

SMSS™

Single Monolithic Stationary Seal



- Patented design
- Cartridge seal
- Stationary design
- Monolithic seal faces
- Tangential flush ports

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

SMSS™ — High Performance Sealing Solution

AESSEAL® is a leading global specialist in the design and manufacture of mechanical seals, bearing protectors and seal support systems.

The company sets new standards in reliability, performance, service and cost. Service has been the key to the success of AESSEAL® and is at the core of the company purpose statement — ‘to give our customers such exceptional service that they need never consider alternative sources of supply.’ Through continuous investment, unique modular technology and an unparalleled dedication to customer service we aim to constantly exceed expectation.

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

Following the success of the DMSF™ and after an extensive development period, the AESSEAL® SMSS™ range of single cartridge mechanical seals builds on the universal and highly successful CURC™ range.

The SMSS™ is not a replacement for the CURC™ range. The unique SMSS™ design features extend the range of applications that can be sealed by AESSEAL® products.

The SMSS™ was extensively tested at different temperatures on various seal sizes with different face combinations. Results showed it outperformed similar products in its class in many different areas.

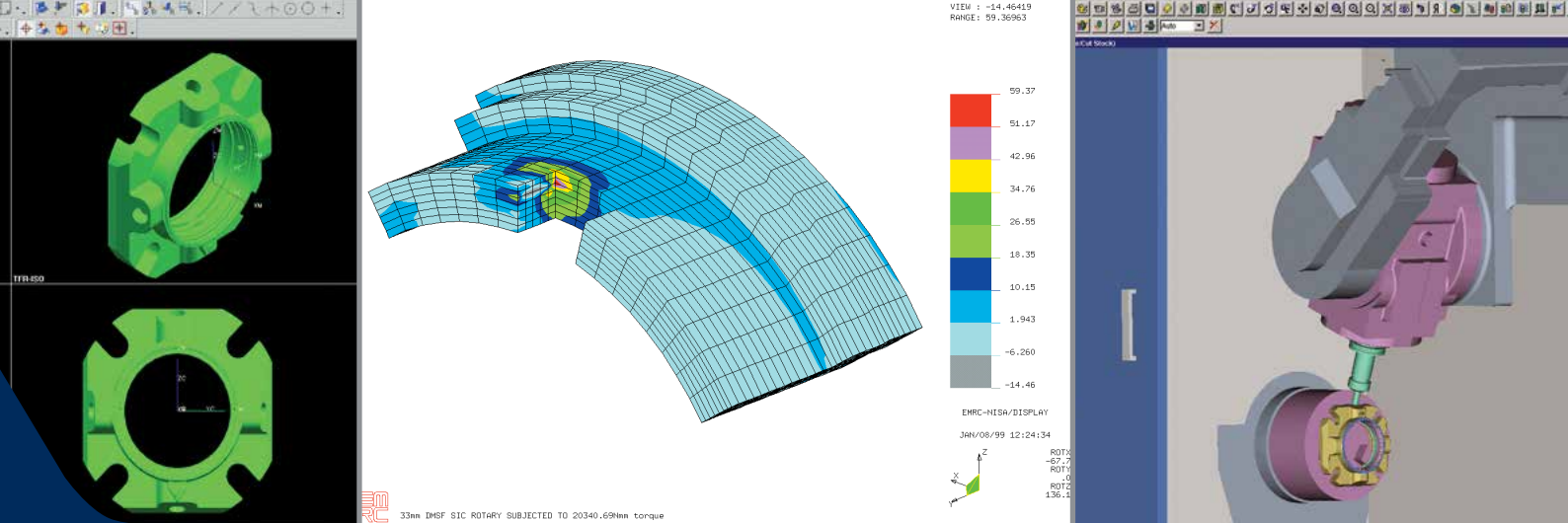
The SMSS™ is part of the AESSEAL® modular sealing system. This, combined with extensive inventory levels, ensures that **any** standard seal in any size or material combination is available for immediate despatch. This means you can get an application specific seal quickly and therefore hold less inventory.

