

first  **seals**TM
Division



SR2 Range

Taper Spring Seal

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Introduction

The first4seals™ taper spring range has been specifically designed to offer the highest standard of operating performance, quality and availability of materials.

The quality of products is ensured by each seal being assembled in the first4seals™ UK headquarters. The components used have been produced in Group manufacturing facilities, thus ensuring that the product performs as intended each and every time.

Please contact the first4seals™ Technical Department for any further information regarding material compliance, performance parameters or material specifications.



Product Description

The SR2 Range is a taper spring driven, o’ring mounted rotary seal. Commonly used as Stainless Steel vs Carbon combination but also available as inserted face design in more exotic face combinations. It is suitable for use in a wide range of industries and applications.

- **Taper Spring Drive** – ensures rotational drive is transmitted to the rotary face without the risk of slippage or damage to the shaft by set screws.
- **Standardised Rotary Head Design** – ensures that the greatest product flexibility is achieved without compromising on availability.
- **Centroidally Loaded Face** – inserted face version is designed to ensure that the optimum level of face flatness is achieved and maintained.
- **Modular Design** – The greatest number of product iterations available from stock.
- **Upgrade Alternative** – The SR2 Range is a direct alternative to the SR3 design and is also available with Ceramic rotary vs Carbon stationary face combinations.

first4seals™	AESSEAL	AESSEAL (OLD)	Eagle Burgmann	Flowserve	Vulcan
SR2	T03U	T03	BT-RN	42	12

Typical Industries

- Power Generation
- Chemical
- Bio/Ethanol
- Pulp & Paper
- Water & Wastewater
- Automotive
- Marine
- Food & Beverage (4 prefix)

Typical Pumps

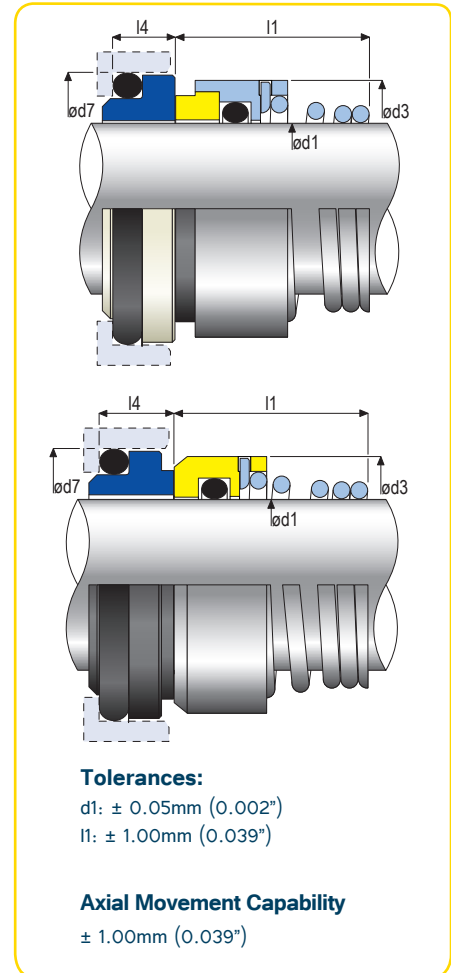
- Submersible Pumps
- Chemical Standard Pumps
- Eccentric Screw Pumps
- Cooling Water Pumps

