

# FIDC™

Flow Induced Dual Cartridge Seal



- Unique self-aligning inboard and outboard seal faces
- Modular construction for maximum adaptability
- Hydraulically balanced seal faces
- Optimized seal face cooling for improved reliability

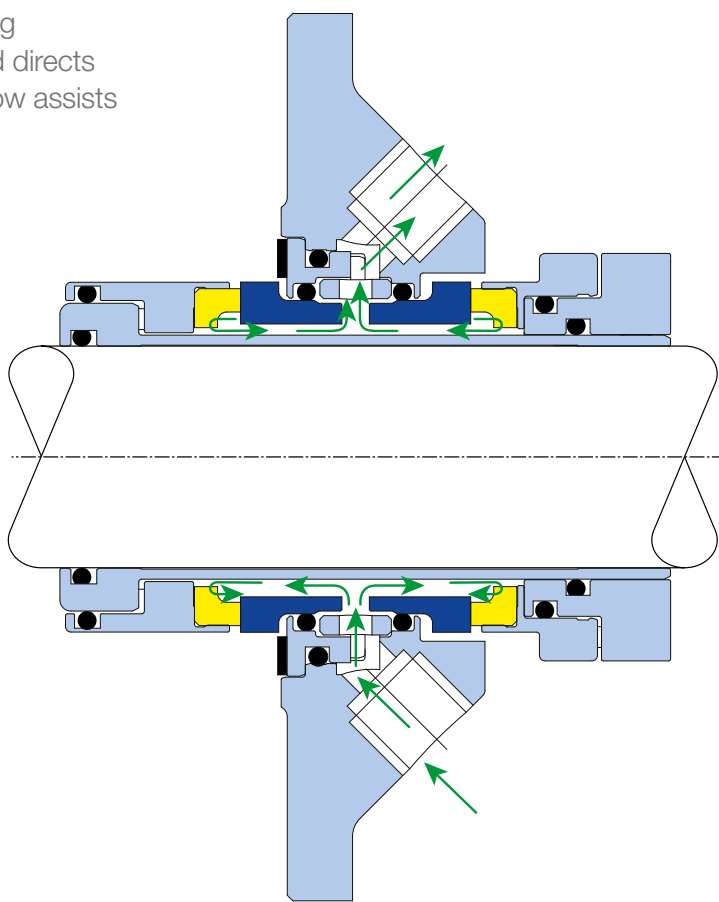
## FIDC™ - Flow Induced Dual Cartridge

The FIDC™ seal is the next generation of high performance sealing solutions offering increased barrier fluid flow for improved reliability.

The FIDC™ has a modular construction that forms the basis for a fully flexible engineered sealing system that meets the needs of a wide range of applications. The standard seal uses 316 Stainless Steel with Carbon, Tungsten Carbide and Silicon Carbide faces, available with FKM, EPDM, FFKM and TFE/P elastomers. The unique inner sleeve design (patented) encourages increased barrier / buffer fluid flow leading to lower seal face temperatures and improved reliability.

### Improved Barrier Fluid Flow

The FIDC™ includes an integral patented pumping device that increases barrier / buffer fluid flow and directs the flow towards the seal faces. This increased flow assists with heat removal and improves seal reliability.