One of several AESSEAL® manufacturing facilities



Extensive AESSEAL® test facilities



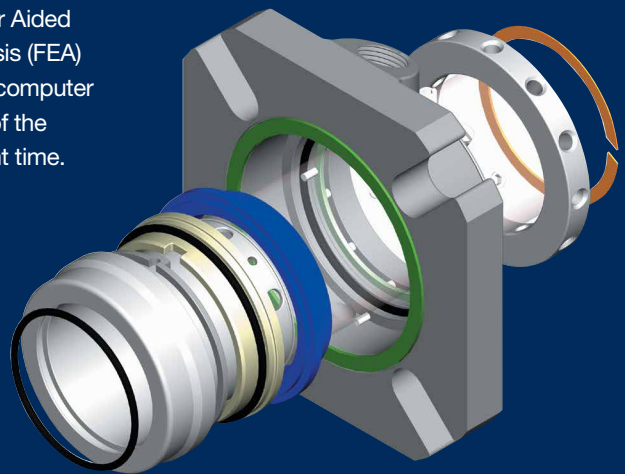


Manufacturing Verification Animation (left), Finite Element Analysis computer simulation (centre), SMSS™ simulation of multi-axis machining (right)

SMSS™ — Design and Development

Thorough design simulation using Computer Aided Engineering (CAE) and Finite Element Analysis (FEA) was conducted prior to physical tests. This computer evaluation helped to increase the reliability of the prototypes and reduce the seal development time.

This world class product is achieved with the use of state of the art manufacturing methods and equipment, ensuring that the technically sophisticated design is produced to exacting standards.



SMSS™



SMSS™ ANSI+ size

SMSS™ — Design Features

The AESSEAL® range of single cartridge mechanical seals has been specifically designed to eliminate some of the main causes of premature mechanical seal failure.

The small SMSS™ design includes the following features:

a. Monolithic Seal Faces

All seal faces are of monolithic, one piece, construction and therefore are less likely to distort in high and low temperature applications.

b. Seal Face Drive Mechanism

Finite Element Analysis has been used to optimize seal face drive. Precise, solid machined drive lugs reduce drive slop between the drive ring and seal face. This reduces seal face damage on equipment start-up / shut-down.

