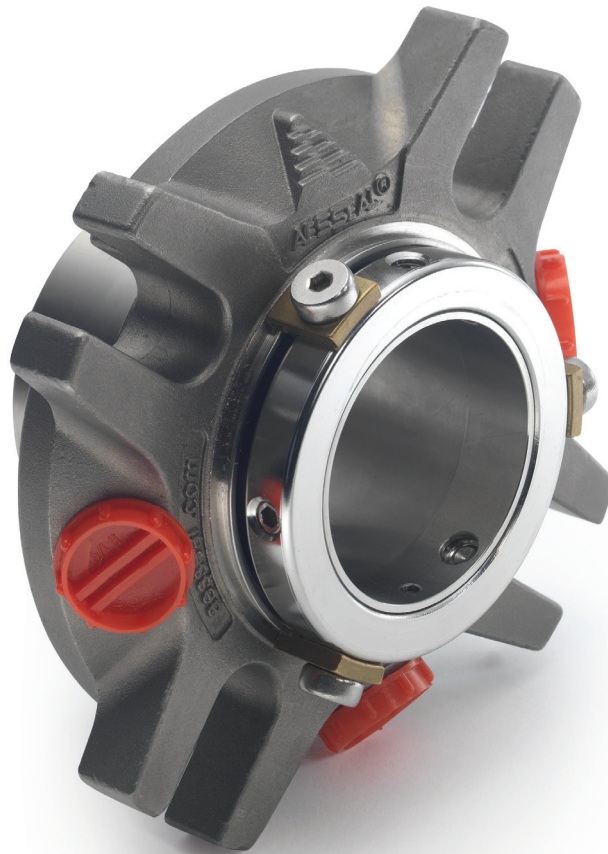




EXPERIENCE THE EXCEPTIONAL

CSS™ / CSSN™ CDP™ / CDPN™

Single & Double Cartridge Seal Ranges



- Cartridge seals for reliable installation
- Balanced seal design
- No shaft fretting
- Robust design
- Registered designs

www.aesseal.com

“Our purpose is to give our customers such exceptional service that they need never consider alternative sources of supply.”

CSS™ / CSSN™ & CDP™ / CDPN™ - Single and Double Cartridge Seals

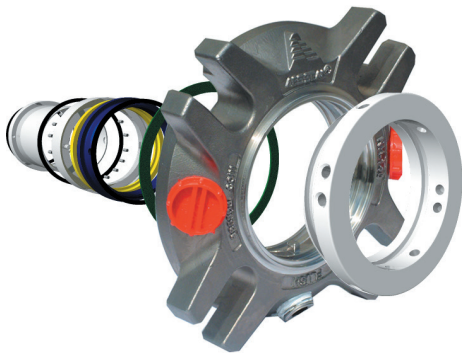
Industry leading modular design is proven to decrease costs and increase equipment up-time.

The AESSEAL® CSS™ / CSSN™ and CDP™ / CDPN™ ranges of cartridge mechanical seals have been designed as high performance sealing solutions for general applications.

These products build on over a decade of proven performance from the AESSEAL® CURC™ and CDSA™ range of seals. They combine this with cutting edge manufacturing techniques to represent the best value for money sealing solutions available today.

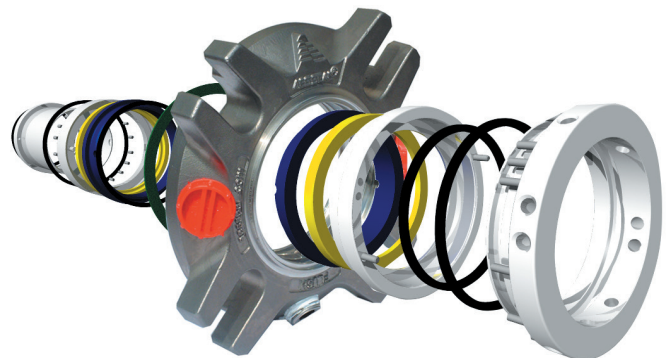
CSSN™

The modular system allows 10 million seal permutations, ensuring AESSEAL® can supply the right solution to meet the customers time frame.



CDPN™

The AESSEAL® modular sealing system combined with unrivalled inventory levels ensure that any standard seal in any size or material combination is available for despatch immediately.



AESSEAL® does not believe in “just in time”. Relative to sales, we believe that we hold the highest level of inventory in the industry and as a result we can offer the best delivery performance.

AESSEAL Global Technology Centre



Extensive AESSEAL® test facilities



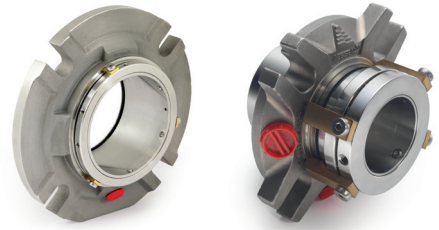
CSS™ / CSSN™ & CDP™ / CDPN™ Features and Benefits

Two standard gland configurations

For sizes from 1.000" to 3.500" (24-85mm) the seal is a CSSN™ or CDPN™.
The CSS™ / CDP™ are available from 3.625" to 4.750" (90-120mm).

