



SM32 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 SM32 Range is a taper spring driven, o’ring mounted rotary seal that is suitable for use in a wide range of industries and applications.

It offers the following features:

- **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** – ensures that the optimum level of face flatness is achieved and maintained.
- **Modular Design** – The greatest number of product iterations available from stock.



first4seals™	AESSEAL	AESSEAL (OLD)	Eagle Burgmann	Flowserve	Vulcan
SM32	T01U	T01	M32 M377 M37G	38	8

Typical Industries

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

Typical Pumps

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

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Dimensional Information

Tolerances:
 d1: ± 0.05mm (0.002")
 l1: ± 1.00mm (0.039")

Axial Movement Capability
 ± 1.00mm (0.039")

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	19.20	0.756	16.90	0.665	6.60	0.260
0120	12.00	0.472	22.00	0.866	21.60	0.850	17.40	0.685	5.60	0.220
0140	14.00	0.551	24.00	0.945	24.60	0.969	17.40	0.685	5.60	0.220
0150	15.00	0.591	25.00	0.984	24.60	0.969	17.40	0.685	6.60	0.260
0160	16.00	0.630	26.00	1.024	28.00	1.102	19.50	0.768	7.50	0.295
0180	18.00	0.709	31.00	1.220	30.00	1.181	20.50	0.807	8.00	0.315
0190	19.00	0.748	32.00	1.260	31.00	1.220	22.00	0.866	7.50	0.295
0200	20.00	0.787	34.00	1.339	35.00	1.378	22.00	0.866	7.50	0.295
0220	22.00	0.866	36.00	1.417	35.00	1.378	23.50	0.925	7.50	0.295
0240	24.00	0.945	38.00	1.496	38.00	1.496	25.00	0.984	7.50	0.295
0250	25.00	0.984	39.00	1.535	38.00	1.496	26.50	1.043	7.50	0.295
0260	26.00	1.024	40.00	1.575	40.00	1.575	26.50	1.043	8.00	0.315
0280	28.00	1.102	42.00	1.654	42.00	1.654	26.50	1.043	9.00	0.354
0300	30.00	1.181	44.00	1.732	45.00	1.772	25.00	0.984	10.50	0.413
0320	32.00	1.260	46.00	1.811	48.00	1.890	28.50	1.122	10.50	0.413
0330	33.00	1.299	47.00	1.850	50.00	1.969	28.50	1.122	10.50	0.413
0350	35.00	1.378	49.00	1.929	52.00	2.047	28.50	1.122	11.00	0.433
0380	38.00	1.496	54.00	2.126	55.00	2.165	32.20	1.268	10.30	0.406
0400	40.00	1.575	56.00	2.205	58.00	2.283	34.70	1.366	10.80	0.425
0420	42.00	1.654	59.00	2.323	62.00	2.441	37.30	1.469	12.00	0.472
0430	43.00	1.693	59.00	2.323	62.00	2.441	37.30	1.469	12.00	0.472
0450	45.00	1.772	61.00	2.402	64.00	2.520	39.20	1.543	11.60	0.457
0480	48.00	1.890	64.00	2.520	68.40	2.693	44.70	1.760	11.60	0.457
0500	50.00	1.969	66.00	2.598	69.30	2.728	45.70	1.799	11.60	0.457
0550	55.00	2.165	71.00	2.795	75.40	2.969	49.00	1.929	13.30	0.524
0580	58.00	2.283	78.00	3.071	78.40	3.087	52.00	2.047	13.30	0.524
0600	60.00	2.362	79.00	3.110	80.40	3.165	53.00	2.087	13.30	0.524
0650	65.00	2.559	85.00	3.346	85.40	3.362	54.30	2.138	13.00	0.512
0680	68.00	2.677	88.00	3.465	91.50	3.602	55.30	2.177	13.70	0.539
0700	70.00	2.756	90.00	3.543	92.00	3.622	56.30	2.217	13.00	0.512
0750	75.00	2.953	98.00	3.858	99.00	3.898	56.30	2.217	14.00	0.551
0800	80.00	3.150	103.00	4.055	104.00	4.094	59.30	2.335	15.00	0.591



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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	SM32	/ 0100 to 0800 /	/ 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)
	Complete	V26	Carbon	99% Alumina Ceramic	Nitrile	✓
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
XYVR7		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)
XYRR7	Tungsten Carbide	Tungsten Carbide	Viton	✓	✓ FS (on request)	

