

first  **seals**TM
Division



SU2 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 SU2 Range is a taper spring driven, o’ring mounted rotary seal designed to fit DIN standard housings. 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.

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** – 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.
- **DIN Standard** – Designed to fit within DIN standard housings
- **Upgrade Alternative** – The SU2 Range is a direct alternative to the SU3 design and is also available with Ceramic rotary vs Carbon stationary face combinations.



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

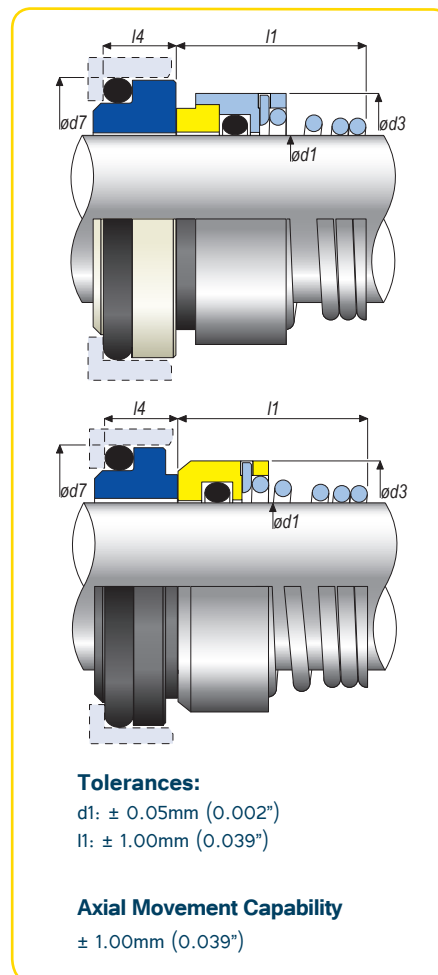
| first4seals™ | AESSEAL | AESSEAL (OLD) | Eagle Burgmann | Flowserve | Roten | Vulcan |
|--------------|---------|---------------|----------------|-----------|----------|--------|
| SU2 | T03DU | T03D | BT-RN.NU | 42D | UNITEN 2 | 12.DIN |