1/4" NPT flush / vent port supplied with a stainless steel blanking plug as standard.

Fits both small and ANSI+ box bore pumps without modification.



Modular Seal Face Design

Hydraulically balanced face design ensures optimum fluid film during process fluctuations.
A wide range of inventoried materials allows maximum flexibility and delivery performance.
Metal-to-metal pin drive eliminates potential impact damage.

Captured Rotary 'O' Ring

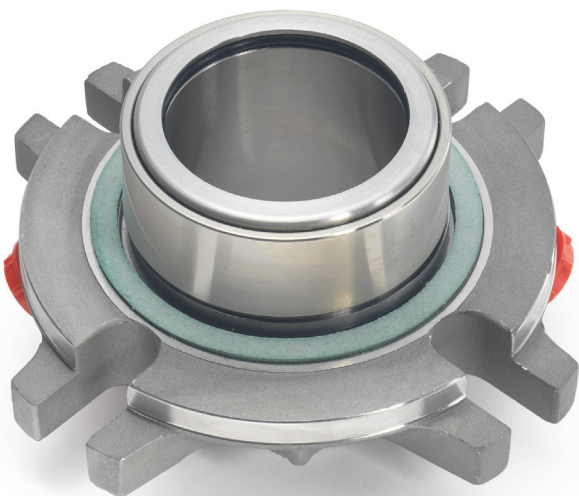
Captured 'O' ring design prevents extrusion under vacuum conditions.

Multi-Spring Design

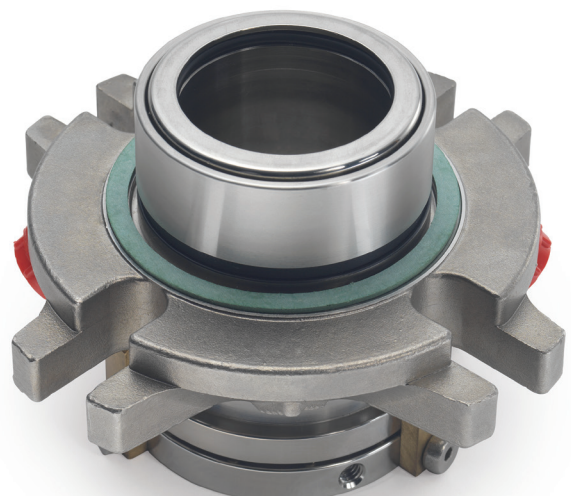
Alloy 276 helical coil springs ensure accurate uniform seal face loading throughout the seal life.
Springs are placed out of the product media to eliminate clogging and loss of face loading.

Reliable Drive

Drive screws clamp directly on to shaft or sleeve to minimise drive loss.
Drive screws which do not deform the seal sleeve ensure easy removal and refitting for equipment maintenance.
Robust setting clips guarantee correct working length and can be re-used for removal and refitting.



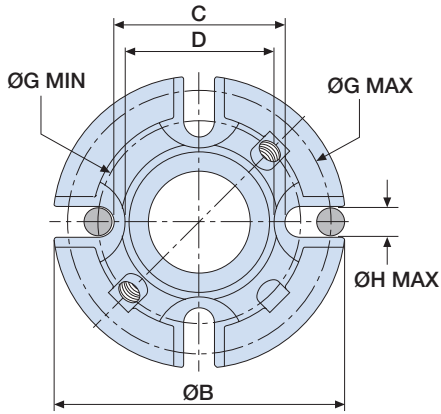
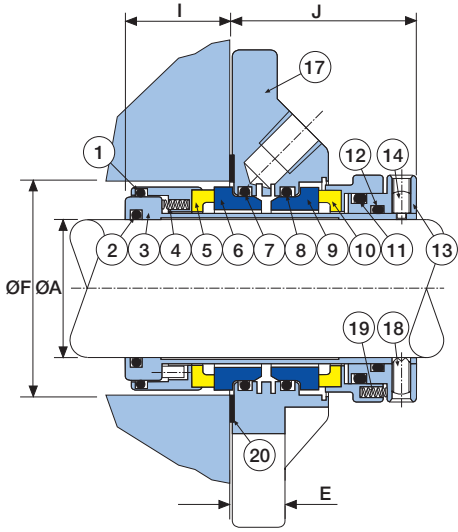
**CSSN™ Cartridge
Single Mechanical Seal**