AESSEAL Global Technology Centre



Extensive AESSEAL® test facilities

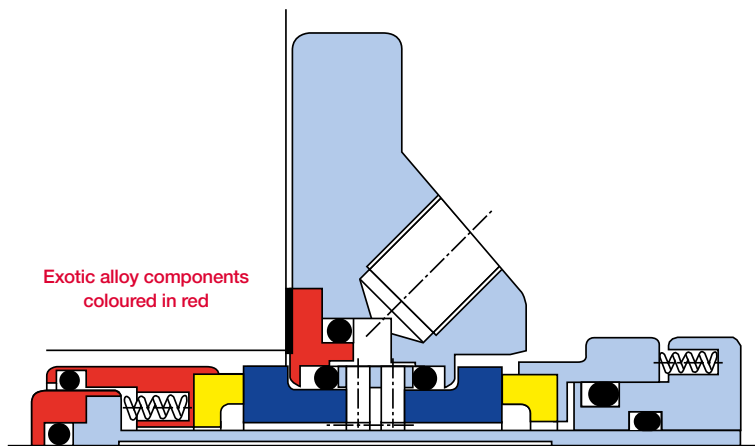




Design, manufacturing and testing at the AESSEAL Global Technology Centre

## Features and Benefits

- **Flow inducer with a 'heat removal' flow path** - helps with the removal of heat from the seal, optimizing face cooling
- **Self-aligning seal faces** - ensure faces remain square to shaft
- **Hydraulically pressure balanced seal faces** - ensures excellent sealing
- **Modular design** - easily adapted for different applications
- **Cartridge construction** - simple to install



### Bi-Metal FIDC™ - Double Cartridge Mechanical Seal

AESSEAL® has designed an innovative “bi-metal” exotic alloy seal. Alloy 20, Alloy 276, Alloy 400 and Titanium grade 2 are inventoried in popular modular wetted component sizes. Any additional commercially available special alloys are made to order. These special alloy parts are fitted to the standard Stainless Steel components. The use of a neutralizing barrier fluid protects the secondary Stainless Steel parts that are not exposed to the process fluid during normal operation.

Availability and flexibility of design meets the special demands of the corrosive fluid containment market. Variations to the seal specification can be accomplished by selecting from many different options. Seal faces are offered in any combination of Silicon Carbide, Tungsten Carbide and Carbon, both inboard and outboard.

# FIDC™ — Proven Design Features

## Modular Design

Process chemicals have diverse characteristics and one basic seal configuration fails to cover the broad range of possible applications.

A modular construction is ideal for a flexible engineered approach to each application. The need for exotic wetted alloys, various seal face combinations, alternate elastomer compounds, differential secondary fluid pressures, temperature control and barrier fluid containment systems are some of the design parameters encountered.

The FIDC™ engineered double seal has been designed with a flexible modular concept, allowing the seal to be adapted to the unique characteristics of each application.



## Self-Aligning Seal Faces

With the aid of Finite Element Analysis (FEA), AESSEAL® designed a unique “universal joint self-aligning system”.

Self-aligning faces, ensure that both the inboard and outboard faces remain square (90°), to the rotating shaft. The unique “universal joint” concept means each face remains flat across a broad pressure range.

Resistance to pin shear stress during operation is achieved with heavy duty radially mounted anti-rotation pins. A spring loaded internal rotary acts as a centrifuge, keeping solids away from the seal faces. As a result, clogging is resisted from process fluids with a high solids content.

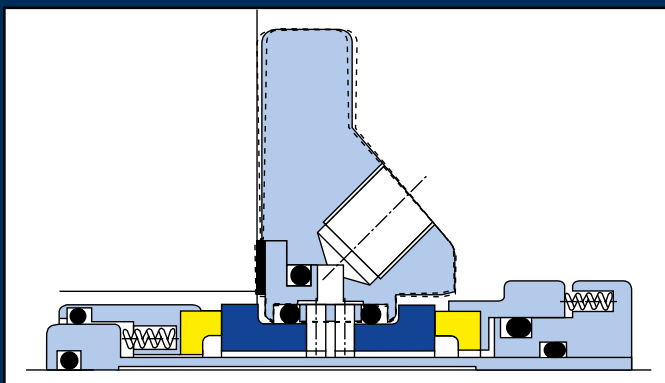




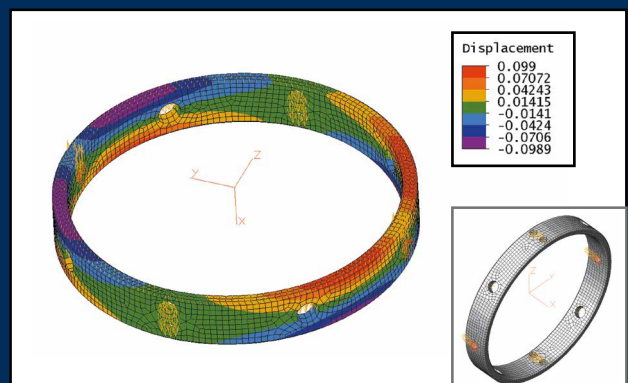
### Cartridge Construction

Cartridge seals are assembled, pre-set at the factory and tested. This method has proven effective in reducing installation errors due to improper setting of spring compression, radial misalignment and damage to the seal faces from excessive handling.