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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 | 211.00 | 8.307 | 15.00 | 0.591 | 7.00 | 0.276 |
| 0120 | 12.00 | 0.472 | 22.00 | 0.866 | 23.00 | 0.906 | 18.00 | 0.709 | 7.00 | 0.276 |
| 0140 | 14.00 | 0.551 | 24.00 | 0.945 | 25.00 | 0.984 | 22.00 | 0.866 | 7.00 | 0.276 |
| 0160 | 16.00 | 0.630 | 26.00 | 1.024 | 27.00 | 1.063 | 23.00 | 0.906 | 7.00 | 0.276 |
| 0180 | 18.00 | 0.709 | 31.00 | 1.220 | 33.00 | 1.299 | 24.00 | 0.945 | 10.00 | 0.394 |
| 0200 | 20.00 | 0.787 | 34.00 | 1.339 | 35.00 | 1.378 | 25.00 | 0.984 | 10.00 | 0.394 |
| 0220 | 22.00 | 0.866 | 36.00 | 1.417 | 37.00 | 1.457 | 25.00 | 0.984 | 10.00 | 0.394 |
| 0240 | 24.00 | 0.945 | 38.00 | 1.496 | 39.00 | 1.535 | 27.00 | 1.063 | 10.00 | 0.394 |
| 0250 | 25.00 | 0.984 | 39.00 | 1.535 | 40.00 | 1.575 | 27.00 | 1.063 | 10.00 | 0.394 |
| 0280 | 28.00 | 1.102 | 42.00 | 1.654 | 43.00 | 1.693 | 29.00 | 1.142 | 10.00 | 0.394 |
| 0300 | 30.00 | 1.181 | 44.00 | 1.732 | 45.00 | 1.772 | 30.00 | 1.181 | 10.00 | 0.394 |
| 0320 | 32.00 | 1.260 | 46.00 | 1.811 | 48.00 | 1.890 | 30.00 | 1.181 | 10.00 | 0.394 |
| 0330 | 33.00 | 1.299 | 47.00 | 1.850 | 48.00 | 1.890 | 39.00 | 1.535 | 10.00 | 0.394 |
| 0350 | 35.00 | 1.378 | 49.00 | 1.929 | 50.00 | 1.969 | 39.00 | 1.535 | 10.00 | 0.394 |
| 0380 | 38.00 | 1.496 | 54.00 | 2.126 | 56.00 | 2.205 | 42.00 | 1.654 | 13.00 | 0.512 |
| 0400 | 40.00 | 1.575 | 56.00 | 2.205 | 58.00 | 2.283 | 42.00 | 1.654 | 13.00 | 0.512 |
| 0430 | 43.00 | 1.693 | 59.00 | 2.323 | 61.00 | 2.402 | 47.00 | 1.850 | 13.00 | 0.512 |
| 0450 | 45.00 | 1.772 | 61.00 | 2.402 | 63.00 | 2.480 | 47.00 | 1.850 | 13.00 | 0.512 |
| 0480 | 48.00 | 1.890 | 64.00 | 2.520 | 66.00 | 2.598 | 47.00 | 1.850 | 13.00 | 0.512 |
| 0500 | 50.00 | 1.969 | 66.00 | 2.598 | 70.00 | 2.756 | 46.00 | 1.811 | 14.00 | 0.551 |
| 0530 | 53.00 | 2.087 | 69.00 | 2.717 | 73.00 | 2.874 | 56.00 | 2.205 | 14.00 | 0.551 |
| 0550 | 55.00 | 2.165 | 71.00 | 2.795 | 75.00 | 2.953 | 56.00 | 2.205 | 14.00 | 0.551 |
| 0580 | 58.00 | 2.283 | 78.00 | 3.071 | 78.00 | 3.071 | 56.00 | 2.205 | 14.00 | 0.551 |
| 0600 | 60.00 | 2.362 | 79.00 | 3.110 | 80.00 | 3.150 | 56.00 | 2.205 | 14.00 | 0.551 |
| 0630 | 63.00 | 2.480 | 83.00 | 3.268 | 83.00 | 3.268 | 56.00 | 2.205 | 14.00 | 0.551 |
| 0650 | 65.00 | 2.559 | 85.00 | 3.346 | 85.00 | 3.346 | 66.00 | 2.598 | 14.00 | 0.551 |
| 0680 | 68.00 | 2.677 | 88.00 | 3.465 | 90.00 | 3.543 | 64.00 | 2.520 | 16.00 | 0.630 |
| 0700 | 70.00 | 2.756 | 90.00 | 3.543 | 92.00 | 3.622 | 64.00 | 2.520 | 16.00 | 0.630 |
| 0750 | 75.00 | 2.953 | 98.00 | 3.858 | 97.00 | 3.819 | 64.00 | 2.520 | 16.00 | 0.630 |
| 0800 | 80.00 | 3.150 | 103.00 | 4.055 | 105.00 | 4.134 | 72.00 | 2.835 | 18.00 | 0.709 |
| 0850 | 85.00 | 3.346 | 107.50 | 4.232 | 110.00 | 4.331 | 72.00 | 2.835 | 18.00 | 0.709 |
| 0900 | 90.00 | 3.543 | 111.00 | 4.370 | 115.00 | 4.528 | 72.00 | 2.835 | 18.00 | 0.709 |
| 0950 | 95.00 | 3.740 | 119.00 | 4.685 | 120.00 | 4.724 | 72.00 | 2.835 | 18.00 | 0.709 |
| 1000 | 100.00 | 3.937 | 124.00 | 4.882 | 125.00 | 4.921 | 72.00 | 2.835 | 18.00 | 0.709 |



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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 | SU2 | / 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