**CDPN™ Cartridge
Double Mechanical Seal**

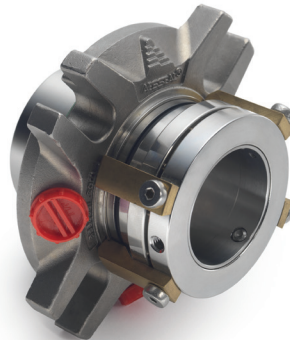
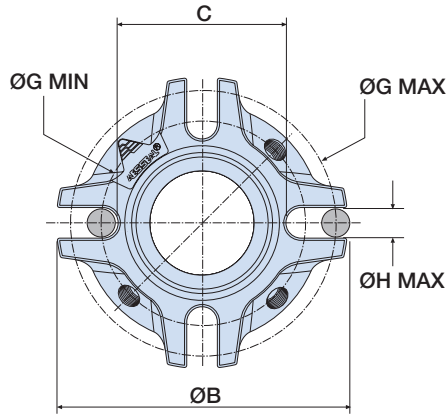
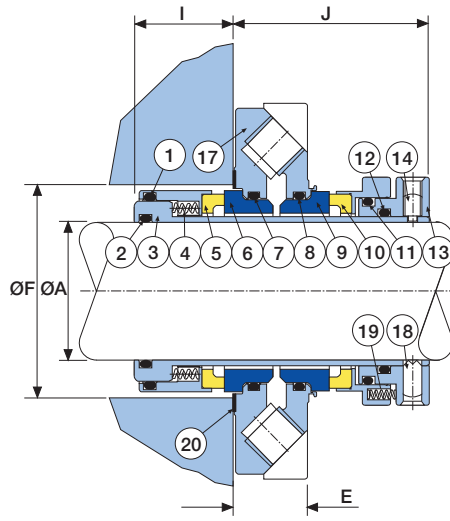
CDP™

3.625" to 4.750" (90mm - 120mm)

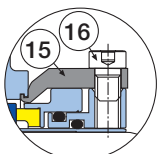
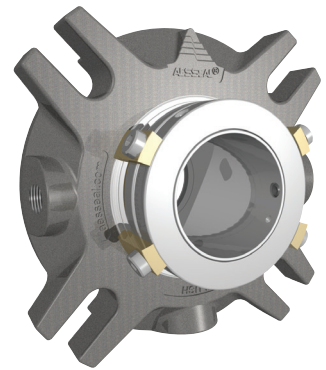
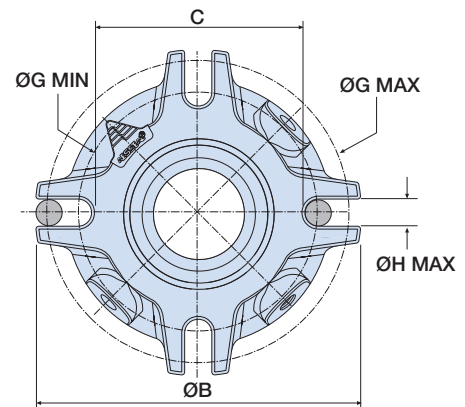
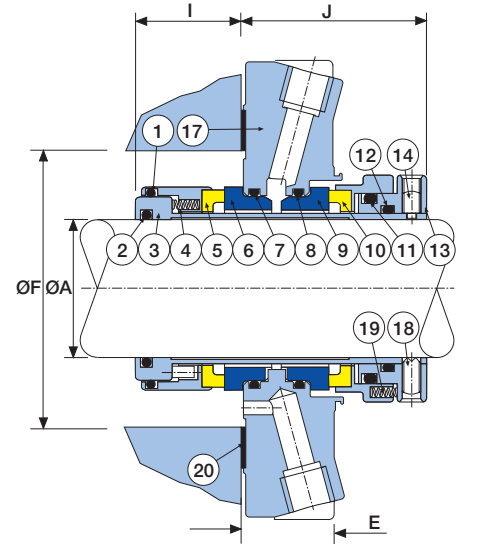


CDPN™

1.000" to 3.500" (24mm - 85mm)



CDPN™ ANSI+



Setting Clip
Details

| Item | Description | Material | Item | Description | Material |
|------|-----------------------|--|------|-------------------|---------------------------------|
| 1 | Rotary O Ring | Viton® / EPR / Kalrez® / Aflas® | 11 | Drive Band O Ring | Viton® / EPR / Kalrez® / Aflas® |
| 2 | Sleeve O Ring | Viton® / EPR / Kalrez® / Aflas® | 12 | Clamp Ring O Ring | Viton® / EPR / Kalrez® / Aflas® |
| 3 | Sleeve | 316L Stainless Steel | 13 | Clamp Ring | 316L Stainless Steel |
| 4 | Springs | Alloy 276 | 14 | Anti-Tamper Screw | 316 Stainless Steel |
| 5 | Inner Rotary Face | 316L SS - Carbon / TC / SiC | 15 | Centering Clips | Brass |
| 6 | Inner Stationary Face | SiC / Ceramic† / TC / 316L Stainless Steel-Chr.Ox.* | 16 | Clip Screws | 316 Stainless Steel |
| 7 | Stationary O Ring | Viton® / EPR / Kalrez® / Aflas® | 17 | Gland | 316 Stainless Steel |
| 8 | Stationary O Ring | Viton® / EPR / Kalrez® / Aflas® | 18 | Drive Screws | 316 Stainless Steel |
| 9 | Outer Stationary Face | SiC / Ceramic† / TC / 316L Stainless Steel-Chr.Ox.* | 19 | Springs | Alloy 276 |
| 10 | Outer Rotary Face | 316L SS - Carbon / TC / SiC | 20 | Gasket | AF1 / GFT |

All Port Connections are 1/4" NPT.

