found in older models of Sarlin® pumps. Available from stock with stainless steel rotary faces vs. antimony carbon seats, with Viton® 'O'-rings.

Shaft Size DØ	Size Code	D1	D2	L1	L2
30mm	0300	45.00	45.50	28.00	10.50
38mm	0380	56.00	55.00	31.00	14.00
50mm	0580	70.00	70.50	32.50	15.00

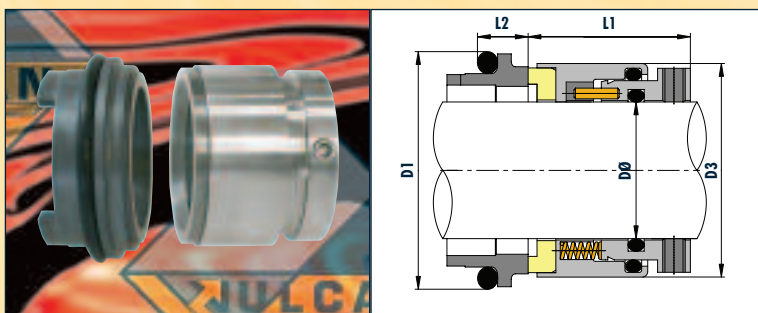
## TYPE 81



The Vulcan Type 81 is an 'O'-ring mounted tapered-spring seal to replace the lower seals with the distinctive design seats. Available from stock with silicon carbide rotary faces vs. silicon carbide seats, with Viton® 'O'-rings.

Shaft Size DØ	Size Code	D1	L1	L2
25mm	0250	38	26.5	10
32mm	0320	48	28.5	11
38mm	0380	55	33.5	11.5

## TYPE 40S and 42



The Vulcan Types 40S and 42 are 'O'-ring mounted, hydraulically-balanced multi-spring seals to replace the upper and lower seals found in more recent designs of Sarlin® pumps.

Shaft Size DØ	Size Code	D1	D2	L1	L2	Seal Style
32.00	0320	48.0	46.0	38.0	11.0	42 LOWER SEAL
38.00	0380	56.0	52.8	38.0	11.5	42 LOWER SEAL
38.00	0380	56.0	52.8	34.0	11.0	40S UPPER SEAL
50.00	0500	70.0	65.6	34.5	9.5	40S UPPER SEAL
65.00	0650	85.0	84.2	36.0	11.0	40S UPPER SEAL
65.00	0650	85.0	84.2	65.5	11.5	42 LOWER SEAL

### VULCAN CODING

Where XXXX is stated in the code, add the appropriate size code. If nitrile is required, replace the V character in the code with an N.

XXXX.1615.V.AP. Complete seal, with stainless steel rotary face vs. antimony carbon seat.

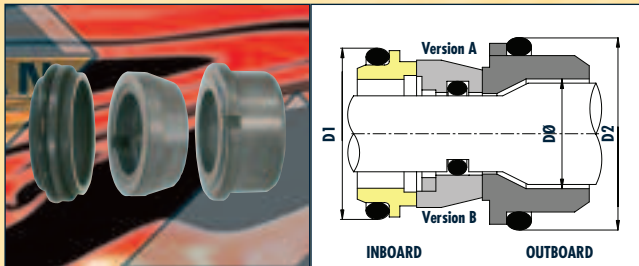
XXXX.81.R.V.S. Complete seal, with silicon carbide rotary face vs. silicon carbide seat.

XXXX.81.R.V.S.STAT Stationary seat only, silicon carbide with Viton® 'O'-ring

XXXX.40S.V.D. Complete upper seal, with carbon rotary face vs. silicon carbide seat.

XXXX.42.V.S. Complete upper seal, with silicon carbide rotary face vs. silicon carbide seat

## TYPE 86 Seals to suit Sarlin® (Grundfos®) Pumps



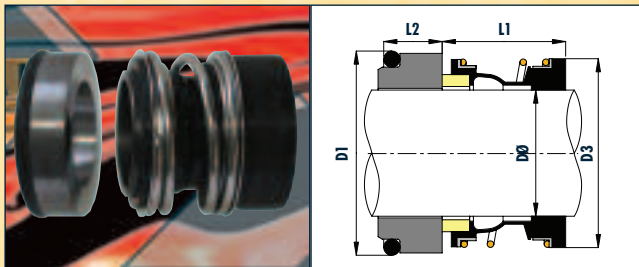
The Vulcan Type 86 is an 'O'-ring mounted seal face kit to suit Sarlin® pumps fitted with single seals with three-faces. Available from stock with silicon carbide inboard seat, carbon outboard seat, and silicon carbide central rotary faces, with Viton® 'O'-rings.

Shaft Size DØ	Size Code	D1	D2	Version
16mm	0160	35.00	28.00	A
24mm	0240	45.00	48.00	A
30mm	0300	45.00	48.00	B
38mm	0380	56.00	53.50	A

### VULCAN CODING

Where XXXX is stated in the code, add the appropriate size code.  
 If nitrile is required, replace the V character in the code with an N.  
 XXXX.86.V.ZS. Complete seal, with silicon carbide inboard seat, silicon carbide central rotary face vs. carbon outboard seat.

## TYPE 192G Seals to suit Grundfos® Pumps



Vulcan manufacture and stock an elastomer bellows seal that is designed to replace the Grundfos seal styles "A-", "B-" & "C-" with a single superior performing and easier to instal seal design. Available from stock in carbon vs. tungsten carbide, or tungsten carbide vs. tungsten carbide, in E.P. or Viton® elastomers.