c. Optimized Seal Environment

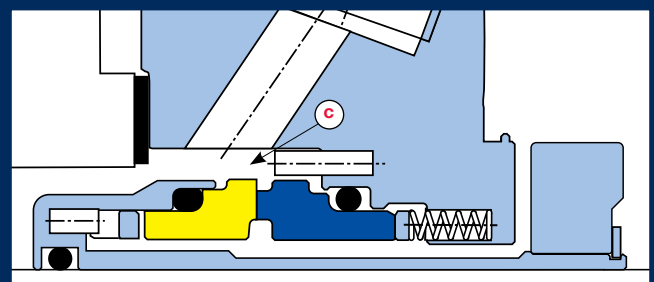
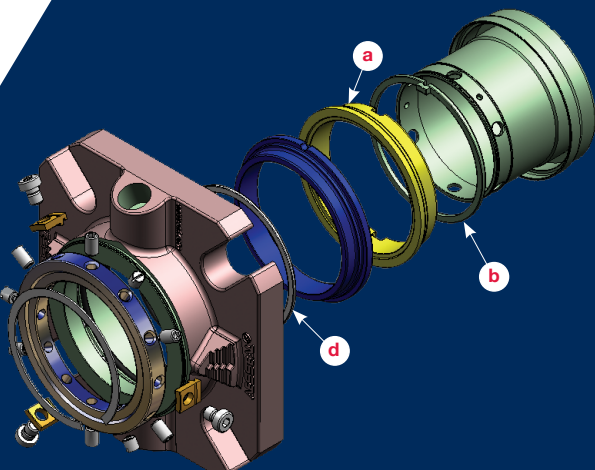
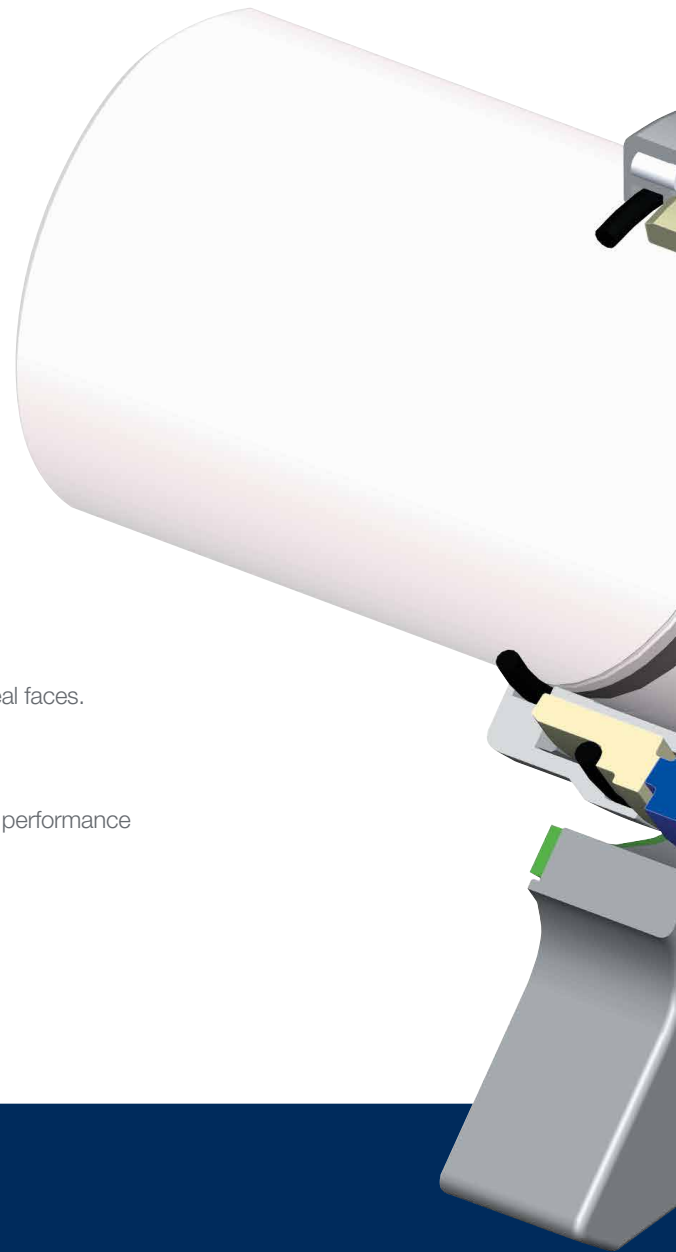
All environmental control ports are 3/8" NPT, helping to maximize the cooling effect. Two flush ports, positioned directly over the seal faces, provide the option of tangential flushing, irrespective of shaft rotational direction.

d. Optimized Seal Face Loading

The multi-spring design ensures uniform seal face loading. In addition all springs act on metallic components, and therefore cannot damage or chip seal faces.

e. High Shaft Speed Applications

The stationary seal construction helps to minimize spring fatigue for optimum performance on high shaft speed applications.



Flush position

Like the small range, the range of large SMSS™ seals has been specifically designed to enhance mechanical seal performance.

The large SMSS™ design includes the following features:

f. Modular Design

The design for the SMSS™ seal employs many standard DMSF™ components thereby maximizing modularity.

g. Ultimate Flexibility

The range of large SMSS™ seals is offered as standard with an external restriction bush and Quench & Drain connections.

Optional low pressure external seal faces (SMSE™) extend the range of applications which may be sealed by the SMSS™ family of products.

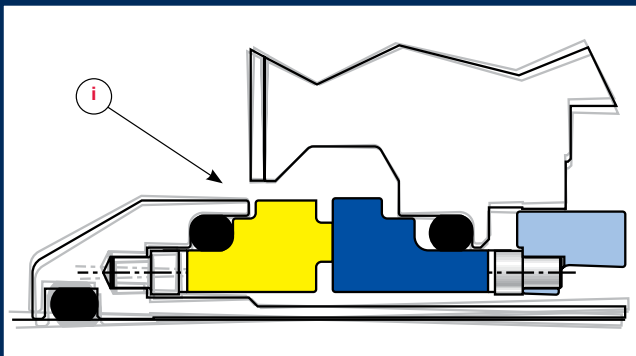
h. Heat Generation

Achieving technical performance whilst maximizing modularity is a prime objective in the design of all AESSEAL® products.