*This material is not available in sizes up to and including 5.500" (140mm). †This material is not available from 3.125" (80mm) and above.

Please refer to the back page of this brochure for information on support systems for double seals.

CDP™ / CDPN™ & CDPN™ ANSI+ - Size Charts

CDP / CDPN™ Dimensional Information (inches)

| Gland Choice | ØA | ØB | C | D | E | ØF Min | ØF Min† | ØF Max | ØG Min | ØG Max | ØH Max | I | J | KMax* |
|--|--------|-------|-------|-------|-------|--------|---------|--------|--------|--------|--------|-------|-------|-------|
| CDPN™ | | | | | | | | | | | | | | |
| Sizes from 1.000" - 3.500" are the CDPN™ | | | | | | | | | | | | | | |
| 1.000 | 4.125 | 2.375 | - | 0.927 | 1.625 | 1.665 | 1.937 | 2.937 | 3.625 | 1/2 | 1.209 | 2.020 | 0.040 | |
| 1.125 | 4.250 | 2.375 | - | 0.927 | 1.750 | 1.790 | 2.062 | 2.937 | 3.750 | 1/2 | 1.209 | 2.020 | 0.040 | |
| 1.250 | 4.375 | 2.500 | - | 0.927 | 1.875 | 1.915 | 2.187 | 3.062 | 3.875 | 1/2 | 1.209 | 2.020 | 0.040 | |
| 1.375 | 4.375 | 2.625 | - | 0.927 | 2.000 | 2.040 | 2.312 | 3.186 | 3.875 | 1/2 | 1.209 | 2.020 | 0.040 | |
| 1.500 | 5.000 | 2.832 | - | 0.852 | 2.250 | 2.290 | 2.500 | 3.375 | 4.500 | 1/2 | 1.090 | 2.226 | 0.040 | |
| 1.625 | 5.000 | 2.832 | - | 0.852 | 2.375 | 2.415 | 2.500 | 3.375 | 4.500 | 1/2 | 1.090 | 2.226 | 0.040 | |
| 1.750 | 5.250 | 3.022 | - | 0.852 | 2.500 | 2.540 | 2.750 | 3.562 | 4.750 | 1/2 | 1.090 | 2.226 | 0.040 | |
| 1.875 | 5.250 | 3.022 | - | 0.852 | 2.625 | 2.665 | 2.750 | 3.562 | 4.750 | 1/2 | 1.090 | 2.226 | 0.040 | |
| 2.000 | 5.500 | 3.386 | - | 0.852 | 2.750 | 2.790 | 3.000 | 3.937 | 5.000 | 1/2 | 1.150 | 2.250 | 0.040 | |
| 2.125 | 5.750 | 3.687 | - | 0.852 | 2.875 | 2.915 | 3.312 | 4.375 | 5.125 | 5/8 | 1.150 | 2.250 | 0.040 | |
| 2.250 | 5.750 | 3.687 | - | 0.852 | 3.000 | 3.040 | 3.312 | 4.375 | 5.125 | 5/8 | 1.150 | 2.250 | 0.040 | |
| 2.375 | 6.000 | 3.937 | - | 0.852 | 3.125 | 3.165 | 3.562 | 4.625 | 5.375 | 5/8 | 1.150 | 2.250 | 0.040 | |
| 2.500 | 7.000 | 4.312 | - | 0.926 | 3.375 | 3.435 | 3.875 | 5.000 | 6.375 | 5/8 | 1.250 | 2.510 | 0.060 | |
| 2.625 | 7.000 | 4.312 | - | 0.926 | 3.500 | 3.560 | 3.875 | 5.000 | 6.375 | 5/8 | 1.250 | 2.510 | 0.060 | |
| 2.750 | 7.000 | 4.312 | - | 0.926 | 3.625 | 3.685 | 3.875 | 5.000 | 6.375 | 5/8 | 1.250 | 2.510 | 0.060 | |
| 2.875 | 7.500 | 4.937 | - | 0.926 | 3.750 | 3.810 | 4.500 | 5.625 | 6.812 | 5/8 | 1.250 | 2.510 | 0.060 | |
| 3.000 | 7.500 | 4.937 | - | 0.926 | 3.875 | 3.935 | 4.500 | 5.625 | 6.812 | 5/8 | 1.250 | 2.510 | 0.060 | |
| 3.125 | 7.500 | 4.937 | - | 0.926 | 4.000 | 4.060 | 4.500 | 5.625 | 6.812 | 5/8 | 1.250 | 2.510 | 0.060 | |
| 3.250 | 8.000 | 5.312 | - | 0.926 | 4.125 | 4.185 | 4.875 | 6.000 | 7.312 | 5/8 | 1.250 | 2.510 | 0.060 | |
| 3.375 | 8.000 | 5.312 | - | 0.926 | 4.250 | 4.310 | 4.875 | 6.000 | 7.312 | 5/8 | 1.250 | 2.510 | 0.060 | |
| 3.500 | 8.000 | 5.312 | - | 0.926 | 4.375 | 4.435 | 4.875 | 6.000 | 7.312 | 5/8 | 1.250 | 2.510 | 0.060 | |
| CDP™ | | | | | | | | | | | | | | |
| Sizes from 3.625 upwards are the CDP™ | | | | | | | | | | | | | | |
| 3.625 | 8.500 | 5.937 | 5.000 | 0.769 | 4.500 | 4.560 | 5.000 | 6.750 | 7.687 | 3/4 | 1.250 | 2.375 | 0.060 | |
| 3.750 | 8.500 | 5.937 | 5.000 | 0.769 | 4.625 | 4.685 | 5.125 | 6.750 | 7.687 | 3/4 | 1.250 | 2.375 | 0.060 | |
| 3.875 | 8.500 | 5.937 | 5.000 | 0.769 | 4.750 | 4.810 | 5.250 | 6.750 | 7.687 | 3/4 | 1.250 | 2.375 | 0.060 | |
| 4.000 | 9.000 | 6.625 | 5.375 | 0.769 | 4.875 | 4.935 | 5.500 | 7.437 | 8.187 | 3/4 | 1.250 | 2.375 | 0.060 | |
| 4.625 | 10.000 | 7.345 | 6.125 | 0.769 | 5.625 | 5.685 | 6.625 | 8.312 | 9.062 | 7/8 | 1.250 | 2.375 | 0.060 | |
| 4.750 | 10.000 | 7.345 | 6.125 | 0.769 | 5.625 | 5.685 | 6.625 | 8.312 | 9.062 | 7/8 | 1.250 | 2.375 | 0.060 | |