Shaft Size DØ	Size Code	D1	D3	L1	L2
12mm	0120	23.00	24.00	25.90	15.00
16mm	0160	27.00	28.00	28.40	12.30
22mm	0220	37.00	36.50	30.00	11.10
33mm	0330	48.00	51.00	35.00	7.50

### VULCAN CODING

Where XXXX is stated in the code, add the appropriate size code.  
 If E.P. is required, replace the V character in the code with an E.  
 XXXX.192G.V.E. Complete seal, with carbon rotary face vs. tungsten carbide 'O'-ring seat.  
 XXXX.192G.V.H. Complete seal, with tungsten carbide rotary face vs. tungsten carbide 'O'-ring seat.

Vulcan offers a range of further seal types to suit Grundfos® pumps. The Vulcan Type 953 and 954 replace the "H-Type" and "E-Type" respectively. To replace the "D-Type" the Vulcan Type 40L can be utilised, and the Vulcan Type 19 series will replace the "G-Type". Please enquire for more detailed information regarding Vulcan replacement seals for Grundfos® pumps, seal part number or repair kit numbers.

## TYPE 191 Seals to suit Wilo® Pumps



Vulcan manufactures and stocks two sizes of Type 191 elastomer bellows seals to suit common Wilo® heating pumps. Available from stock in carbon vs. silicon carbide with E.P. elastomers. Seals are also available with brass shaft sleeves. Other shaft sizes such as 14mm, 17mm and 22mm are available, please enquire for details.

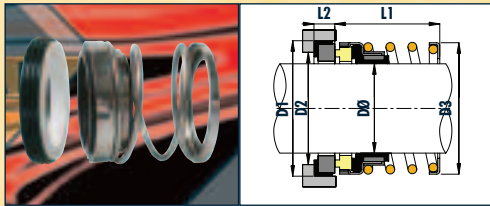
Shaft Size DØ	Size Code	D1	D3	L1	L2
32mm	0320	50.80	51.00	33.34	12.00
55mm	0550	76.20	78.00	41.00	12.00

### VULCAN CODING

Where XXXX is stated in the code, add the appropriate size code.  
 XXX.191.E.D. Complete seal, with carbon rotary face vs. silicon carbide boot seat.  
 XXXX.191.E.D.KIT Complete seal and gasket kit, including brass sleeve.  
 XXXX.191.SLEE Brass shaft sleeve and shaft 'O'-ring only.



# TYPE 11, 1511, 194 and 41 Seals for Hidrostral® Pumps

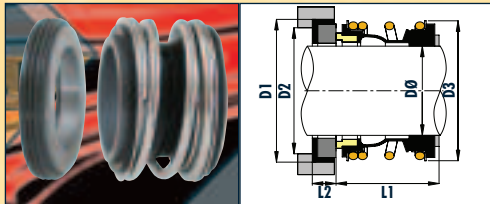


Vulcan standard Type 11 diaphragm seals and 1511 elastomer bellows seals to replace the "C-" & "V-" seals in Hidrostral® pumps. Available from stock with carbon or silicon carbide rotary faces and ceramic or silicon carbide seats.

Shaft Size DØ	Size		D1		D2		D3		L1		L2		OEM SEAL CODE
	Inch	Metric	Metric	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric	Inch	
0.875	22.23	0222	38.10	1.500	30.15	1.187	33.40	1.315	23.80	0.937	10.28	0.405	C 0.6, V 0.6
1.125	28.58	0286	44.44	1.750	36.50	1.437	46.30	1.823	26.97	1.062	11.10	0.437	C 1.1, V 1.1
1.375	34.93	0349	50.80	2.000	42.84	1.687	52.60	2.071	28.58	1.125	11.10	0.437	C 1.3
1.500	38.10	0381	53.98	2.125	46.05	1.813	55.80	2.197	28.58	1.125	11.10	0.437	C 1.5
2.000	50.80	0508	69.85	2.750	60.32	2.375	73.00	2.874	38.10	1.500	12.70	0.500	C 2.0
2.500	63.50	0635	85.73	3.375	68.25	2.687	84.90	3.343	46.02	1.812	14.28	0.562	C 2.5
3.000	76.20	0762	98.43	3.875	80.95	3.187	102.70	4.043	52.37	2.062	15.90	0.626	C 3.0

Working dimensions for Type 11 and 1511 are identical and the seals are thus interchangeable.

## THE VULCAN TYPE 194 is a robust elastomer bellows seal to replace the "G-" seals found in Hidrostral® pumps

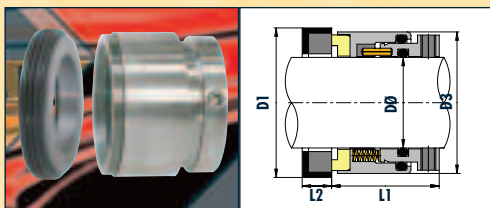


Available with silicon carbide rotary faces and silicon carbide boot seats. Size codes marked with "\*" are supplied complete with the necessary back washer to separate the bellows from shaft circlip.