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

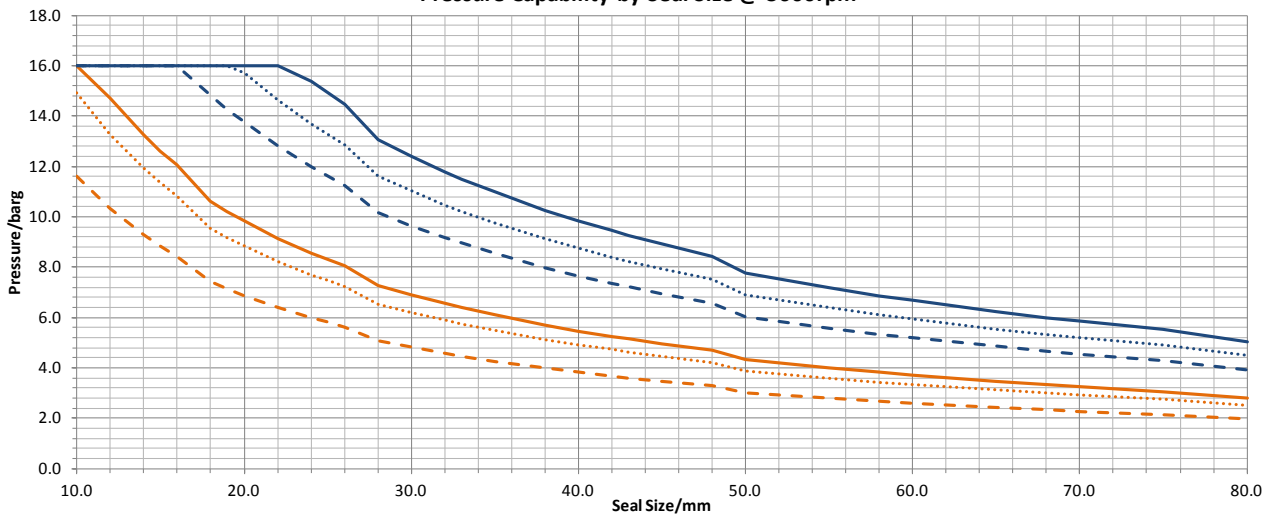
The following graphs show the maximum pressure that the particular sized seals are capable of sealing at temperatures below 80°C (176°F), whilst ensuring that they are operating within the PV limit for the particular face material combinations. If in doubt please contact the first4seals™ Technical Department.

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.

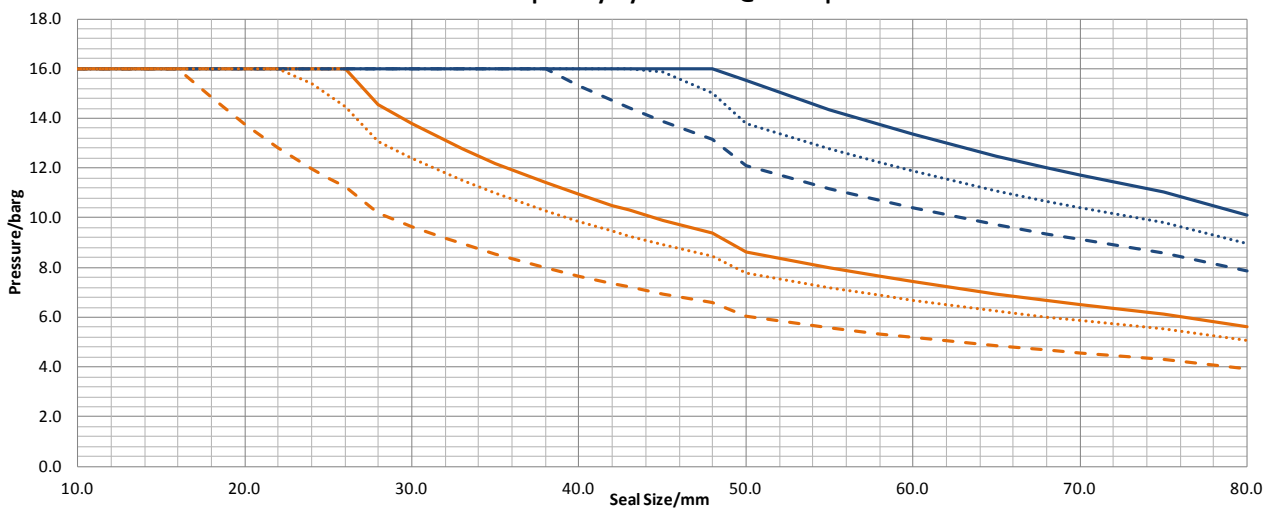
Rotation Speed (Maximum)

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
- 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

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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