† = F Min + K Max *For K Max explanation please refer to page 4.

CDP / CDPN™ - Dimensional Information (mm)

| Gland Choice | ØA | ØB | C | D | E | ØF Min | ØF Min† | ØF Max | ØG Min | ØG Max | ØH Max | I | J | KMax* |
|--------------------------------------|-------|-------|-------|------|-------|--------|---------|--------|--------|--------|--------|------|-----|-------|
| CDPN™ | | | | | | | | | | | | | | |
| Sizes from 24mm - 85mm are the CDPN™ | | | | | | | | | | | | | | |
| 24 | 104.8 | 60.3 | - | 23.5 | 40.0 | 41.0 | 46.0 | 74.6 | 92.0 | 12 | 30.7 | 51.3 | 1.0 | |
| 25 | 104.8 | 60.3 | - | 23.5 | 41.0 | 42.0 | 49.2 | 74.6 | 92.0 | 12 | 30.7 | 51.3 | 1.0 | |
| 28 | 108.0 | 60.3 | - | 23.5 | 44.0 | 45.0 | 52.4 | 74.6 | 95.3 | 12 | 30.7 | 51.3 | 1.0 | |
| 30 | 111.0 | 63.5 | - | 23.5 | 46.0 | 47.0 | 55.6 | 77.8 | 98.4 | 12 | 30.7 | 51.3 | 1.0 | |
| 32 | 111.0 | 63.5 | - | 23.5 | 48.0 | 49.0 | 55.6 | 77.8 | 98.4 | 12 | 30.7 | 51.3 | 1.0 | |
| 33 | 111.0 | 63.5 | - | 23.5 | 49.0 | 50.0 | 55.6 | 77.8 | 98.4 | 12 | 30.7 | 51.3 | 1.0 | |
| 35 | 111.0 | 66.7 | - | 23.5 | 50.8 | 51.8 | 58.7 | 80.9 | 98.4 | 12 | 30.7 | 51.3 | 1.0 | |
| 38 | 127.0 | 71.9 | - | 21.6 | 57.2 | 58.2 | 63.5 | 85.7 | 114.3 | 12 | 27.7 | 56.5 | 1.0 | |
| 40 | 127.0 | 71.9 | - | 21.6 | 57.2 | 58.2 | 63.5 | 85.7 | 114.3 | 12 | 27.7 | 56.5 | 1.0 | |
| 43 | 127.0 | 71.9 | - | 21.6 | 60.3 | 61.3 | 63.5 | 85.7 | 114.3 | 12 | 27.7 | 56.5 | 1.0 | |
| 45 | 133.4 | 76.7 | - | 21.6 | 63.5 | 64.5 | 69.8 | 90.5 | 120.7 | 12 | 27.7 | 56.5 | 1.0 | |
| 48 | 133.4 | 76.7 | - | 21.6 | 66.7 | 67.7 | 69.8 | 90.5 | 120.7 | 12 | 27.7 | 56.5 | 1.0 | |
| 50 | 133.4 | 76.7 | - | 21.6 | 68.0 | 69.0 | 69.8 | 90.5 | 120.7 | 12 | 27.7 | 56.5 | 1.0 | |
| 53 | 139.7 | 86.0 | - | 21.6 | 71.0 | 72.0 | 76.2 | 100.0 | 127.0 | 12 | 29.2 | 57.2 | 1.0 | |
| 55 | 146.0 | 93.7 | - | 21.6 | 73.0 | 74.0 | 84.1 | 111.1 | 130.2 | 16 | 29.2 | 57.2 | 1.0 | |
| 58 | 146.0 | 93.7 | - | 21.6 | 76.2 | 77.2 | 84.1 | 111.1 | 130.2 | 16 | 29.2 | 57.2 | 1.0 | |
| 60 | 152.4 | 100.0 | - | 21.6 | 79.4 | 80.4 | 90.5 | 117.5 | 136.5 | 16 | 29.2 | 57.2 | 1.0 | |
| 63 | 177.8 | 109.5 | - | 23.5 | 85.7 | 87.2 | 98.4 | 127.0 | 161.9 | 16 | 31.8 | 63.8 | 1.5 | |
| 65 | 177.8 | 109.5 | - | 23.5 | 88.9 | 90.4 | 98.4 | 127.0 | 161.9 | 16 | 31.8 | 63.8 | 1.5 | |
| 70 | 177.8 | 109.5 | - | 23.5 | 92.1 | 93.6 | 98.4 | 127.0 | 161.9 | 16 | 31.8 | 63.8 | 1.5 | |
| 75 | 190.5 | 125.4 | - | 23.5 | 98.5 | 100.0 | 114.3 | 142.9 | 173.0 | 16 | 31.8 | 63.8 | 1.5 | |
| 80 | 190.5 | 125.4 | - | 23.5 | 101.6 | 103.1 | 114.3 | 142.9 | 173.0 | 16 | 31.8 | 63.8 | 1.5 | |
| 85 | 203.2 | 135.0 | - | 23.5 | 108.0 | 109.5 | 123.7 | 152.4 | 185.7 | 16 | 31.8 | 63.8 | 1.5 | |
| CDP™ | | | | | | | | | | | | | | |
| Sizes from 90mm upwards are the CDP™ | | | | | | | | | | | | | | |
| 90 | 215.9 | 150.8 | 127.0 | 19.6 | 114.3 | 115.8 | 127.0 | 171.5 | 195.2 | 20 | 31.8 | 60.3 | 1.5 | |
| 95 | 215.9 | 150.8 | 127.0 | 19.6 | 117.5 | 119.0 | 130.2 | 171.5 | 195.2 | 20 | 31.8 | 60.3 | 1.5 | |
| 100 | 228.6 | 168.3 | 136.5 | 19.6 | 123.9 | 125.4 | 139.7 | 188.9 | 207.9 | 20 | 31.8 | 60.3 | 1.5 | |
| 115 | 254.0 | 186.6 | 155.6 | 19.6 | 142.9 | 144.4 | 168.3 | 211.1 | 230.2 | 22 | 31.8 | 60.3 | 1.5 | |
| 120 | 254.0 | 186.6 | 155.6 | 19.6 | 142.9 | 144.4 | 168.3 | 211.1 | 230.2 | 22 | 31.8 | 60.3 | 1.5 | |

