

first  **seals**TM
Division



SM32N 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 SM32N Range is a taper spring driven, o’ring mounted rotary seal designed to fit DIN standard housings. It 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.
- **DIN Standard** – Designed to fit within DIN standard housings
- **Anti-Rotation Stationary** – Pin driven DIN stationary ensures that there is no risk of rotation on start up.

first4seals™	AESSEAL	AESSEAL (OLD)	Eagle Burgmann	Flowserve	Vulcan
SM32N	T01DU	T01D	M32N M377N	38D	8.DINL

Typical Industries

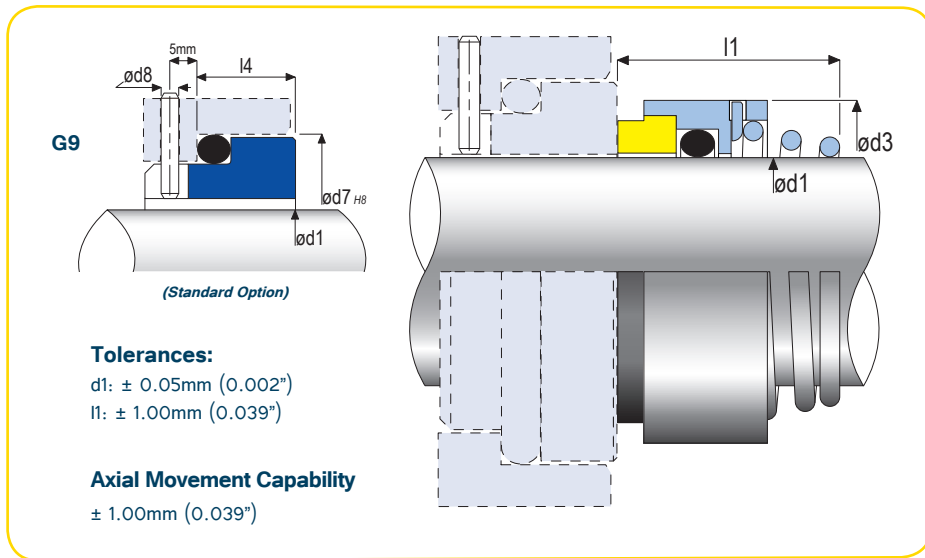
- Power Generation
- Chemical
- Pulp & Paper
- Automotive
- Marine
- Food & Beverage (4 prefix)

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

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Dimensional Information



Seal Size	d1		d3		d7		d8		l1		l4	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
0100	10.00	0.394	20.00	0.787	21.00	0.827	3.00	0.118	15.50	0.610	10.00	0.394
0120	12.00	0.472	22.00	0.866	23.00	0.906	3.00	0.118	16.00	0.630	10.00	0.394
0140	14.00	0.551	24.00	0.945	25.00	0.984	3.00	0.118	16.50	0.650	10.00	0.394
0160	16.00	0.630	26.00	1.024	27.00	1.063	3.00	0.118	18.00	0.709	10.00	0.394
0180	18.00	0.709	31.00	1.220	33.00	1.299	3.00	0.118	19.50	0.768	11.50	0.453
0200	20.00	0.787	34.00	1.339	35.00	1.378	3.00	0.118	22.00	0.866	11.50	0.453
0220	22.00	0.866	36.00	1.417	37.00	1.457	3.00	0.118	21.50	0.846	11.50	0.453
0240	24.00	0.945	38.00	1.496	39.00	1.535	3.00	0.118	23.50	0.925	11.50	0.453
0250	25.00	0.984	39.00	1.535	40.00	1.575	3.00	0.118	26.50	1.043	11.50	0.453
0280	28.00	1.102	42.00	1.654	43.00	1.693	3.00	0.118	26.50	1.043	11.50	0.453
0300	30.00	1.181	44.00	1.732	45.00	1.772	3.00	0.118	26.50	1.043	11.50	0.453
0320	32.00	1.260	46.00	1.811	48.00	1.890	3.00	0.118	28.50	1.122	11.50	0.453
0330	33.00	1.299	47.00	1.850	48.00	1.890	3.00	0.118	28.50	1.122	11.50	0.453
0350	35.00	1.378	49.00	1.929	50.00	1.969	3.00	0.118	28.50	1.122	11.50	0.453
0380	38.00	1.496	54.00	2.126	56.00	2.205	4.00	0.157	33.50	1.319	14.00	0.551
0400	40.00	1.575	56.00	2.205	58.00	2.283	4.00	0.157	36.00	1.417	14.00	0.551
0430	43.00	1.693	59.00	2.323	61.00	2.402	4.00	0.157	38.50	1.516	14.00	0.551
0450	45.00	1.772	61.00	2.402	63.00	2.480	4.00	0.157	39.50	1.555	14.00	0.551
0480	48.00	1.890	64.00	2.520	66.00	2.598	4.00	0.157	46.00	1.811	14.00	0.551
0500	50.00	1.969	66.00	2.598	70.00	2.756	4.00	0.157	45.00	1.772	15.00	0.591
0530	53.00	2.087	69.00	2.717	73.00	2.874	4.00	0.157	47.00	1.850	15.00	0.591
0550	55.00	2.165	71.00	2.795	75.00	2.953	4.00	0.157	49.00	1.929	15.00	0.591
0580	58.00	2.283	78.00	3.071	78.00	3.071	4.00	0.157	55.00	2.165	15.00	0.591
0600	60.00	2.362	79.00	3.110	80.00	3.150	4.00	0.157	55.00	2.165	15.00	0.591
0650	65.00	2.559	85.00	3.346	85.00	3.346	4.00	0.157	55.00	2.165	15.00	0.591
0680	68.00	2.677	88.00	3.465	90.00	3.543	4.00	0.157	55.00	2.165	18.00	0.709
0700	70.00	2.756	90.00	3.543	92.00	3.622	4.00	0.157	57.00	2.244	18.00	0.709
0750	75.00	2.953	98.00	3.858	97.00	3.819	4.00	0.157	62.00	2.441	18.00	0.709
0800	80.00	3.150	103.00	4.055	105.00	4.134	4.00	0.157	61.80	2.433	18.20	0.717