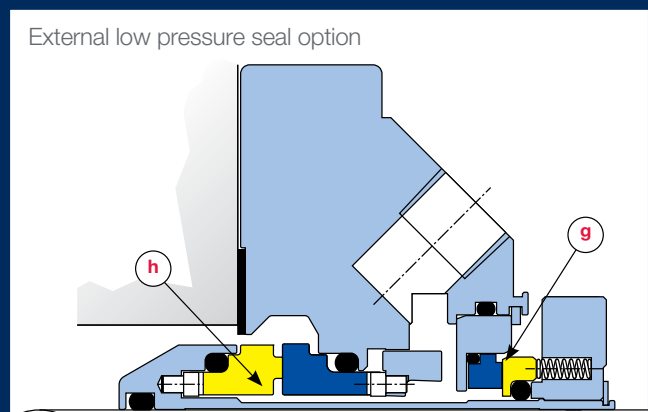
All SMSS™ seals are supplied with “thin” inboard seal faces. This reduces heat generation at the seal faces and minimizes the heat load on the seal cooling / flushing system.

i. Self Aligning Stationary Seal Faces

The stationary seal face is spring loaded which compensates for angular mis-alignment between the shaft and the housing.



Self-aligning seal faces

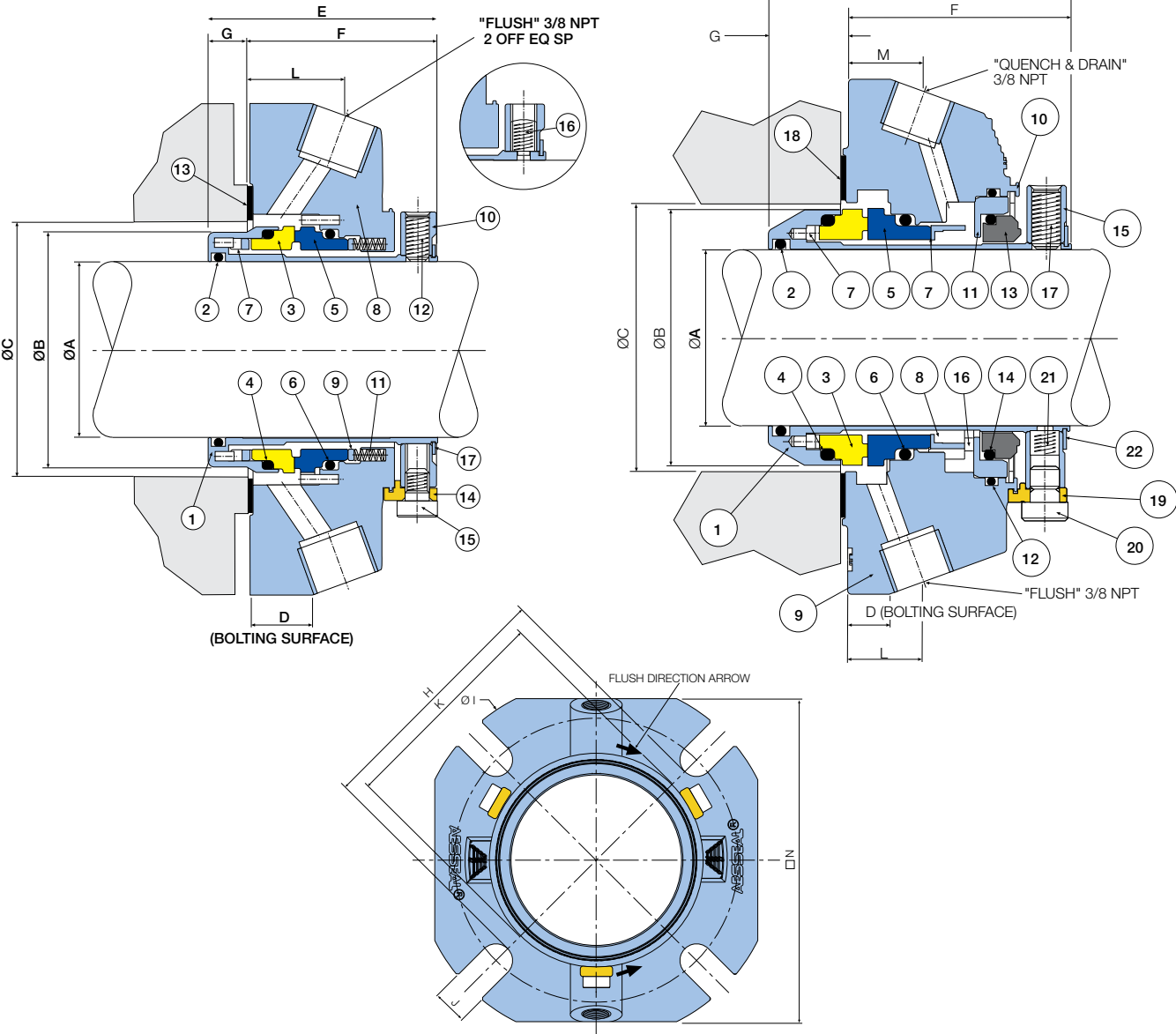


SMSE™ — Single Monolithic Stationary with External (low pressure) faces

SMSS™ — Technical Information

24mm - 70mm / 1.000" - 2.750"

75mm - 125mm / 2.875" - 5.000"



Item	Description	Material
1	Sleeve	316L SS
2	Sleeve O Ring	FKM / EPR / FFKM / TFE/P
3	Rotary Face	SiC / TC
4	Rotary Face O Ring	FKM / EPR / FFKM / TFE/P
5	Stationary Face	Carbon / SiC / TC
6	Stationary Face O Ring	FKM / EPR / FFKM / TFE/P
7	Drive Ring	316L SS
8	Gland	316 SS
9	Spring Plate	316L SS
10	Clamp Ring	316L SS
11	Springs	Alloy 276
12	Drive Screws	Stainless Steel
13	Gasket	AF1 / GFT
14	Setting Clips	Brass
15	Setting Clip Screws	Stainless Steel
16	Anti-tamper Screws	Stainless Steel