All cartridge mechanical seals receive an individual serial number, which is etched on the seal during the final hydrostatic pressure test. This facilitates seal-level data monitoring and improved traceability, to help improve application performance over time.



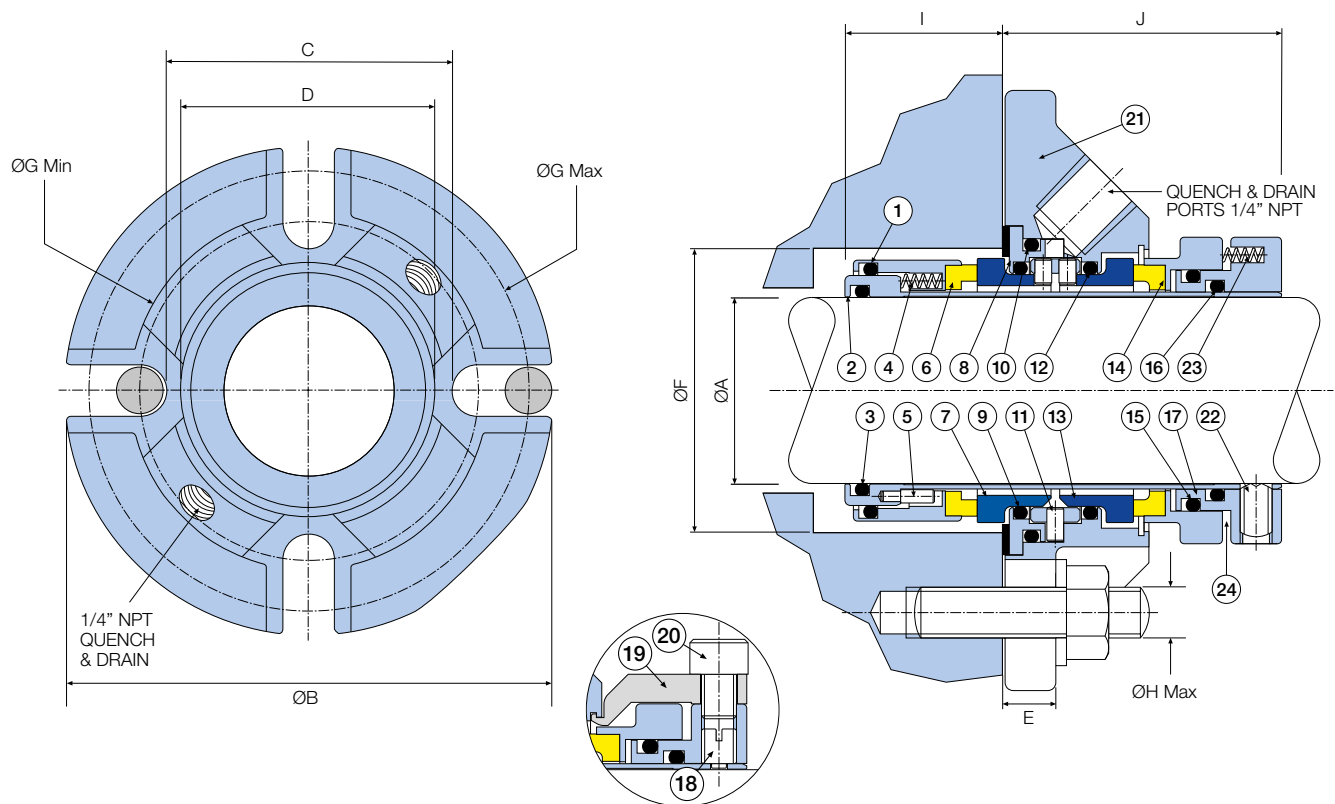
Self-Aligning Faces



3D Finite Element Analysis review showing displacement of the pivot ring due to the pressure created by the faces and the gland insert

# FIDC™ — Dimensional Information

Sizes available: 1.000" - 5.000" (24mm - 125mm)