Shaft Size DØ	Size		D1		D2		D3		L1		L2		OEM SEAL CODE
	Inch	Metric	Metric	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric	Inch	
0.625	15.88	0158*	30.14	1.187	22.23	0.875	28.00	1.102	22.22	0.875	10.28	0.405	G 016, M 0.6
0.787	20.00	0200	38.10	1.500	26.90	1.059	36.00	1.417	30.00	1.181	10.00	0.394	G 020
0.787	20.00	M0200	38.10	1.500	26.90	1.059	36.00	1.417	21.50	0.846	10.00	0.394	M 020, G 020KZ
1.125	28.58	0286	44.44	1.750	36.50	1.437	47.00	1.850	26.97	1.062	11.10	0.437	G 1.1
1.500	38.10	0381	53.98	2.125	46.05	1.813	58.00	2.283	28.58	1.125	11.10	0.437	G 1.5
2.000	50.80	0508	69.85	2.750	60.32	2.375	71.00	2.795	38.10	1.500	12.70	0.500	G 2.0
2.500	63.50	0635	85.73	3.375	68.25	2.687	90.00	3.543	46.02	1.812	14.28	0.562	G 2.5
3.000	76.20	0762	98.43	3.875	80.95	3.187	102.00	4.016	52.37	2.062	15.90	0.626	G 3.0
3.740	95.00	0950	123.85	4.876	106.00	4.173	131.00	5.157	60.30	2.374	19.10	0.752	G 095
3.937	100.00	1000	123.85	4.876	106.00	4.173	131.00	5.157	60.30	2.374	19.10	0.752	G 100

NB: OEM SEAL CODE G 020K can be replaced by Vulcan standard code 0200.19B.V.S.

## THE VULCAN TYPE 41



The Vulcan Type 41 is a unitised, highly robust, balanced multi-spring design seal, to provide an alternative lower seal. With the springs protected from the media, to prevent seal damage and clogging, that often leads to premature seal failure.

Shaft Size DØ	Size		D1		D3		L1		L2		OEM SEAL CODE
	Inch	Metric	Metric	Inch	Metric	Inch	Metric	Inch	Metric	Inch	
1.125	28.58	0286	44.44	1.750	44.00	1.732	30.00	1.181	8.10	0.319	G 1.1
1.500	38.10	0381	53.98	2.125	54.80	2.157	31.60	1.244	8.10	0.319	G 1.5
2.000	50.80	0508	69.85	2.750	67.60	2.661	38.10	1.500	12.70	0.500	G 2.0, X 2.0T
2.500	63.50	0635	85.73	3.375	78.30	3.082	46.20	1.812	14.28	0.562	G 2.5, X 2.5
3.000	76.20	0762	98.43	3.875	93.70	3.689	52.40	2.063	15.90	0.626	G 3.0, X 3.0
3.740	95.00	0950	123.85	4.876	128.00	5.039	62.90	2.477	16.50	0.649	G 095, X 095
3.937	100.00	1000	123.85	4.876	128.00	5.039	62.90	2.477	16.50	0.649	G 100, X 100
4.528	115.00	1150	142.88	5.625	144.50	5.689	48.30	1.902	12.50	0.492	X 115, N 115
4.724	120.00	1200	142.88	5.625	144.50	5.689	48.30	1.902	12.50	0.492	X 120, N 120

Seal sizes upto and including 3.000" utilise boot-mounted seats. Sizes over 3.000" utilise 'O'-ring mounted seats.

### VULCAN CODING

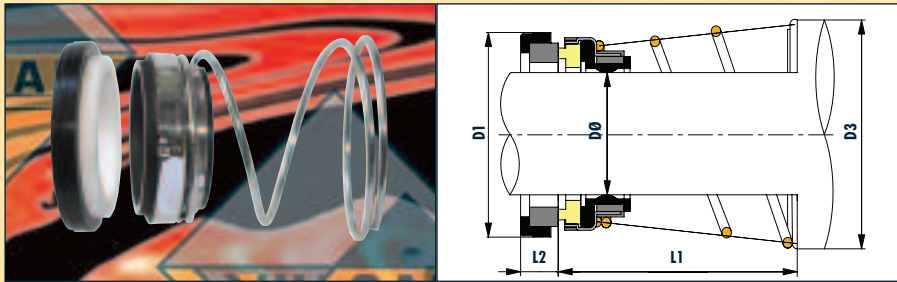
Where XXXX is stated in the code, add the appropriate size code. If nitrile is required, replace the V character in the code with an N

- XXXX.11.N.C. Complete Seal, carbon rotary face vs. ceramic boot seat
- XXXX.1511.N.C. Complete Seal, carbon rotary face vs. ceramic boot seat
- XXXX.194.V.S. Complete Seal, silicon carbide rotary face vs. silicon carbide boot seat
- XXXX.41.V.S. Complete Seal, silicon carbide rotary face vs. silicon carbide boot seat



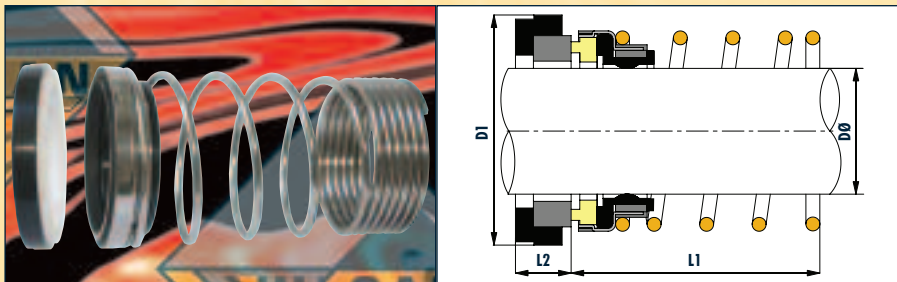
# VULCAN TYPE 277 & 278 MECHANICAL SEALS FOR THUNE-EUREKA® PUMPS

Vulcan manufacture and stock the Type 277 and 278 diaphragm bellows seal ranges to suit the unique dimensions required in the "CG-series" range of pumps. The Type 277 has reverse-tapered coils, while the Type 278 has distinctive lengthened parallel coils.



