

SMSS23™

Single mechanical seal for hot applications



- Patented design
- Full cartridge Plan 23 seal design
- Stationary design
- Monolithic seal faces
- Bi-directional pumping scroll process circulation

SMSS23™ - Design Features

The SMSS23™ is a single cartridge mechanical seal that incorporates a pumping ring which has been specifically designed to idealize the conditions at the seal faces. It is best suited for hot process applications.

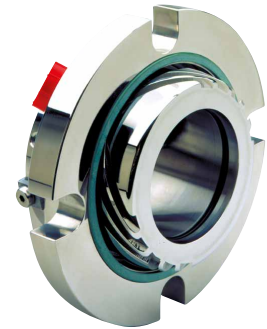
The SMSS23™ design includes the following features;

Monolithic Seal Faces

All seal faces are of monolithic construction and therefore are less susceptible to thermal seal face rotation in high or low temperature applications.

The Drive System

Finite Element Analysis has been used to optimize seal face drive. Precise, solid machined drive lugs / pins reduce drive slop between the drive ring and seal face. This is beneficial on equipment start-up / shut-down when using monolithic brittle face materials such as Silicon Carbide or Carbon.



Rear of SMSS23™ showing Pumping Scroll on Sleeve.

Large Volume of Process Fluid over Seal Faces

The large volume of process fluid around the seal faces improves heat dissipation, helping to increase seal life.

Full Cartridge Plan 23

The SMSS23™ is a true cartridge Plan 23 seal. This avoids the time consuming operation of setting and aligning a separate seal and pumping ring (depicted to the right).



Separate conventional seal and pumping ring configuration.

Large Flush Ports

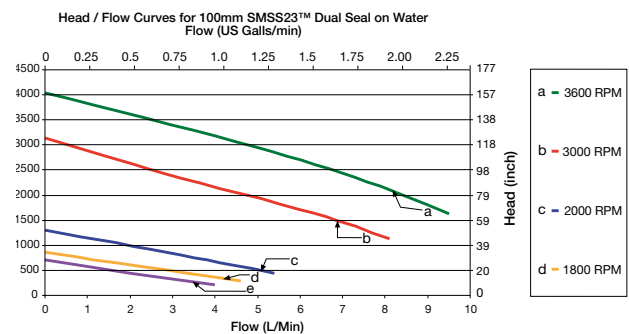
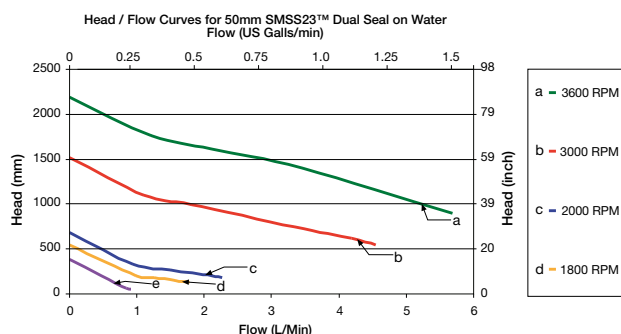
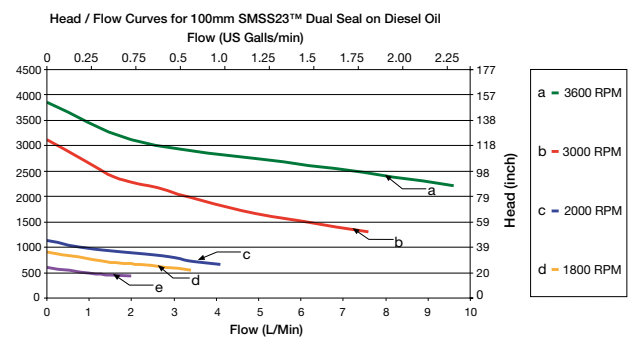
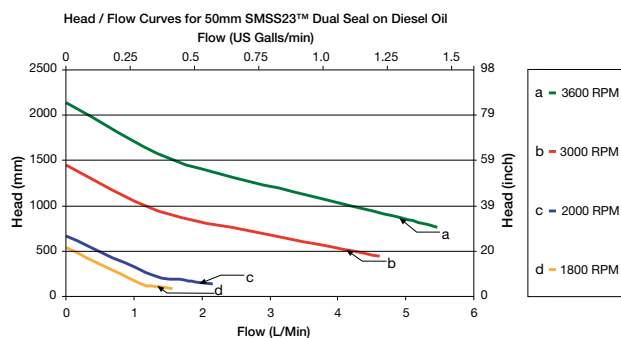
All environmental Control Ports are 3/8" (9.5mm) NPT, helping to maximize the cooling effect around the seal faces. The position of the port, directly over the seal faces, helps with the venting operation.