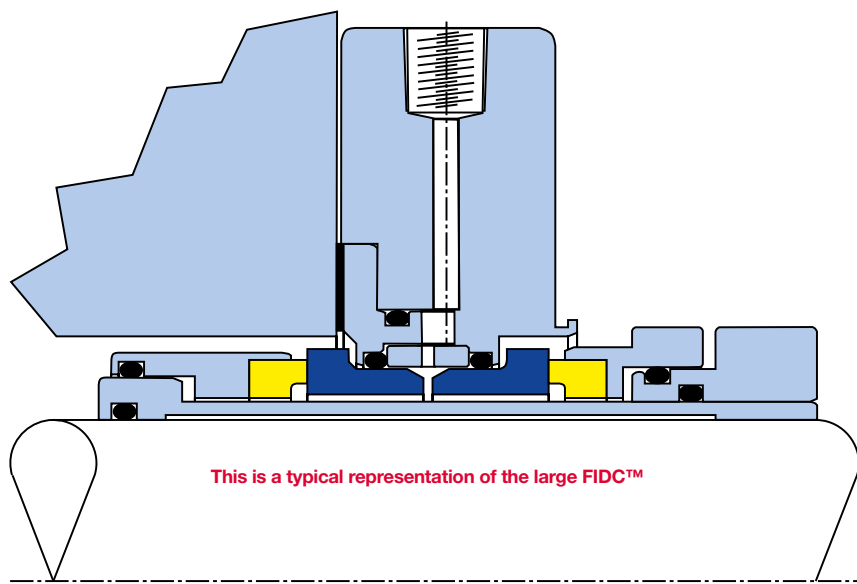
Item	Description	Material	Item	Description	Material
1	Rotary O Ring	AES-ELAST / EPR / FFKM / FKM / TFE/P	13	External Stationary Face	SiC / Ceramic** / TC
2	Sleeve	316L Stainless Steel	14	Rotating Face	316L SS - Carbon / TC / SiC*
3	Sleeve O Ring	AES-ELAST / EPR / FFKM / FKM / TFE/P	15	External Rotary O Ring	AES-ELAST / EPR / FFKM / FKM / TFE/P
4	Springs	Alloy 276	16	Clamp Ring O Ring	AES-ELAST / EPR / FFKM / FKM / TFE/P
5	Rotating Drive Pins	Stainless Steel	17	Clamp Ring	316L Stainless Steel
6	Rotary Face	316L SS - Carbon / TC / SiC*	18	Anti-Tamper Screws	Stainless Steel
7	Internal Stationary Face	SiC / Ceramic** / TC	19	Centring Clips	Metal
8	Gland Insert	316L Stainless Steel	20	Clip Screws	Stainless Steel
9	Internal Stat O Ring	AES-ELAST / EPR / FFKM / FKM / TFE/P	21	Gland	316 Stainless Steel
10	Insert O Ring	AES-ELAST / EPR / FFKM / FKM / TFE/P	22	Drive Screws	Stainless Steel
11	Pivot Ring	316L Stainless Steel	23	Springs	Alloy 276
12	External Stat O Ring	AES-ELAST / EPR / FFKM / FKM / TFE/P	24	Rotary Drive Pins (not shown)	Stainless Steel

\*Limited availability above 4.000" (100mm) - contact AESSEAL® for more information

\*\*Limited availability above 3.000" (75mm) - contact AESSEAL® for more information