Common sizes are available from stock in carbon vs. ceramic, with nitrile elastomers. Other material combinations available to order.

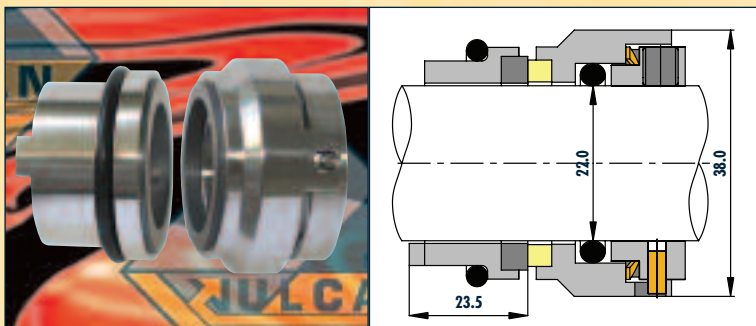
Shaft Size DØ		Size Code	D1	D2	L1	L2	OEM Pump Code
29.00		0290	47.63	46.00	32.00	11.99	CGA
35.00		0350	53.98	53.00	31.50	11.99	CGB
41.00		0410	60.35	59.30	32.50	11.99	CGC
48.00		0480	66.70	66.00	38.50	11.99	CGD
54.00		0540	73.05	70.00	41.00	13.50	CGE



Shaft Size DØ		Size Code	D1		D3		D4	
Inch	Metric		Metric	Inch	Metric	Inch	Metric	Inch
1.875	47.60	0476	66.70	2.626	79.40	3.126	11.99	0.472
2.375	60.33	0603	79.40	3.126	82.60	3.252	13.50	0.531

## VULCAN SEALS TO SUIT IMO® PUMPS

Vulcan manufacture and stock a complete range of standard seals to suit IMO® pumps; please contact us with the complete pump model reference or seal part number. Vulcan have also designed a special Type 1689 & 1690 seal to suit the ACE025, ACE032 and ACE038 generation three pumps fitted with the three-part seals.



The Vulcan seal fits in exactly the same space as the original seal, but follows standard Vulcan design practice and offers a superior performing, easier to install mechanical seal.

### VULCAN CODING

If nitrile is required, replace the V character in the code with an N  
 XXXX.277.N.C. Complete seal, with carbon rotary face vs. ceramic boot seat.

XXXX.278.N.C. Complete seal, with carbon rotary face vs. ceramic boot seat.

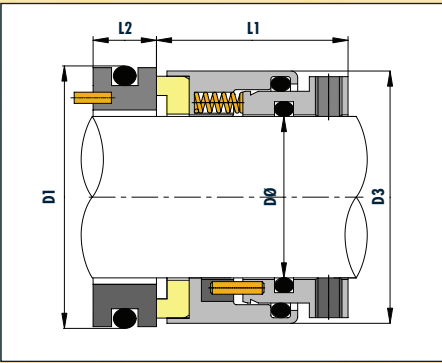
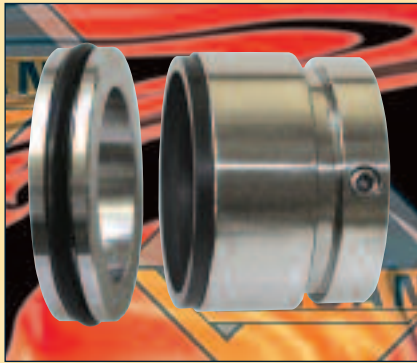
0220.1689.VS. Complete seal, with silicon carbide rotary face vs. silicon carbide 'O'-ring seat.

0220.1690.VS. Complete seal, with silicon carbide rotary face vs. silicon carbide 'O'-ring seat.

Photo illustrates Type 1690, Type 1689 has straight outer rotary profile.



# TYPE 40 BALANCED INTERNAL SEALS



Vulcan's Type 40 is a multiple-spring, 'O'-ring mounted, set-screw driven, non-clogging, balanced mechanical seal. The balanced design, protected springs and dynamic 'O'-ring enable use in demanding applications. Available with a wide variety of seats, Types 40H (UK) & 40J (USA housing dimensions) are illustrated here.