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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	SM32N	/ 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

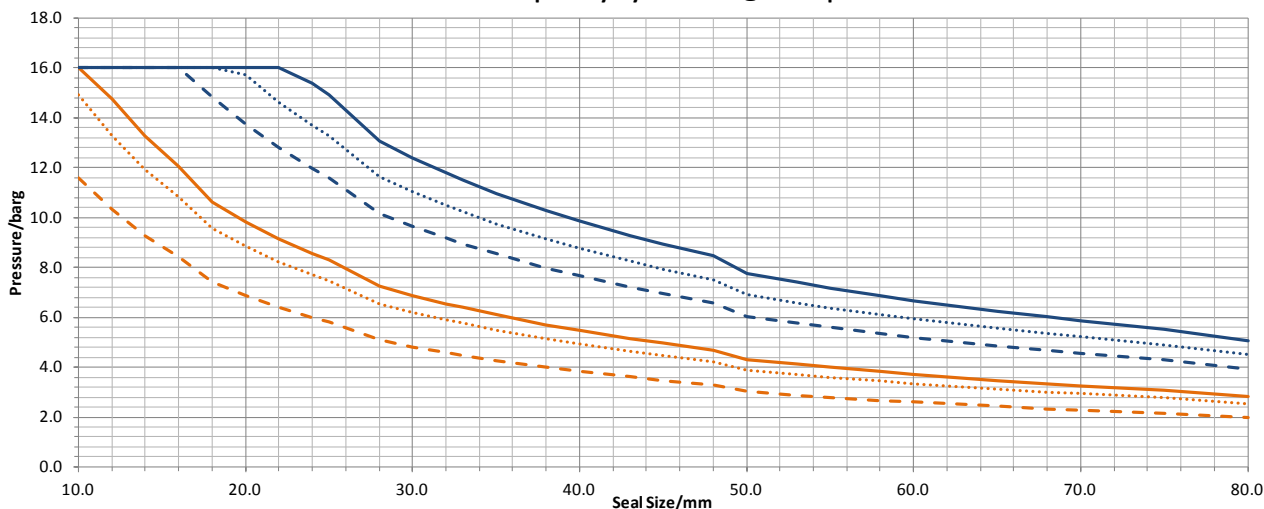
The following graphs show the maximum pressure that the particular sized seals are capable of sealing at temperatures below 80°C (176°F), whilst ensuring that they are operating within the PV limit for the particular face material combinations. If in doubt please contact the first4seals™ Technical Department.

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.

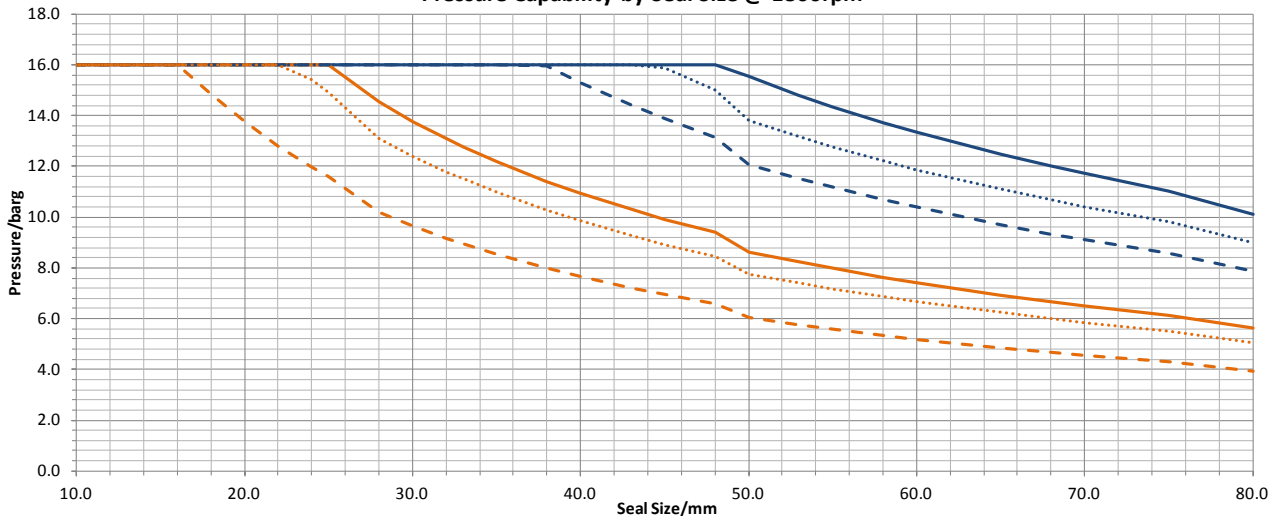
Rotation Speed (Maximum)

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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