Item 5 is an integral part of Item 2

Item 24 is an integral part of Item 17





## FIDC™ Range - Dimensional Information (mm)

A	B	C	D	E	ØFMin	ØFMax	ØGMin	ØGMax	ØHMax	I	J
24	104.8	54.0	49.2	13.2	40.0	46.0	67.0	90.5	12	32.5	52.4
25	104.8	54.0	49.2	13.2	41.0	49.0	67.0	90.5	12	32.5	52.4
28	108.0	57.2	52.4	13.2	44.0	52.3	70.3	93.6	12	32.5	52.4
30	111.0	60.4	55.6	13.2	46.0	55.5	73.5	96.8	12	32.5	52.4
32	111.0	60.4	55.6	13.2	48.0	55.5	73.5	96.8	12	32.5	52.4
33	111.0	60.4	55.6	13.2	49.0	55.5	73.5	96.8	12	32.5	52.4
35	111.0	63.5	58.8	13.2	51.0	57.5	76.6	96.8	12	32.5	52.4
38	127.0	71.5	65.0	16.4	57.2	60.3	85.7	114.3	12	33.3	54.0
40	127.0	71.5	65.0	16.4	58.0	60.4	85.7	114.3	12	33.3	54.0
43	127.0	71.5	65.0	16.4	61.0	63.5	85.7	114.3	12	33.3	54.0
45	139.7	81.0	71.4	16.4	63.5	69.9	95.3	127.0	12	33.3	54.0
48	139.7	81.0	71.4	16.4	66.7	73.0	95.3	127.0	12	33.3	54.0
50	139.7	81.0	71.4	16.4	68.0	73.0	95.3	127.0	12	33.3	54.0
53	152.4	90.5	77.8	16.4	71.0	76.2	104.8	139.7	12	35.0	54.0
55	152.4	90.5	77.8	16.4	74.0	79.4	104.8	139.7	12	35.0	54.0
58	165.1	96.8	84.1	16.4	76.2	82.5	114.3	149.2	16	35.0	54.0
60	165.1	96.8	84.1	16.4	79.4	85.7	114.3	149.2	16	35.0	54.0
63	177.8	109.5	96.8	19.6	85.8	92.1	127.0	160.3	16	38.1	60.3
65	177.8	109.5	96.8	19.6	88.9	95.3	127.0	160.3	16	38.1	60.3
68	177.8	109.5	96.8	19.6	92.1	98.4	127.0	160.3	16	38.1	60.3
70	177.8	109.5	96.8	19.6	92.1	98.4	127.0	160.3	16	38.1	60.3
75	190.5	125.4	108.0	19.6	98.5	108.0	142.9	173.0	16	38.1	60.3
80	190.5	125.4	108.0	19.6	101.6	111.1	142.9	173.0	16	38.1	60.3
85	203.2	135.0	117.5	19.6	108.0	117.5	155.6	182.5	20	38.1	60.3
90	215.9	150.8	127.0	19.6	114.3	127.0	171.5	195.2	20	38.1	60.3
95	215.9	150.8	127.0	19.6	117.5	130.2	171.5	195.2	20	38.1	60.3
100	228.6	168.3	136.5	19.6	123.9	139.7	189.0	208.0	20	38.1	60.3
105	228.6	168.3	136.5	19.6	130.1	149.2	189.0	208.0	20	38.1	60.3
110	241.3	177.8	146.2	19.6	136.5	158.8	198.4	220.6	20	38.1	60.3
115	254.0	186.6	155.8	19.6	142.9	168.3	211.1	230.2	22	38.1	60.3
120	254.0	186.6	155.8	19.6	142.9	168.3	211.1	230.2	22	38.1	60.3
125	254.0	186.6	155.8	19.6	149.2	168.3	211.1	230.2	22	38.1	60.3