## VULCAN STANDARD SIZES: IMPERIAL SHAFTS

Shaft Size DØ		Size Code	D3		D4		L1		D1 40H Seat		L2 40H Seat		D1 40J Seat		L2 40J Seat	
Metric	Inch		Metric	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric	Inch
19.05	0.750	0191	33.50	1.319	35.00	1.378	30.00	1.181	34.15	1.344	10.30	0.406	34.93	1.375	10.30	0.406
22.23	0.875	0222	36.50	1.437	38.00	1.496	30.00	1.181	37.30	1.469	10.30	0.406	38.10	1.500	10.30	0.406
25.40	1.000	0254	39.60	1.559	41.30	1.626	30.00	1.181	40.50	1.594	10.30	0.406	41.28	1.625	11.10	0.437
28.58	1.125	0286	43.00	1.693	44.50	1.752	32.50	1.280	47.63	1.875	11.90	0.469	44.44	1.750	11.10	0.437
31.75	1.250	0317	46.10	1.815	48.00	1.890	32.50	1.280	50.80	2.000	11.90	0.469	47.63	1.875	11.10	0.437
34.93	1.375	0349	49.00	1.929	51.00	2.008	32.50	1.280	53.98	2.125	11.90	0.469	50.80	2.000	11.10	0.437
38.10	1.500	0381	53.00	2.087	54.00	2.126	34.00	1.339	57.15	2.250	11.90	0.469	53.98	2.125	11.10	0.437
41.28	1.625	0412	56.00	2.205	58.00	2.283	34.00	1.339	60.35	2.376	11.90	0.469	60.33	2.375	12.70	0.500
44.45	1.750	0444	59.20	2.331	62.50	2.461	34.00	1.339	63.50	2.500	11.90	0.469	63.50	2.500	12.70	0.500
47.63	1.875	0476	62.40	2.457	63.50	2.500	34.00	1.339	66.70	2.626	11.90	0.469	66.68	2.625	12.70	0.500
50.80	2.000	0508	65.60	2.583	67.60	2.661	34.50	1.358	69.85	2.750	13.50	0.531	69.85	2.750	12.70	0.500
53.98	2.125	0539	68.80	2.709	70.80	2.787	34.50	1.358	73.05	2.876	13.50	0.531	76.20	3.000	14.30	0.563
57.15	2.250	0571	71.90	2.831	73.90	2.909	34.50	1.358	76.20	3.000	13.50	0.531	79.30	3.122	14.30	0.563
60.33	2.375	0603	75.20	2.961	77.20	3.039	34.50	1.358	79.40	3.126	13.50	0.531	82.55	3.250	14.30	0.563
63.50	2.500	0635	78.30	3.083	80.30	3.161	34.50	1.358	82.55	3.250	13.50	0.531	85.73	3.375	14.30	0.563
66.68	2.625	0666	84.20	3.315	88.20	3.472	36.00	1.417	92.10	3.626	15.90	0.626	85.73	3.375	15.90	0.626
69.85	2.750	0698	87.40	3.441	91.40	3.598	36.00	1.417	95.25	3.750	15.90	0.626	88.90	3.500	15.90	0.626
73.03	2.875	0730	90.60	3.567	94.60	3.724	36.00	1.417	98.45	3.876	15.90	0.626	95.25	3.750	15.90	0.626
76.20	3.000	0762	93.70	3.689	95.50	3.760	36.00	1.417	101.65	4.002	15.90	0.626	98.43	3.875	15.90	0.626
79.38	3.125	0793	97.00	3.819	99.00	3.898	36.00	1.417	111.15	4.376	19.90	0.783	101.60	4.000	19.88	0.783
82.55	3.250	0825	100.00	3.937	102.00	4.016	36.00	1.417	114.30	4.500	19.90	0.783	104.78	4.125	19.88	0.783
85.73	3.375	0857	103.30	4.067	105.30	4.146	36.00	1.417	117.50	4.626	19.90	0.783	107.95	4.250	19.88	0.783
88.90	3.500	0889	106.40	4.189	108.50	4.272	36.00	1.417	120.65	4.750	19.90	0.783	111.13	4.375	19.88	0.783
92.08	3.625	0920	109.60	4.315	111.50	4.390	36.00	1.417	123.85	4.876	19.90	0.783	114.30	4.500	19.88	0.783
95.30	3.750	0953	112.80	4.441	115.00	4.528	36.50	1.437	127.00	5.000	19.90	0.783	117.48	4.625	19.88	0.783
98.00	3.875	0984	116.00	4.567	118.00	4.646	36.50	1.437	130.20	5.126	19.90	0.783	120.65	4.750	19.88	0.783
101.60	4.000	1016	119.20	4.693	121.50	4.783	36.50	1.437	133.35	5.250	19.90	0.783	123.83	4.875	19.88	0.783

### STANDARD STOCK FACE MATERIALS

Rotary Face: Carbon, Silicon Carbide, Tungsten Carbide

Static Face : Stainless Steel, Ni-resist, Ceramic, Silicon Carbide, Tungsten Carbide

### OTHER FACE MATERIALS TO ORDER

### Suggested Operating Limits

PRESSURE 350psi

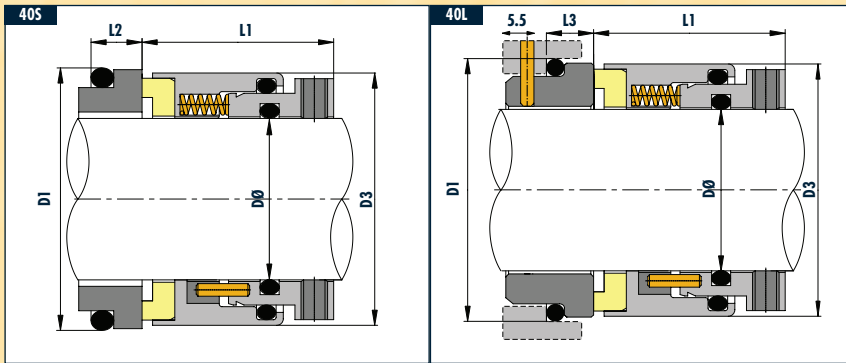
SPEED 25m/s

TEMPERATURE -30 +200°C

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



# TYPE 40 BALANCED INTERNAL SEALS



Vulcan's Type 40 is a multiple-spring, 'O'-ring mounted, set-screw driven, non-clogging, balanced mechanical seal. The balanced design, protected springs and dynamic 'O'-ring enable use in demanding applications. Available with a wide variety of seats, Types 40S & 40L are illustrated here.