† = F Min + K Max *For K Max explanation please refer to page 4.

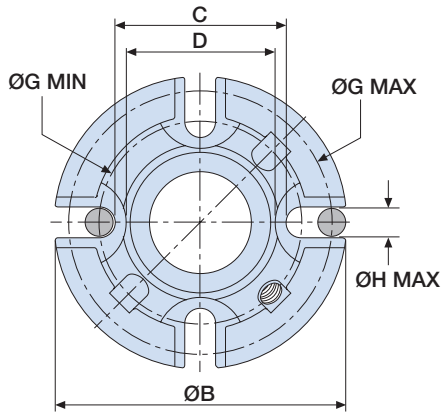
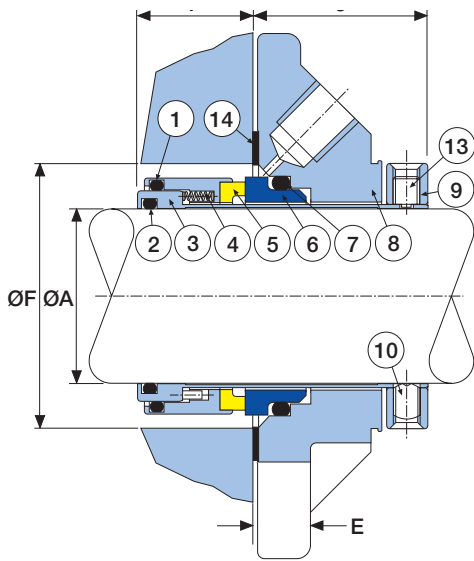
CDPN™ ANSI+ - Dimensional Information (inches)