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Dimensional Information

Seal Size	d1		d3		d7		l1		l4	
	mm	in	mm	in	mm	in	mm	in	mm	in
0100	10.00	0.394	20.00	0.787	18.10	0.713	15.00	0.591	5.50	0.217
0110	11.00	0.433	21.00	0.827	20.60	0.811	18.00	0.709	5.50	0.217
0120	12.00	0.472	22.00	0.866	20.60	0.811	18.00	0.709	5.50	0.217
0130	13.00	0.512	23.00	0.906	23.10	0.909	22.00	0.866	6.00	0.236
0140	14.00	0.551	24.00	0.945	23.10	0.909	22.00	0.866	6.00	0.236
0150	15.00	0.591	25.00	0.984	26.90	1.059	22.00	0.866	7.00	0.276
0160	16.00	0.630	26.00	1.024	26.90	1.059	23.00	0.906	7.00	0.276
0180	18.00	0.709	31.00	1.220	30.90	1.217	24.00	0.945	8.00	0.315
0190	19.00	0.748	32.00	1.260	30.90	1.217	25.00	0.984	8.00	0.315
0200	20.00	0.787	34.00	1.339	30.90	1.217	25.00	0.984	8.00	0.315
0210	21.00	0.827	35.00	1.378	35.40	1.394	25.00	0.984	8.00	0.315
0220	22.00	0.866	36.00	1.417	35.40	1.394	25.00	0.984	8.00	0.315
0230	23.00	0.906	37.00	1.457	35.40	1.394	27.00	1.063	8.00	0.315
0240	24.00	0.945	38.00	1.496	35.40	1.394	27.00	1.063	8.00	0.315
0250	25.00	0.984	39.00	1.535	38.20	1.504	27.00	1.063	8.50	0.335
0260	26.00	1.024	40.00	1.575	38.20	1.504	27.00	1.063	8.50	0.335
0280	28.00	1.102	42.00	1.654	43.30	1.705	29.00	1.142	9.00	0.354
0300	30.00	1.181	44.00	1.732	43.30	1.705	30.00	1.181	9.00	0.354
0320	32.00	1.260	46.00	1.811	43.30	1.705	30.00	1.181	9.00	0.354
0330	33.00	1.299	47.00	1.850	53.50	2.106	39.00	1.535	11.50	0.453
0340	34.00	1.339	49.00	1.929	53.50	2.106	39.00	1.535	11.50	0.453
0350	35.00	1.378	49.00	1.929	53.50	2.106	39.00	1.535	11.50	0.453
0360	36.00	1.417	49.00	1.929	53.50	2.106	39.00	1.535	11.50	0.453
0380	38.00	1.496	54.00	2.126	60.50	2.382	39.00	1.535	11.50	0.453
0380B	38.00	1.496	54.00	2.126	53.50	2.106	39.00	1.535	10.00	0.394
0400	40.00	1.575	56.00	2.205	60.50	2.382	39.00	1.535	11.50	0.453
0420	42.00	1.654	59.00	2.323	60.50	2.382	39.00	1.535	11.50	0.453
0430	43.00	1.693	59.00	2.323	60.50	2.382	39.00	1.535	11.50	0.453
0440	44.00	1.732	61.00	2.402	65.50	2.579	41.00	1.614	11.50	0.453
0450	45.00	1.772	61.00	2.402	65.50	2.579	41.00	1.614	11.50	0.453
0480	48.00	1.890	64.00	2.520	65.50	2.579	41.00	1.614	11.50	0.453
0500	50.00	1.969	66.00	2.598	72.50	2.854	45.00	1.772	11.50	0.453
0550	55.00	2.165	71.00	2.795	72.50	2.854	47.00	1.850	11.50	0.453
0600	60.00	2.362	79.00	3.110	79.30	3.122	49.00	1.929	11.50	0.453
0650	65.00	2.559	85.00	3.346	84.50	3.327	51.00	2.008	11.50	0.453
0700	70.00	2.756	90.00	3.543	89.50	3.524	51.00	2.008	11.50	0.453
0750	75.00	2.953	98.00	3.858	94.50	3.720	57.00	2.244	11.50	0.453
0800	80.00	3.150	103.00	4.055	99.50	3.917	59.00	2.323	11.50	0.453
0850	85.00	3.346	107.50	4.232	105.50	4.154	59.00	2.323	13.50	0.531
0900	90.00	3.543	111.00	4.370	111.50	4.390	62.00	2.441	13.50	0.531
0950	95.00	3.740	119.00	4.685	116.50	4.587	62.00	2.441	13.50	0.531
1000	100.00	3.937	124.00	4.882	119.50	4.705	75.00	2.953	13.50	0.531