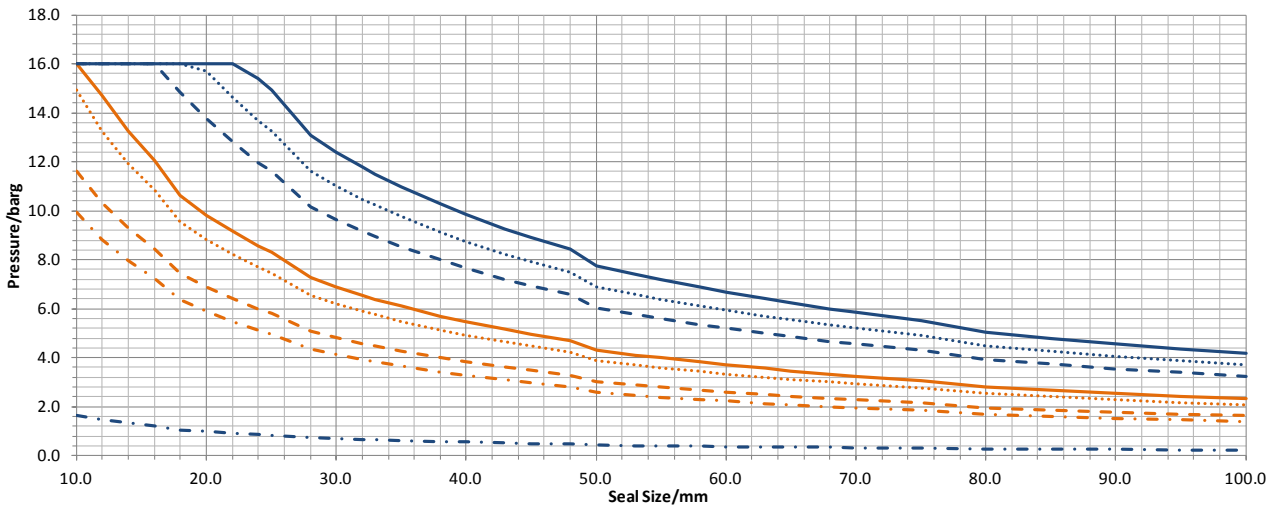
The following graphs show the maximum pressure that the particular sized seals are capable of sealing at temperatures below 80°C (176°F), whilst ensuring that they are operating within the PV limit for the particular face material combinations. If in doubt please contact the first4seals™ Technical Department.

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.

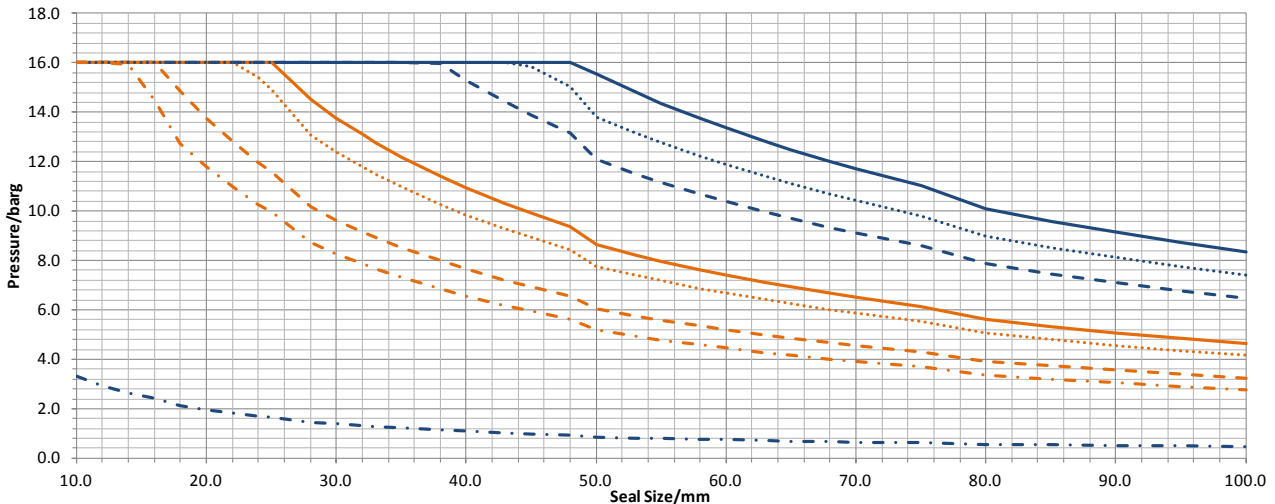
Rotation Speed (Maximum)

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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