## VULCAN STANDARD SIZES: METRIC SHAFTS

Shaft Size DØ		Size Code	D1		D3		D4		L1		L2		L3		Slot Width	
Metric	Inch		Metric	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric	Inch	Metric	Inch
18.00	0.709	0180	33.00	1.299	32.50	1.280	34.00	1.339	30.00	1.181	11.50	0.453	10.00	0.394	5.00	0.197
19.00	0.748	0190	35.00	1.378	33.50	1.319	35.00	1.378	30.00	1.181	11.50	0.453	10.00	0.394	5.00	0.197
20.00	0.787	0200	35.00	1.378	34.50	1.358	36.00	1.417	30.00	1.181	11.50	0.453	10.00	0.394	5.00	0.197
22.00	0.866	0220	37.00	1.457	36.50	1.437	38.00	1.496	30.00	1.181	11.50	0.453	10.00	0.394	5.00	0.197
24.00	0.945	0240	39.00	1.535	38.50	1.516	40.00	1.575	30.00	1.181	11.50	0.453	10.00	0.394	5.00	0.197
25.00	0.984	0250	40.00	1.575	39.50	1.555	41.00	1.614	30.00	1.181	11.50	0.453	10.00	0.394	5.00	0.197
28.00	1.102	0280	43.00	1.693	42.50	1.673	44.00	1.732	32.50	1.280	11.50	0.453	10.00	0.394	5.00	0.197
30.00	1.181	0300	45.00	1.772	44.50	1.752	46.00	1.811	32.50	1.280	11.50	0.453	10.00	0.394	5.00	0.197
32.00	1.260	0320	48.00	1.890	46.00	1.811	48.00	1.890	32.50	1.280	11.50	0.453	10.00	0.394	5.00	0.197
33.00	1.299	0330	48.00	1.890	47.00	1.850	49.00	1.929	32.50	1.280	11.50	0.453	10.00	0.394	5.00	0.197
35.00	1.378	0350	50.00	1.969	49.30	1.941	51.00	2.008	32.50	1.280	11.50	0.453	10.00	0.394	5.00	0.197
38.00	1.496	0380	56.00	2.205	52.80	2.079	54.80	2.157	34.00	1.339	12.50	0.492	11.00	0.433	5.00	0.197
40.00	1.575	0400	58.00	2.283	56.00	2.205	58.00	2.283	34.00	1.339	12.50	0.492	11.00	0.433	5.00	0.197
42.00	1.654	0420	61.00	2.402	56.00	2.205	58.00	2.283	34.00	1.339	12.50	0.492	11.00	0.433	5.00	0.197
43.00	1.693	0430	61.00	2.402	59.00	2.323	61.00	2.402	34.00	1.339	12.50	0.492	11.00	0.433	5.00	0.197
44.00	1.732	0440	63.00	2.480	59.00	2.323	61.00	2.402	34.00	1.339	12.50	0.492	11.00	0.433	5.00	0.197
45.00	1.772	0450	63.00	2.480	59.00	2.323	61.00	2.402	34.00	1.339	12.50	0.492	11.00	0.433	5.00	0.197
48.00	1.890	0480	66.00	2.598	62.40	2.457	64.40	2.535	34.00	1.339	12.50	0.492	11.00	0.433	5.00	0.197
50.00	1.969	0500	70.00	2.756	65.60	2.583	67.60	2.661	34.50	1.358	14.50	0.571	13.00	0.512	5.00	0.197
53.00	2.087	0530	73.00	2.874	68.80	2.709	70.80	2.787	34.50	1.358	14.50	0.571	13.00	0.512	5.00	0.197
55.00	2.165	0550	75.00	2.953	70.80	2.787	73.00	2.874	34.50	1.358	14.50	0.571	13.00	0.512	5.00	0.197
58.00	2.283	0580	78.00	3.071	75.20	2.961	77.20	3.039	34.50	1.358	14.50	0.571	13.00	0.512	5.00	0.197
60.00	2.362	0600	80.00	3.150	75.20	2.961	77.20	3.039	34.50	1.358	14.50	0.571	13.00	0.512	5.00	0.197
63.00	2.480	0630	83.00	3.268	78.30	3.083	80.30	3.161	34.50	1.358	14.50	0.571	13.00	0.512	5.00	0.197
65.00	2.559	0650	85.00	3.346	84.20	3.315	88.20	3.472	36.50	1.437	14.50	0.571	13.00	0.512	5.00	0.197
68.00	2.677	0680	90.00	3.543	85.50	3.366	88.20	3.472	36.50	1.437	16.50	0.650	15.30	0.602	5.00	0.197
70.00	2.756	0700	92.00	3.622	87.50	3.445	91.40	3.598	36.50	1.437	16.50	0.650	15.30	0.602	5.00	0.197
75.00	2.953	0750	97.00	3.819	92.70	3.650	97.70	3.846	36.50	1.437	16.50	0.650	15.30	0.602	5.00	0.197
80.00	3.150	0800	105.00	4.134	100.00	3.937	104.00	4.094	36.50	1.437	17.50	0.689	15.70	0.618	5.00	0.197
85.00	3.346	0850	110.00	4.331	103.00	4.055	107.30	4.224	36.50	1.437	17.50	0.689	15.70	0.618	5.00	0.197
90.00	3.543	0900	115.00	4.528	109.60	4.315	113.60	4.472	36.50	1.437	17.50	0.689	15.70	0.618	5.00	0.197
95.00	3.740	0950	120.00	4.724	112.80	4.441	114.00	4.488	36.50	1.437	17.50	0.689	15.70	0.618	5.00	0.197
100.00	3.937	1000	125.00	4.921	117.50	4.626	119.00	4.685	36.50	1.437	17.50	0.689	15.70	0.618	5.00	0.197