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Material Variations

Metal Parts: 316 Stainless Steel
 Spring: 304 Stainless Steel
 Rotary Face: Refer to table below
 Stationary Face: Refer to table below
 Elastomer: Refer to table below

Prefix	Type	Seal Size	Material	Suffix
3	SR2	/ 0100 to 1000 /	Refer to table below	R
4*				L

* EC 1935/2004 Compliant Materials used

	Material Code	Rotary Face	Stationary Face	Elastomer	Standard Material	Alternative Option
Rotary Only	X6V--	Carbon	N/A	Nitrile	✓	FS
	X7V--	Carbon	N/A	EPR	✓	FS
	XYV--	Carbon	N/A	Viton	✓	FS
	X6K--	Reaction Bonded SiC	N/A	Nitrile	✓	FS (on request)
	X7K--	Reaction Bonded SiC	N/A	EPR	✓	FS (on request)
	XYK--	Reaction Bonded SiC	N/A	Viton	✓	FS (on request)
	X6Q--	Sintered SiC	N/A	Nitrile		✓ FS (on request)
	X7Q--	Sintered SiC	N/A	EPR		✓ FS (on request)
	XYQ--	Sintered SiC	N/A	Viton		✓ FS (on request)
	X6R--	Tungsten Carbide	N/A	Nitrile		✓ FS (on request)
	X7R--	Tungsten Carbide	N/A	EPR		✓ FS (on request)
	XYR--	Tungsten Carbide	N/A	Viton		✓ FS (on request)
	X6X--	Stainless Steel	N/A	Nitrile	✓	FS (on request)
	X7X--	Stainless Steel	N/A	EPR	✓	FS (on request)
	XYX--	Stainless Steel	N/A	Viton	✓	FS (on request)
	X62--	99% Alumina Ceramic	N/A	Nitrile		✓
	X72--	99% Alumina Ceramic	N/A	EPR		✓
	XY2--	99% Alumina Ceramic	N/A	Viton		✓
Complete	V26	Carbon	99% Alumina Ceramic	Nitrile	✓	FS
	V27	Carbon	99% Alumina Ceramic	EPR	✓	FS
	V2Y	Carbon	99% Alumina Ceramic	Viton	✓	FS
	X6VK6	Carbon	Reaction Bonded SiC	Nitrile	✓	FS
	X7VK7	Carbon	Reaction Bonded SiC	EPR	✓	FS
	XYVKY	Carbon	Reaction Bonded SiC	Viton	✓	FS
	X6KK6	Reaction Bonded SiC	Reaction Bonded SiC	Nitrile	✓	FS (on request)
	X7KK7	Reaction Bonded SiC	Reaction Bonded SiC	EPR	✓	FS (on request)
	XYKKY	Reaction Bonded SiC	Reaction Bonded SiC	Viton	✓	FS (on request)
	X6VK6	Carbon	Reaction Bonded SiC	Nitrile	✓	FS
	X7VK7	Carbon	Reaction Bonded SiC	EPR	✓	FS
	XYVKY	Carbon	Reaction Bonded SiC	Viton	✓	FS
	X6VQ6	Carbon	Sintered SiC	Nitrile	✓	FS
	X7VQ7	Carbon	Sintered SiC	EPR	✓	FS
	XYVQY	Carbon	Sintered SiC	Viton	✓	FS
	X6VR6	Carbon	Tungsten Carbide	Nitrile	✓	FS
	X7VR7	Carbon	Tungsten Carbide	EPR	✓	FS
	XYVRY	Carbon	Tungsten Carbide	Viton	✓	FS
	X6QQ6	Sintered SiC	Sintered SiC	Nitrile		✓ FS (on request)
	X7QQ7	Sintered SiC	Sintered SiC	EPR		✓ FS (on request)
	XYQQY	Sintered SiC	Sintered SiC	Viton		✓ FS (on request)
	X6RR6	Tungsten Carbide	Tungsten Carbide	Nitrile		✓ FS (on request)
	X7RR7	Tungsten Carbide	Tungsten Carbide	EPR		✓ FS (on request)
	XYRRY	Tungsten Carbide	Tungsten Carbide	Viton		✓ FS (on request)
	X6XV6	Stainless Steel	Carbon	Nitrile	✓	
	X7XV7	Stainless Steel	Carbon	EPR	✓	
XYXVY	Stainless Steel	Carbon	Viton	✓		
X62V6	99% Alumina Ceramic	Carbon	Nitrile		✓	
X72V7	99% Alumina Ceramic	Carbon	EPR		✓	
XY2VY	99% Alumina Ceramic	Carbon	Viton		✓	