17	External Circlip	Stainless Steel

Item	Description	Material
1	Sleeve	316L SS
2	Sleeve O Ring	FKM / EPR / FFKM / TFE/P
3	Rotary Face	Carbon / TC / SiC
4	Rotary Face O Ring	FKM / EPR / FFKM / TFE/P
5	Stationary Face	SiC / TC
6	Stationary Face O Ring	FKM / EPR / FFKM / TFE/P
7	Drive Pin	Stainless Steel
8	Spring Plate	316L SS
9	Gland	316 SS
10	Snap Ring	Stainless Steel
11	Spool Carrier	316L SS
12	Spool Carrier O Ring	FKM / EPR / FFKM / TFE/P
13	Restriction Bush	Carbon
14	Restriction Bush O Ring	FKM / EPR / FFKM / TFE/P
15	Clamp Ring	316L SS
16	Internal Springs	Alloy 276
17	Drive Screws	Stainless Steel
18	Gasket	AF1 / GFT
19	Setting Clips	Brass
20	Setting Clip Screws	Stainless Steel
21	Anti-tamper Screws	Stainless Steel
22	External Circlip	Stainless Steel

The SMSS™ is available as an externally mounted cartridge seal (CSMSS™) for applications which have inboard length or radial space restrictions. Contact AESSEAL® for further information.

Exotic Alloy Seals — Contact AESSEAL® for availability of Exotic Alloy options.

Standard ISO / ANSI Box Bore 24mm - 70mm / 1.000" - 2.750"