### Suggested Operating Limits

PRESSURE 350psi      SPEED 25m/s  
TEMPERATURE -30 +200°C

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

### STANDARD STOCK FACE MATERIALS

Rotary Face: Carbon, Silicon Carbide, Tungsten Carbide

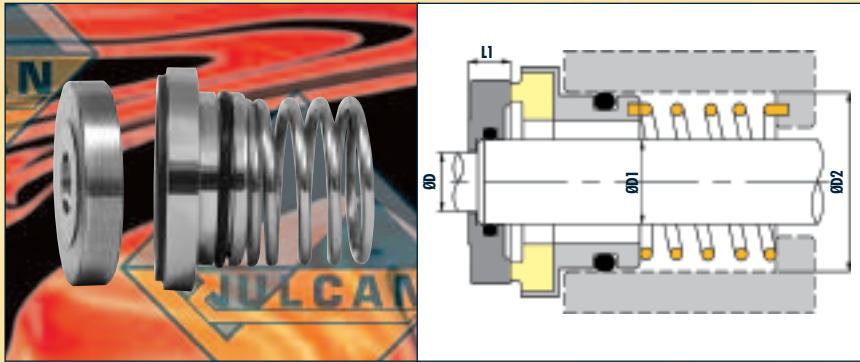
Static Face: Ceramic, Silicon carbide, Tungsten Carbide

### OTHER FACE MATERIALS TO ORDER





# VULCAN TYPE 94 STATIONARY SEALS TO SUIT TUCHENHAGEN® PUMPS



Vulcan produce and stock a complete range of balanced seals to suit the Tuchenhagen® A and Z series pumps, seal types F1 to F5. Available with inserted carbon face seal heads, and inserted silicon carbide, or chrome dioxide coated stainless steel rotary counterfaces. E.P. 'O'-Rings are fitted as standard. If Nitrile or Viton® is required, please specify this at time of order.

## VULCAN STANDARD SIZES

Metric Shaft size D	Size Code	D1	D2	L1
12	0120	16.0	30.0	7.0
18	0180	24.0	50.0	11.0
21	0210	25.0	50.0	11.0
28	0280	35.0	50.0	11.0
40	0400	50.0	64.0	14.0

## VULCAN CODING.

NB:- Shaft size is measured from the minimum ID of the rotary counterface. If Nitrile or Viton® is required, replace the E character in the code with an N or V. Where xxxx is stated in the code, add the relevant size code according to the dimension table.

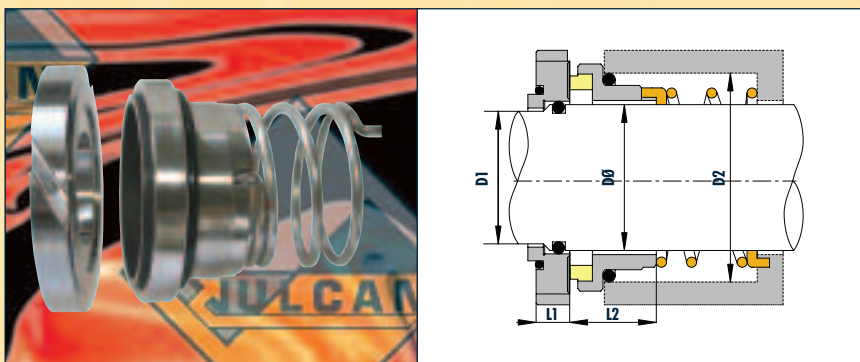
xxxx.94.E.D.

Type 94 seal, with carbon faced head, and inserted silicon carbide counterface

xxxx.94.E.O.

Type 94 seal, with carbon faced head, and chrome dioxide coated counterface

# VULCAN TYPE B94 STATIONARY SEALS TO SUIT TUCHENHAGEN® PUMPS



Modified vulcan type 94 seals with turning vanes cut into the OD of the Rotary faces to agitate pumping media. Standard materials are solid steel rotary rings with inserted carbon faced Sprung statics. E.P. 'O'-Rings are fitted as standard. If Nitrile or Viton® is required, please specify this at time of order. All sizes are supplied complete with both running faces and stationary coil.