KEY:

✓ : Available (Not Food Safe)

FS : Food Safe Option

✓ FS : Available as not Food Safe or Food Safe on request

Availability:

Standard materials are typically available ex-stock for same day or next day shipment.

Alternative material options are typically available on an 8-10 week lead time, however, this may vary depending on the exact components required.

Please contact the first4seals™ Sales Office for exact availability and lead time.

Alternatively log onto the first4seals™ Customer Portal Stock Checker for full details of availability as well as the capability to track orders.

To access the portal go to <https://portal.first4seals.com>

N.B. Due to the modular design and build to order process, special material options can be made available on request. Please contact first4seals™ for more information.

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Application Limits

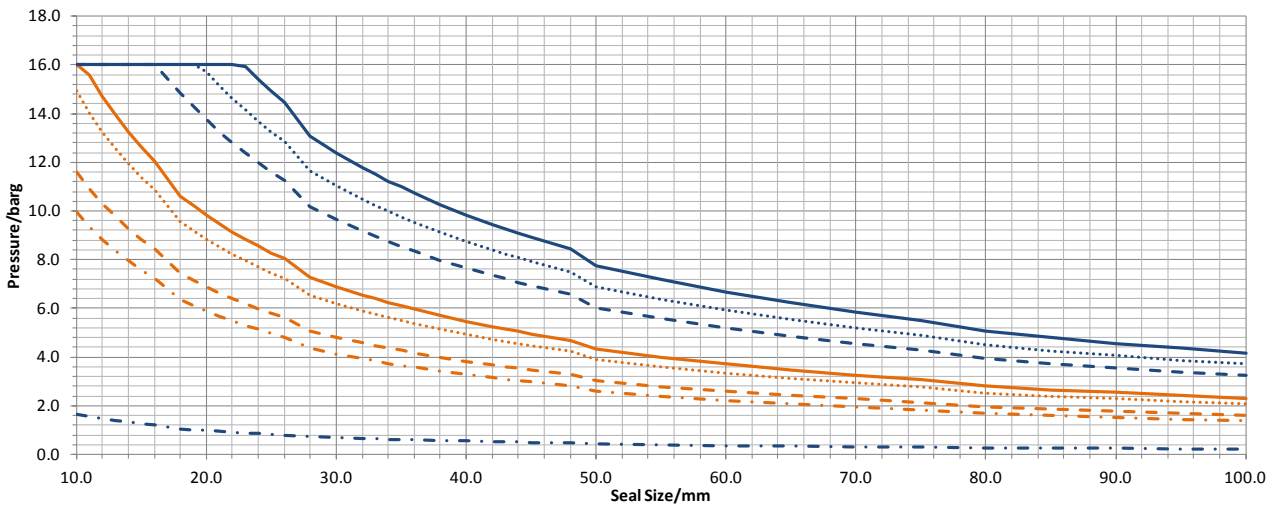
The following graphs show the maximum pressure that the particular sized seals are capable of sealing at temperatures below 80°C (176°F), whilst ensuring that they are operating within the PV limit for the particular face material combinations. If in doubt please contact the first4seals™ Technical Department.