## FIDC™ Range - Dimensional Information (inches)

A	B	C	D	E	ØFMin	ØFMax	ØGMin	ØGMax	ØHMax	I	J
1.000	4.125	2.125	1.937	0.519	1.625	1.937	2.687	3.562	1/2	1.281	2.062
1.125	4.250	2.250	2.063	0.519	1.750	2.062	2.812	3.617	1/2	1.281	2.062
1.250	4.375	2.375	2.187	0.519	1.875	2.187	2.937	3.812	1/2	1.281	2.062
1.375	4.375	2.500	2.312	0.519	2.000	2.250	3.062	3.812	1/2	1.281	2.062
1.500	5.000	2.812	2.562	0.644	2.250	2.375	3.375	4.437	1/2	1.312	2.125
1.625	5.000	2.812	2.562	0.644	2.375	2.500	3.375	4.437	1/2	1.312	2.125
1.750	5.500	3.187	2.812	0.644	2.500	2.750	3.750	4.937	1/2	1.312	2.125
1.875	5.500	3.187	2.812	0.644	2.625	2.875	3.750	4.937	1/2	1.312	2.125
2.000	6.000	3.562	3.063	0.644	2.750	3.000	4.125	5.437	1/2	1.380	2.125
2.000-AC	5.250	3.450	3.035	0.644	2.750	3.000	4.000	4.750	1/2	1.380	2.125
2.125	6.000	3.562	3.063	0.644	2.875	3.125	4.125	5.437	1/2	1.380	2.125
2.250	6.500	3.812	3.312	0.644	3.000	3.250	4.500	5.812	5/8	1.380	2.125
2.375	6.500	3.812	3.312	0.644	3.125	3.375	4.500	5.812	5/8	1.380	2.125
2.500	7.000	4.312	3.812	0.769	3.375	3.625	5.000	6.312	5/8	1.500	2.375
2.625	7.000	4.312	3.812	0.769	3.500	3.750	5.000	6.312	5/8	1.500	2.375
2.750	7.000	4.312	3.812	0.769	3.625	3.875	5.000	6.312	5/8	1.500	2.375
2.875	7.500	4.937	4.250	0.769	3.750	4.125	5.625	6.812	5/8	1.500	2.375
3.000	7.500	4.937	4.250	0.769	3.875	4.250	5.625	6.812	5/8	1.500	2.375
3.125	7.500	4.937	4.250	0.769	4.000	4.375	5.625	6.812	5/8	1.500	2.375
3.250	8.000	5.312	4.625	0.769	4.125	4.500	6.125	7.187	3/4	1.500	2.375
3.375	8.000	5.312	4.625	0.769	4.250	4.625	6.125	7.187	3/4	1.500	2.375
3.500	8.000	5.312	4.625	0.769	4.375	4.750	6.125	7.187	3/4	1.500	2.375
3.625	8.500	5.937	5.000	0.769	4.500	5.000	6.750	7.687	3/4	1.500	2.375
3.750	8.500	5.937	5.000	0.769	4.625	5.125	6.750	7.687	3/4	1.500	2.375
3.875	8.500	5.937	5.000	0.769	4.750	5.250	6.750	7.687	3/4	1.500	2.375
4.000	9.000	6.625	5.375	0.769	4.875	5.500	7.437	8.187	3/4	1.500	2.375
4.125	9.000	6.625	5.375	0.769	5.125	5.875	7.437	8.187	3/4	1.500	2.375
4.250	9.000	6.625	5.375	0.769	5.125	5.875	7.437	8.187	3/4	1.500	2.375
4.375	9.500	7.000	5.750	0.769	5.375	6.250	7.812	8.687	3/4	1.500	2.375
4.500	9.500	7.000	5.750	0.769	5.375	6.250	7.812	8.687	3/4	1.500	2.375
4.625	10.000	7.345	6.125	0.769	5.625	6.625	8.312	9.062	7/8	1.500	2.375
4.750	10.000	7.345	6.125	0.769	5.625	6.625	8.312	9.062	7/8	1.500	2.375
4.875	10.000	7.345	6.125	0.769	5.875	6.625	8.312	9.062	7/8	1.500	2.375
5.000	10.000	7.345	6.125	0.769	5.875	6.625	8.312	9.062	7/8	1.500	2.375

Seal sizes from 130mm (5.125") to 300mm (12.000") are designed to suit specific equipment using modular components. Note: Seal sizes 155mm (6.125") and above are supplied without a pivot ring.