Stationary Seal Design

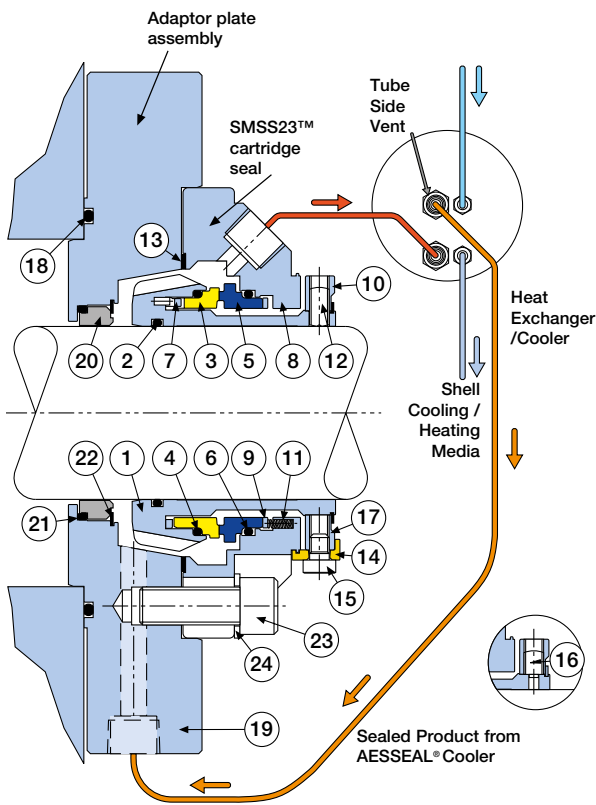
The stationary seal construction helps to minimize spring fatigue for optimum performance on high shaft speed applications.

Technical Pumping Performance

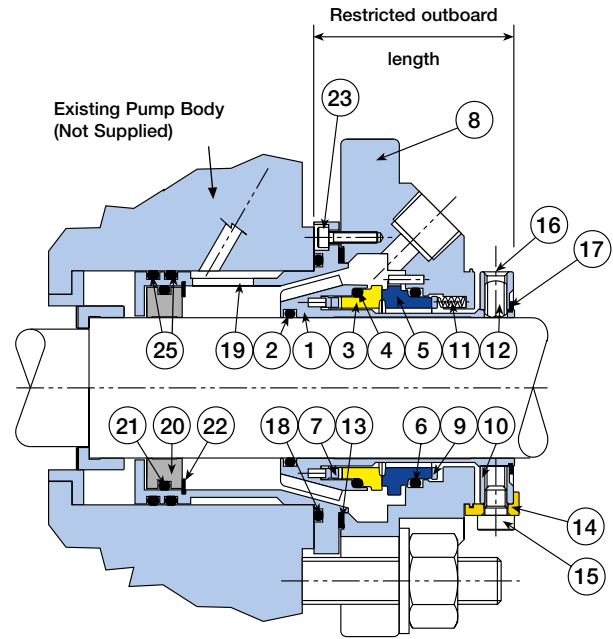
Typical Flow Rates and Head Generated by the Pumping Scroll with Water and Oil as the Process Media.



Materials of Construction



Typical SMSS23™ design configuration
(Based on API Plan 23)



Alternate SMSS23™ design configuration
(Depending on equipment configuration / restrictions)

Most seal designs are a compromise. The SMSS23™ is everything you need to seal boiler feed and low vapour pressure products.

Item	Description	Material
1	Sleeve	316L Stainless Steel
2	Sleeve O Ring	Viton® / EPR / Kalrez® / Aflas®
3	Internal Rotary Face	SiC / TC
4	Internal Rotary Face O Ring	Viton® / EPR / Kalrez® / Aflas®
5	Internal Stationary Face	SiC / TC / Carbon*
6	Internal Stationary Face O Ring	Viton® / EPR / Kalrez® / Aflas®
7	Drive Ring / Pin	316L Stainless Steel
8	Gland	316 Stainless Steel
9	Spring Plate	316L Stainless Steel
10	Clamp Ring	316L Stainless Steel
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
18	Adaptor Plate O Ring	Viton® / EPR / Kalrez® / Aflas®
19	Adaptor Plate / Gland Insert	316L Stainless Steel
20	Restriction Bush	Carbon
21	Restriction Bush O Ring	Viton® / EPR / Kalrez® / Aflas®
22	Internal Circlip	Stainless Steel
23	Caphead Screw	Stainless Steel
24	Washer (where applicable)	Stainless Steel
25	Gland Insert O Ring	Viton® / EPR / Kalrez® / Aflas®

* The Carbon seal face is positioned as a rotary component for seal sizes 2.875" (75mm) and above.