For temperatures above 80°C (176°F) refer to the de-rating factors below to arrive at the application specific pressure rating of the seal.

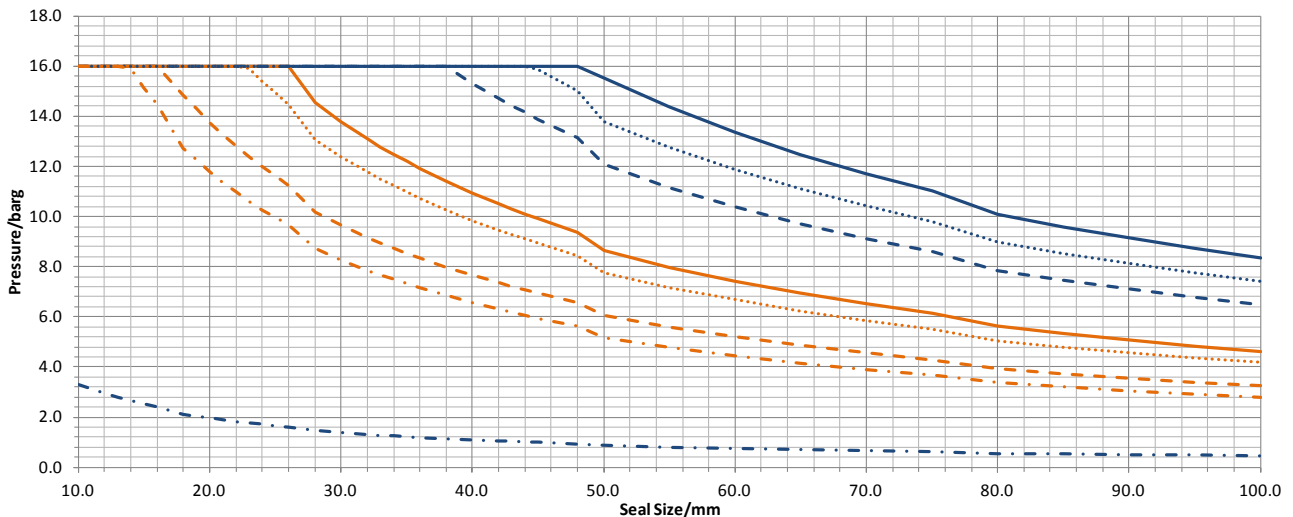
Rotation Speed (Maximum)

3600rpm or 20m/s (4000fpm) peripheral velocity – whichever value is exceeded first. Maximum rotational speed of 3600rpm and a peripheral velocity of 20m/s (4000fpm) is reached at sizes greater than 90mm seal size. Shaft sizes above this will have a lower rotational speed limit. For shaft speeds above 3600rpm contact first4seals™ Technical Department.

Pressure Capability by Seal Size @ 3600rpm



Pressure Capability by Seal Size @ 1800rpm



- Car/SiC/Aqueous & Car/SiC or Car/TC in Non-Aqueous Solutions
- - Car/TC in Aqueous & TC/TC in Non-Aqueous Solutions
- · SS/Car in Aqueous Solutions
- SiC/SiC in Non-Aqueous Solutions
- SiC/SiC in Aqueous & Car/Cer in Non-Aqueous Solutions
- - Car/Cer in Aqueous Solutions
- TC/TC in Aqueous Solutions
- · SS/Car in Non-Aqueous Solutions

Media Temperature	Multiplier
<80°C(175°F)	x1.00
Above 80°C(175°F) to 120°C(250°F)	x0.90
Above 120°C(250°F) to 180°C(355°F)	x0.80
Above 180°C(355°F) to 230°C(445°F)	x0.65

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