| Gland Choice | ØA | ØB | C | E | ØF Min | ØF Max | ØG Min | ØG Max | ØH Max | I | J | K Max* |
|--------------|-------|-------|-------|-------|--------|--------|--------|--------|--------|-------|-------|--------|
| 1.125 | 4.975 | 3.174 | 0.906 | 2.625 | 2.850 | 3.750 | 4.437 | 0.500 | 1.229 | 2.000 | 0.040 | |
| 1.375 | 5.328 | 3.413 | 0.898 | 2.875 | 3.100 | 4.000 | 4.812 | 0.500 | 1.250 | 2.000 | 0.040 | |
| 1.750 | 6.750 | 4.413 | 1.058 | 3.500 | 4.100 | 5.000 | 6.250 | 0.500 | 1.196 | 2.119 | 0.040 | |
| 1.875 | 6.750 | 4.413 | 1.058 | 3.625 | 4.100 | 5.000 | 6.250 | 0.500 | 1.196 | 2.119 | 0.040 | |
| 2.125 | 7.600 | 4.663 | 0.892 | 3.875 | 4.225 | 5.375 | 6.875 | 0.625 | 1.396 | 2.000 | 0.040 | |
| 2.500 | 8.250 | 5.413 | 1.137 | 4.500 | 5.100 | 6.125 | 7.562 | 0.625 | 1.451 | 2.187 | 0.060 | |
| 2.625 | 8.250 | 5.413 | 1.137 | 4.625 | 5.100 | 6.125 | 7.562 | 0.625 | 1.451 | 2.187 | 0.060 | |
| 2.750 | 8.250 | 5.413 | 1.137 | 4.625 | 5.100 | 6.125 | 7.562 | 0.625 | 1.451 | 2.187 | 0.060 | |

*For K Max explanation please refer to page 4.

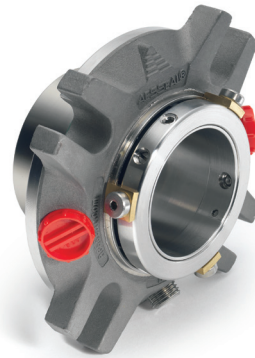
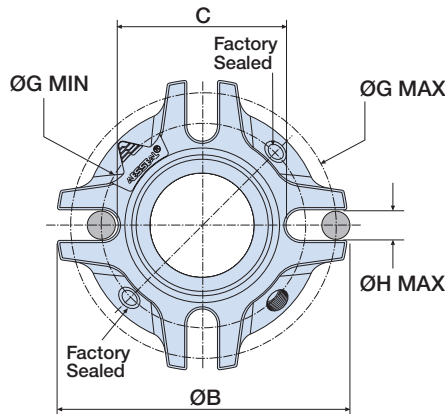
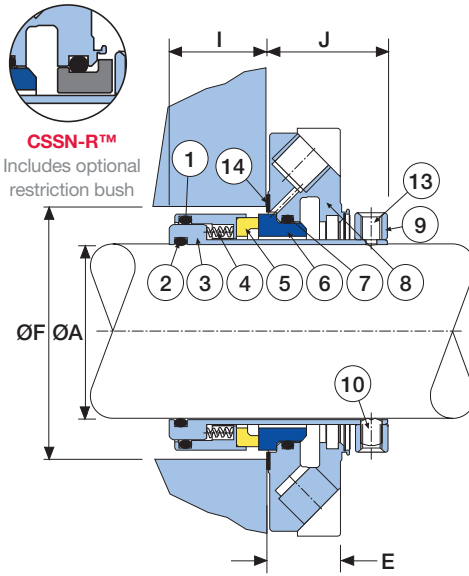
CSS™

3.625" to 4.750" (90mm - 120mm)

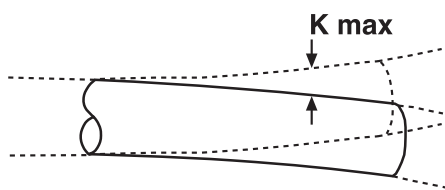
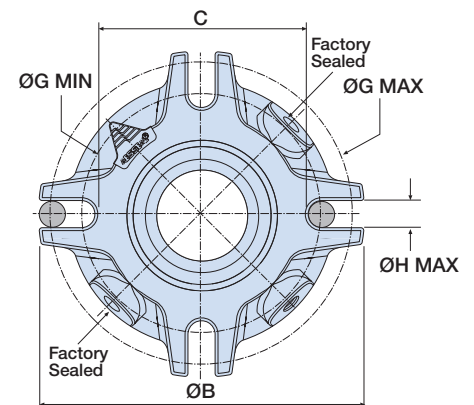
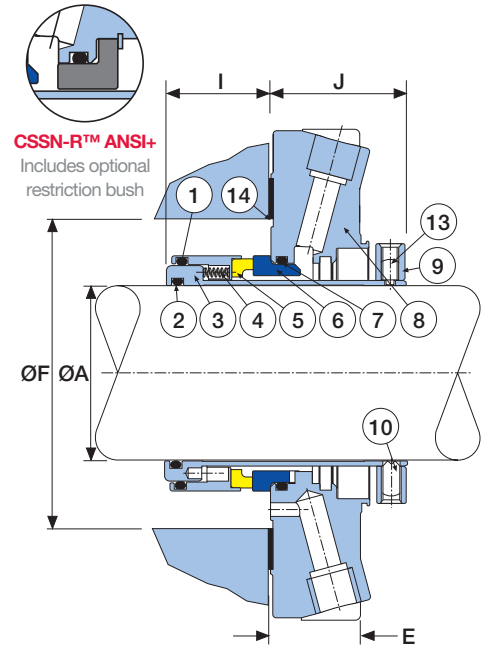


CSSN™

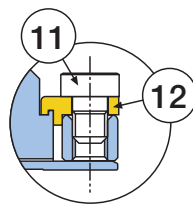
1.000" to 3.500" (24mm - 85mm)