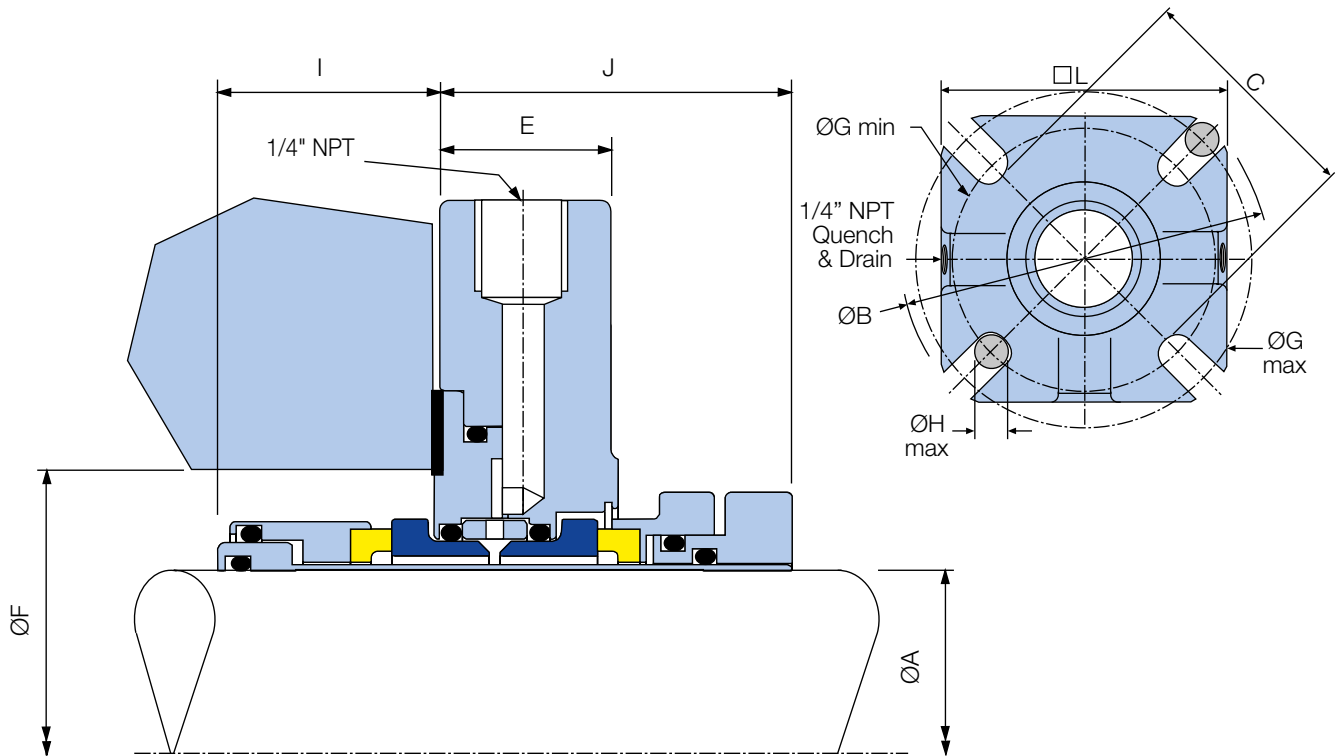
Contact AESSEAL® technical department for dimensional information and availability.

"Factory repair program  
is available"

"Replacement seal kits  
are available"

# ANSI+ FIDC™

## Gland Designs to Suit ANSI+ Pumps



ANSI+ FIDC™ - ANSI+ Gland Format Dimensional Information (inches)

A	B	C	E	F Min	F Max	G Min	G Max	H Max	I	J	□L
1.125	5.000	3.188	1.000	2.625	2.850	3.750	4.250	0.500	1.250	2.000	3.990
1.375	5.375	3.438	1.000	2.875	3.100	4.000	4.625	0.500	1.250	2.000	4.240
1.750	6.750	4.438	0.644	3.500	4.100	5.000	6.000	0.500	1.350	2.000	5.480
1.875	6.750	4.438	0.644	3.625	4.100	5.000	6.000	0.500	1.350	2.000	5.480
2.125	7.625	4.688	0.644	3.875	4.225	5.375	6.687	0.625	1.437	2.000	6.230
2.500	8.250	5.438	0.644	4.500	5.100	6.125	7.312	0.625	1.500	2.187	6.730
2.625	8.250	5.438	0.644	4.625	5.100	6.125	7.312	0.625	1.500	2.187	6.730
2.750	8.250	5.438	0.644	4.625	5.100	6.125	7.312	0.625	1.500	2.187	6.730

Minimum bolt circle based on bolt size shown.

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### AESSEAL plc is certified to:

ISO 9001, ISO 14001, ISO/IEC 20000, ISO/IEC 27001,  
ISO/TS 29001, ISO 37001, ISO 45001 & ISO 50001



Net Zero champions globally



Use double mechanical seals with hazardous products.

Always take safety precautions:

- Guard your equipment
- Wear protective clothing



### USA Sales & Technical advice:

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