SMSS23™ seals have been designed to suit various pumps.

Some of which include:-

- Bingham
- Byron Jackson
- Dean Brothers
- Flowserve
- Goulds
- Ingersol Rand
- Naniwa
- Peerless
- Weir
- Sulzer

* For latest sizes and suitable pump information please contact our technical department.



Environmental Control Systems

European Spec

KIT	Surface Area	Tube Dia	Coil Length	Shell Equ Length	Max LPM @ 3MPS	
					Coil	Casing
AES23-25X6C	0.23m ²	6mm	12m	1.7m	25.8	40.4
AES23-27X6C	0.25m ²	12mm	6.4m	1.98m	64.7	52.80

KIT	Allowable Working Pressure / Temperature					
	Shellside	Tubeside				
AES23-25X6C	177°C @	93°C @	149°C @	204°C @	316°C @	427°C @
	6 bar	138 bar	135 bar	130 bar	125 bar	118 bar
AES23-27X6C	177°C @	93°C @	149°C @	204°C @	316°C @	427°C @
	5.7 bar	90 bar	86 bar	85 bar	80 bar	76 bar

US Spec

KIT	Surface Area	Tube Dia	Coil Length	Shell Equ Length	Max GPM @ 9FPS	
					Coil	Casing
AES23-25X6C	2.56Ft ²	1/4"	472"	68"	5.67	8.88
AES23-27X6C	2.75Ft ²	1/2"	252"	78"	14.22	11.60

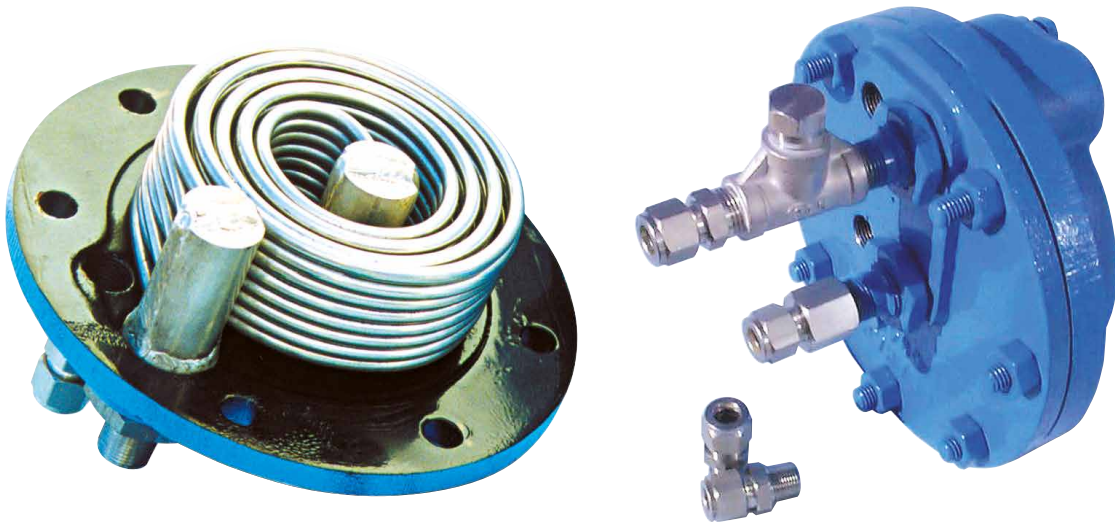
KIT	Allowable Working Pressure / Temperature					
	Shellside	Tubeside				
AES23-25X6C	350°F @	200°F @	300°F @	400°F @	600°F @	800°F @
	89 psig	2000 psig	1950 psig	1900 psig	1800 psig	1700 psig
AES23-27X6C	350°F @	200°F @	300°F @	400°F @	600°F @	800°F @
	83 psig	1300 psig	1250 psig	1225 psig	1150 psig	1100 psig

SMSS23™ Standard System Kit

The AESSEAL® cooler kit is supplied as standard with a case side vent and tube side vent which is installed at the highest point in the flush line. The SMSS23™ and the Standard Kit are sold as a package by combining the codes for each item.

This kit comprises of a unit with cast iron casing and 316 Stainless tubes, tube side vent, case side vent and drain port. With four S/S 1/2" (12mm) compression fittings for seal and cooler.

Final selection is dependent on running conditions. Please contact AESSEAL at the address below.



For further information and safe operating limits contact our technical specialists at the locations below.



Use double mechanical seals with hazardous products.

Always take safety precautions:

WARNING

- Guard your equipment
- Wear protective clothing

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