CSSN™ ANSI+



K Max = MAXIMUM TOTAL RADIAL MOVEMENT



Setting Clip Details

| Item | Description | Material |
|------|--------------------|--|
| 1 | Rotary O Ring | Viton® / EPR / Kalrez® / Aflas® |
| 2 | Sleeve O Ring | Viton® / EPR / Kalrez® / Aflas® |
| 3 | Sleeve | 316L Stainless Steel |
| 4 | Springs | Alloy 276 |
| 5 | Rotary Face | 316L SS - Carbon / TC / SiC |
| 6 | Stationary Face | TC / Ceramic† / SiC / 316L SS-Chr.Ox.* |
| 7 | Stationary O Ring | Viton® / EPR / Kalrez® / Aflas® |
| 8 | Gland | 316 Stainless Steel |
| 9 | Clamp Ring | 316L Stainless Steel |
| 10 | Drive Screws | Stainless Steel |
| 11 | Clip Screws | Stainless Steel |
| 12 | Setting Clips | Hard Plastic / Brass |
| 13 | Anti-tamper Screws | Stainless Steel |
| 14 | Gasket | AF1 / GFT |

All Port Connections are 1/4" NPT.

*This material is not available in sizes up to and including 5.500" (140mm).

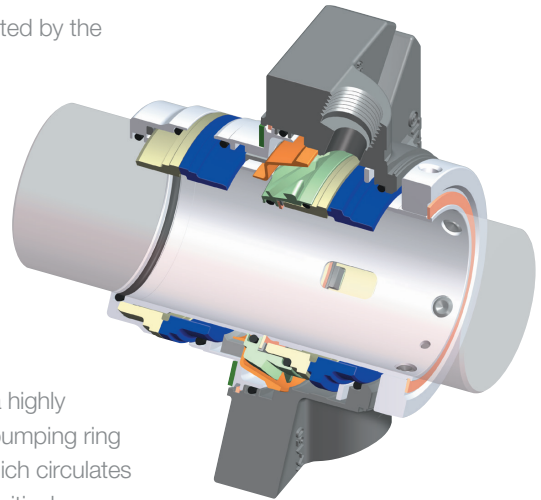
†This material is not available from 3.125" (80mm) and above.

SMSS™ & DMSF™ - Single and Double Monolithic Designs

The CSSN™ and CDPN™ range of cartridge mechanical seals is complemented by the high performance SMSS™ and DMSF™ monolithic designs.

Available from 1.000" to 6.000" (24mm to 150mm), the patented DMSF™ stationary design includes double balanced seal faces designed to withstand barrier and process pressure fluctuations.

The SMSS™ has two flush ports, positioned directly over the seal faces, providing the option of tangential flushing irrespective of shaft rotational direction.



The DMSF™ is supplied with a highly efficient integral bi-directional pumping ring and deflector arrangement, which circulates and directs barrier fluid to the critical places within the seal.

Both SMSS™ and DMSF™ products employ modular components, thereby increasing availability and reducing product lead time.

Environmental Control Systems For Double Seals

In addition to a vast range of mechanical seals, AESSEAL® also has a comprehensive range of seal support systems and bearing protection devices for all your sealing needs. The AESSEAL® Support Systems offering ranges from the FLOWTRUE™ flow meter device, to the SWFF-TF™ thermosyphon system, the high pressure AES-15 system and the PUMPPAC™ forced circulation system.



SWFF-TF™



FLOWTRUE™



AES-15™



PUMPPAC™

The systems above are compatible with a wide selection of barrier and buffer fluid media. They are supplied pre-assembled with all necessary components and fittings. On site inventory costs are reduced by modular system construction.

This document is designed to provide dimensional information and an indication of availability. For further information and safe operating limits contact our technical specialists at the locations below.



INVESTOR IN PEOPLE

Use double mechanical seals with hazardous products.
Always take safety precautions:  **WARNING**

- Guard your equipment
- Wear protective clothing

UK Sales & Technical advice:
AESSEAL plc
Mill Close
Bradmarsh Business Park
Rotherham
S60 1BZ
United Kingdom

Tel: +44 (0) 1709 369966
Fax: +44 (0) 1709 720788
E-mail: seals@aes seal.com

Distributed by:

'Our purpose is to give our customers such exceptional service that they need never consider alternative sources of supply.'

www.aes seal.com

USA Sales & Technical advice:
AESSEAL Inc.
355 Dunavant Drive
Rockford
TN. 37853
USA

Tel: +1 865 531 0192
Fax: +1 865 531 0571
E-mail: usa@aes seal.com

Important: Since the conditions and methods of use of this product are beyond our control, AESSEAL plc expressly disclaims any and all liability resulting or arising from any use of this product or reliance on any information contained in this document - AESSEAL plc standard conditions of sale apply. All sizes are subject to manufacturing tolerances. We reserve the right to modify specifications at any time. AESSEAL® is a Registered Trademark of AESSEAL plc, AESSEAL plc recognizes all trademarks and trademark names as the property of their owners.