Seal Size	ØA	ØB	ØC		D	E	F	G	H	ØI	J	K	L	N
			Min	Max										
24.0	24.0	38.0	40.0	48.0	11.9	55.7	45.7	10.0	61.0	105.0	14.0	51.0	20.5	99.0
25.0	25.0	39.0	41.0	51.0	11.9	55.7	45.7	10.0	61.0	105.0	14.0	51.0	20.5	101.6
28.0	28.0	42.6	44.0	54.0	11.9	55.7	45.7	10.0	65.0	111.0	14.0	55.5	20.3	99.0
30.0	30.0	44.1	46.0	54.0	11.9	55.7	45.7	10.0	64.6	105.0	14.0	56.4	20.3	97.8
32.0	32.0	47.1	49.0	57.0	14.0	55.7	45.7	10.0	66.5	105.0	14.0	59.5	21.2	99.0
33.0	33.0	47.1	49.0	57.0	14.0	55.7	45.7	10.0	66.5	105.0	14.0	59.5	21.2	99.0
35.0	35.0	49.0	51.0	59.0	13.2	55.7	45.7	10.0	68.5	120.0	14.0	61.5	21.5	104.1
38.0	38.0	52.9	57.0	70.0	16.0	57.6	47.6	10.0	80.7	135.0	14.0	70.7	24.6	114.3
40.0	40.0	54.8	59.0	70.5	16.0	57.6	47.6	10.0	80.7	135.0	14.0	70.7	24.6	114.3
43.0	43.0	56.1	61.0	70.5	15.5	57.6	47.6	10.0	80.7	135.0	14.0	70.7	20.5	114.3
45.0	45.0	59.3	64.0	75.0	16.0	57.6	47.6	10.0	83.7	139.0	14.0	75.7	24.3	117.5
48.0	48.0	62.4	66.6	75.0	16.0	57.6	47.6	10.0	83.7	139.0	14.0	75.7	24.3	117.5
50.0	50.0	65.3	70.0	78.0	16.0	57.6	47.6	10.0	87.6	150.0	17.5	79.0	24.3	124.5
53.0	53.0	68.8	73.0	87.0	15.5	57.6	47.6	10.0	97.0	150.0	17.5	85.0	22.5	136.5
55.0	55.0	68.8	73.0	87.0	15.5	57.6	47.6	10.0	97.0	150.0	17.5	85.0	22.5	136.5
58.0	58.0	72.0	76.2	92.0	16.0	57.6	47.6	10.0	102.4	164.5	17.5	88.7	24.6	139.7
60.0	60.0	75.2	80.0	92.0	16.0	57.6	47.6	10.0	102.4	164.5	17.5	88.7	24.6	139.7
63.0	63.0	78.3	83.0	98.5	16.0	57.6	47.6	10.0	108.7	171.0	17.5	96.1	23.7	147.4
65.0	65.0	81.5	86.0	98.5	16.0	57.6	47.6	10.0	108.7	171.0	17.5	96.1	23.7	147.4
70.0	70.0	84.7	89.0	100.0	16.0	57.6	47.6	10.0	111.9	180.5	17.5	98.3	24.3	152.4
1.000	1.000	1.538	1.625	2.000	0.469	2.194	1.800	0.394	2.401	4.134	0.551	2.008	0.807	3.900
1.125	1.125	1.678	1.750	2.125	0.469	2.194	1.800	0.394	2.559	4.375	0.551	2.183	0.800	4.000
1.250	1.250	1.823	1.875	2.250	0.551	2.194	1.800	0.394	2.618	4.134	0.551	2.340	0.835	3.900
1.375	1.375	1.932	2.000	2.312	0.520	2.194	1.800	0.394	2.697	4.375	0.551	2.418	0.846	4.100
1.500	1.500	2.084	2.250	2.750	0.630	2.269	1.875	0.394	3.177	5.315	0.551	2.783	0.970	4.500
1.625	1.625	2.209	2.375	2.750	0.610	2.269	1.875	0.394	3.177	5.315	0.551	2.783	0.807	4.500
1.750	1.750	2.334	2.500	2.937	0.630	2.269	1.875	0.394	3.297	5.475	0.551	2.982	0.957	4.625
1.875	1.875	2.459	2.625	2.937	0.630	2.269	1.875	0.394	3.297	5.475	0.551	2.982	0.957	4.625
2.000	2.000	2.569	2.750	3.062	0.630	2.269	1.875	0.394	3.450	5.906	0.689	3.108	0.970	4.900
2.125	2.125	2.709	2.875	3.437	0.610	2.269	1.875	0.394	3.821	5.906	0.689	3.346	0.970	5.375
2.250	2.250	2.834	3.000	3.625	0.630	2.269	1.875	0.394	4.030	6.475	0.689	3.493	0.970	5.500
2.375	2.375	2.959	3.125	3.625	0.630	2.269	1.875	0.394	4.030	6.475	0.689	3.493	0.970	5.500
2.500	2.500	3.084	3.250	3.875	0.630	2.269	1.875	0.394	4.280	6.725	0.689	3.785	0.933	5.800
2.625	2.625	3.209	3.375	3.875	0.630	2.269	1.875	0.394	4.280	6.725	0.689	3.785	0.933	5.800
2.750	2.750	3.334	3.500	3.937	0.630	2.269	1.875	0.394	4.405	7.100	0.689	3.871	0.957	6.000