## VULCAN STANDARD SIZES

Metric Shaft size D	Size Code	D1	D2	L1	L2	OEM Pump Code
21.00	0210	18.00	40.00	10.00	28.00	VP 7.5
30.00	0300	22.00	55.00	11.00	30.00	VP 15
35.00	0350	30.00	55.00	11.00	30.00	VP 37

## VULCAN CODING.

Where XXXX is stated in the code, add the appropriate size code. If Viton® is required, replace the E character in the code with a V.

XXXX.B94.E.P.

Complete seal, with Stainless steel rotary face vs. inserted carbon face sprung stationary.

# VULCAN MECHANICAL SEALS TO SUIT REFRIGERATION OEM APPLICATIONS

Vulcan have extensive sealing experience within the refrigeration industry, and have developed a comprehensive range of seals, fitted with the specific elastomers required to suit the exacting, cryogenic duties and refrigerants commonly found. As there are a wide range of compressor models, and generally each compressor has model specific seal arrangements, Vulcan have developed many seal designs to suit these compressor applications. Furthermore these seals can be fitted without amendment to the existing housings. Our exact designs, excellent materials, wide stock range and the ability to manufacture to any industry design or requirement, complement the Vulcan Refrigeration Seal range.



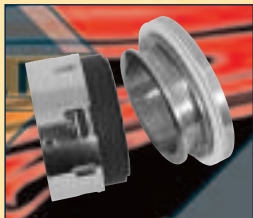
J & E Hall® V92

## VULCAN SEALS OFFERED FOR OEM COMPRESSOR MODELS

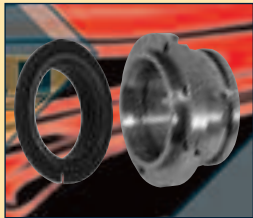
- Bitzer® 4H, 6F & 6G
- Bock AM & BFO Ranges
- Bock F, FK & FKX Ranges
- Carrier® 05K
- Carrier® 05G
- Carrier® 05H
- Copeland® 2CC, 4CC & 6CC
- Copeland® 8CC
- Dunham Bush® Big 4
- Frick® RWB-11-100
- Frick® RWB-11-222E
- Frick® RWB-11-222H
- Gram® HC & HL Ranges
- Grasso® RC9, non-bellows
- Grasso® RC11, non-bellows
- J & E Hall® 3/6CP
- J & E Hall® HS18-20 screw
- J & E Hall® HS20-20 screw
- J & E Hall® HS20-31 screw
- J & E Hall® HS21-20 screw
- J & E Hall® V54 6-cyl (1.1/2" Shaft)
- J & E Hall® V54 8-cyl (1.3/4" Shaft)
- J & E Hall® V92 and variants
- J & E Hall® V127 Mk 1-5
- J & E Hall® V127 Mk 6
- J & E Hall® V178
- Howden® WGRB204
- Howden® WRV163 & XRV163
- Howden® WRV204 Mk4
- Howden® WRV204 Mk5
- Howden® WRV204 Mk6
- Howden® XRV204



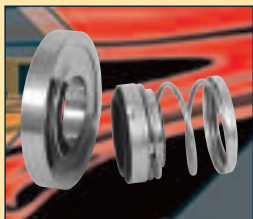
Howden® WRV205



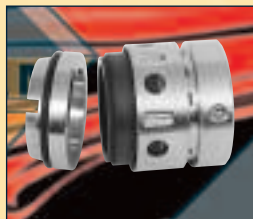
Howden® WRV255 Mk 1



Sabroe® TGM028



Stal® P24



J & E Hall® HS18-20



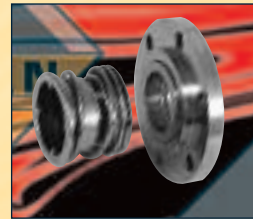
Grasso® RC9

## VULCAN SEALS OFFERED FOR OEM COMPRESSOR MODELS

- Howden® WRV205
- Howden® WRV255 Mk1 to 4F
- Howden® WRV255 Mk5
- Howden® WRV321
- Lightfoot® VQ8
- Lightfoot® VT5
- Lightfoot® VT6
- Lightfoot® A.F36 Mk 3A
- Lightfoot® A.F50 & A.F54
- Sabroe® 128, non-bellows
- Sabroe® 163, non-bellows
- Sabroe® PKO
- Sabroe® VMY Ranges
- Sabroe® TSMC108 to 165
- Sabroe® CM018
- Sabroe® TCM024, 026 & 028
- Sabroe® SMC100 to 104
- Sabroe® TSMC108 to 165
- Sabroe® HPC
- Stal® S50 series
- Stal® S70 series
- Stal® P24
- Stal® P28
- Stal® U series
- Thermo King® D214
- Thermo King® 426 & 430
- Thermo King® X426
- Thermo King® X430
- Thermo King® 426, X426 for R134A and R404A refrigerant gases
- Witt® GP42 refrigeration pump
- Witt® GP51 refrigeration pump



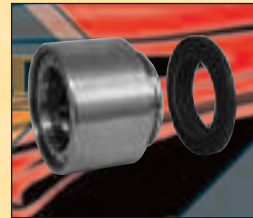
Copeland® 4CC



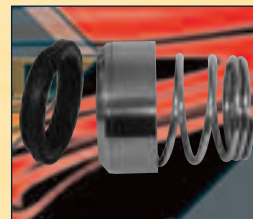
Carrier® 05G



J & E Hall® V54



Sabroe® CM018



Sabroe® TSMC108