Large ISO / ANSI Plus Box Bore

Seal Size	ØA	ØB	ØC		D	E	F	G	H	ØI	J	K	L	□N
			Min	Max										
35.0	35.0	49.0	73.0	77.8	12.5	55.7	45.7	10.0	87.6	136.5	14.0	64.7	18.0	108.0
1.125	1.125	1.678	2.625	2.750	0.529	2.194	1.800	0.394	3.199	5.000	0.551	2.232	0.807	3.990
1.375	1.375	1.932	2.875	3.062	0.492	2.194	1.800	0.394	3.449	5.375	0.551	2.549	0.707	4.250
1.750	1.750	2.459	3.500	4.000	0.644	2.269	1.875	0.394	4.449	6.750	0.551	3.035	0.941	5.480
1.875	1.875	2.459	3.500	4.000	0.644	2.269	1.875	0.394	4.449	6.750	0.551	3.035	0.941	5.480
2.125	2.125	2.709	3.875	4.187	0.733	2.269	1.875	0.394	4.661	7.600	0.689	3.285	0.855	6.205
2.500	2.500	3.209	4.500	4.812	0.703	2.269	1.875	0.394	5.411	8.225	0.689	3.785	0.935	6.705
2.625	2.625	3.209	4.500	4.812	0.703	2.269	1.875	0.394	5.411	8.225	0.689	3.785	0.935	6.705



Standard ISO / ANSI Box Bore 75mm - 125mm / 2.875" - 5.000"

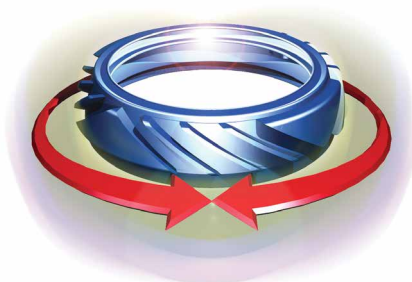
Seal Size	ØA	ØB	ØC		D	E	F	G	H	ØI	J	K	L	M	N
			Min	Max											
75.0	75.0	98.0	101.6	117.5	25.8	83.5	63.5	20.0	131.4	189.3	17.5	115.3	23.0	36.1	169.4
80.0	80.0	104.4	108.0	127.0	25.8	83.5	63.5	20.0	131.4	201.9	21.0	115.3	23.0	36.1	169.4
85.0	85.0	107.6	111.1	127.0	25.8	83.5	63.5	20.0	142.5	201.9	21.0	124.8	23.0	36.1	182.1
90.0	90.0	113.9	117.5	136.5	25.8	83.5	63.5	20.0	152.0	214.6	21.0	134.4	23.0	36.1	194.8
95.0	95.0	117.1	120.0	136.5	25.8	83.5	63.5	20.0	152.0	214.6	21.0	134.4	23.0	36.1	194.8
100.0	100.0	123.4	127.0	139.7	25.8	83.5	63.5	20.0	155.2	227.3	21.0	137.5	23.0	36.1	207.5
105.0	105.0	129.8	133.4	152.4	25.8	83.5	63.5	20.0	168.0	240.0	21.0	150.2	23.0	36.1	216.2
110.0	110.0	136.1	139.7	152.4	25.8	83.5	63.5	20.0	168.0	240.0	21.0	150.2	23.0	36.1	216.2
115.0	115.0	142.5	146.1	165.1	25.8	83.5	63.5	20.0	180.6	252.7	24.0	162.9	23.0	36.1	235.7
120.0	120.0	142.5	146.1	165.1	25.8	83.5	63.5	20.0	180.6	252.7	24.0	162.9	23.0	36.1	235.7
125.0	125.0	148.8	152.4	165.1	25.8	83.5	63.5	20.0	180.6	252.7	24.0	162.9	23.0	36.1	235.7
2.875	2.875	3.735	3.875	4.625	1.015	3.286	2.500	0.786	5.173	7.450	0.689	4.539	0.906	1.423	6.670
3.000	3.000	3.860	4.000	4.625	1.015	3.286	2.500	0.786	5.173	7.450	0.689	4.539	0.906	1.423	6.670
3.125	3.125	3.985	4.125	4.625	1.015	3.286	2.500	0.786	5.173	7.450	0.689	4.539	0.906	1.423	6.670
3.250	3.250	4.110	4.250	5.000	1.015	3.286	2.500	0.786	5.611	7.950	0.827	4.914	0.906	1.423	7.170
3.375	3.375	4.235	4.375	5.000	1.015	3.286	2.500	0.786	5.611	7.950	0.827	4.914	0.906	1.423	7.170
3.500	3.500	4.360	4.500	5.000	1.015	3.286	2.500	0.786	5.611	7.950	0.827	4.914	0.906	1.423	7.170
3.625	3.625	4.485	4.625	5.375	1.015	3.286	2.500	0.786	5.986	8.450	0.827	5.289	0.906	1.423	7.670
3.750	3.750	4.610	4.750	5.375	1.015	3.286	2.500	0.786	5.986	8.450	0.827	5.289	0.906	1.423	7.670
3.875	3.875	4.860	5.000	5.500	1.015	3.286	2.500	0.786	6.111	8.950	0.827	5.414	0.906	1.423	8.170
4.000	4.000	4.860	5.000	5.500	1.015	3.286	2.500	0.786	6.111	8.950	0.827	5.414	0.906	1.423	8.170
4.125	4.125	5.110	5.250	6.000	1.015	3.286	2.500	0.786	6.611	9.450	0.827	5.914	0.906	1.423	8.510
4.250	4.250	5.110	5.250	6.000	1.015	3.286	2.500	0.786	6.611	9.450	0.827	5.914	0.906	1.423	8.510
4.375	4.375	5.360	5.500	6.000	1.015	3.286	2.500	0.786	6.611	9.450	0.827	5.914	0.906	1.423	8.510
4.500	4.500	5.360	5.500	6.000	1.015	3.286	2.500	0.786	6.611	9.450	0.827	5.914	0.906	1.423	8.510
4.625	4.625	5.610	5.750	6.500	1.015	3.286	2.500	0.786	7.110	9.950	0.945	6.414	0.906	1.423	8.884
4.750	4.750	5.610	5.750	6.500	1.015	3.286	2.500	0.786	7.110	9.950	0.945	6.414	0.906	1.423	8.884
4.875	4.875	5.860	6.000	6.500	1.015	3.286	2.500	0.786	7.110	9.950	0.945	6.414	0.906	1.423	8.884
5.000	5.000	5.860	6.000	6.500	1.015	3.286	2.500	0.786	7.110	9.950	0.945	6.414	0.906	1.423	8.884

DMSF™ — Double Monolithic Stationary Flow

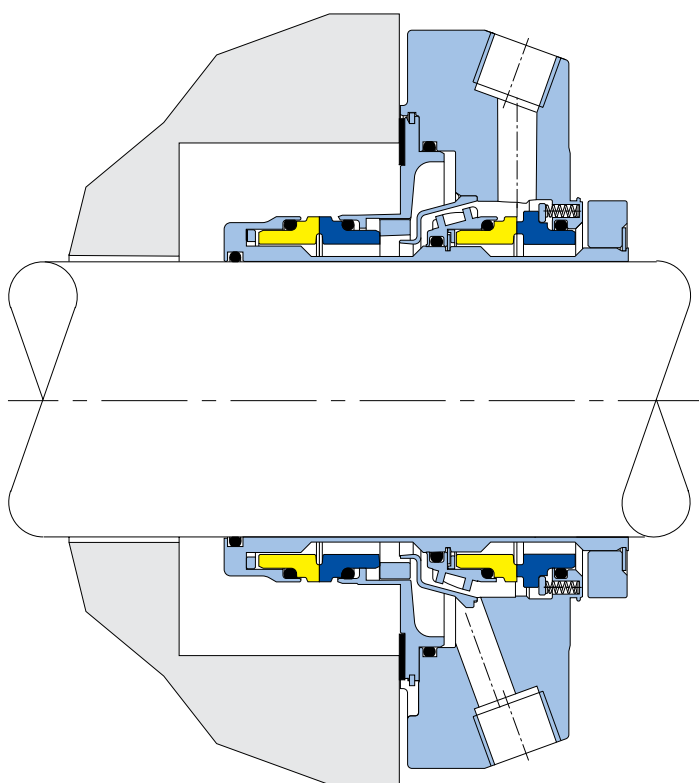
The SMSS™ range of Single Monolithic Stationary Seals is complemented by the DMSF™.

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 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.



Bi-directional pumping ring



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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



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