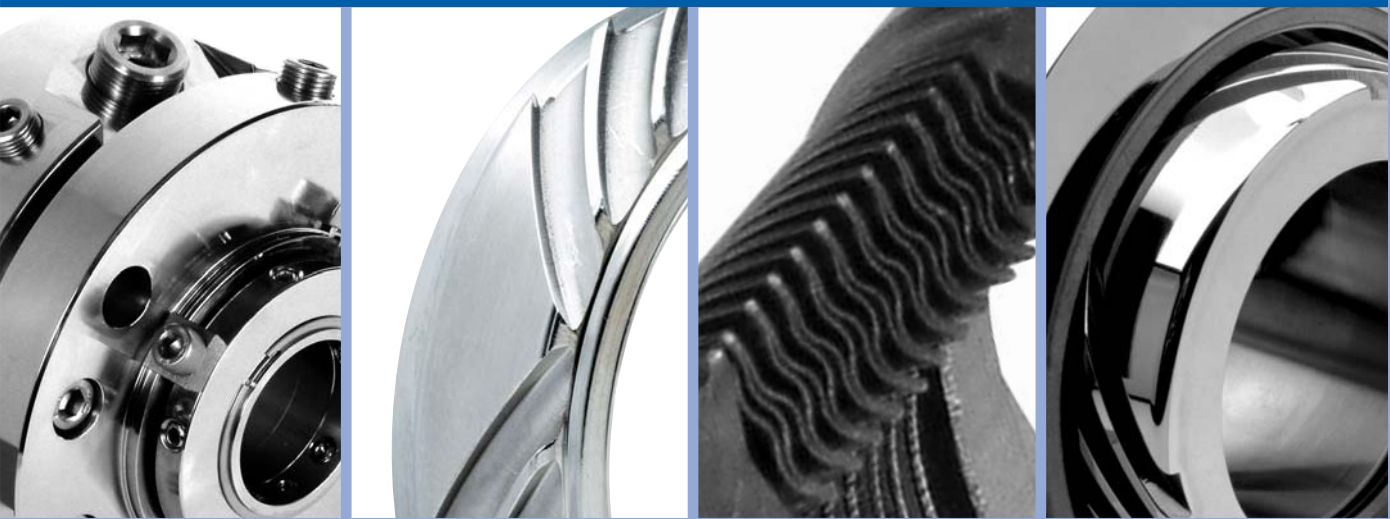




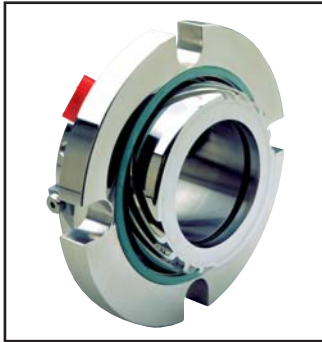
## **CAPI-23™ Cartridge API Plan 23 Solutions**



- **PATENTED DESIGN**
- **FULL CARTRIDGE PLAN 23 SEAL DESIGN**
- **STATIONARY DESIGN**
- **MONOLITHIC SEAL FACES**
- **BI-DIRECTIONAL PUMPING  
SCROLL PROCESS CIRCULATION**

# Design Features

The AESSEAL® range of single cartridge mechanical seals incorporates a pumping ring which has been designed specifically to idealize the conditions at the seal faces. The CAPI-23™ is best suited for hot process applications.



Rear of CAPI-23™ showing Pumping Scroll on Sleeve.

## The CAPI-23™ design includes the following features;

### Monolithic Seal Faces

All seal faces are of monolithic construction and therefore are less likely to be subject to “face rotation” in high or low temperature applications.

### The Drive System

Finite Element Analysis has been used to optimize seal face drive. Precision machined drive lugs / pins help to reduce the impact between the drive ring and seal face on start-up/shut down, when using monolithic brittle face materials such as Silicon Carbide or Carbon.

### 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 CAPI-23™ 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).

## Large Flush Ports

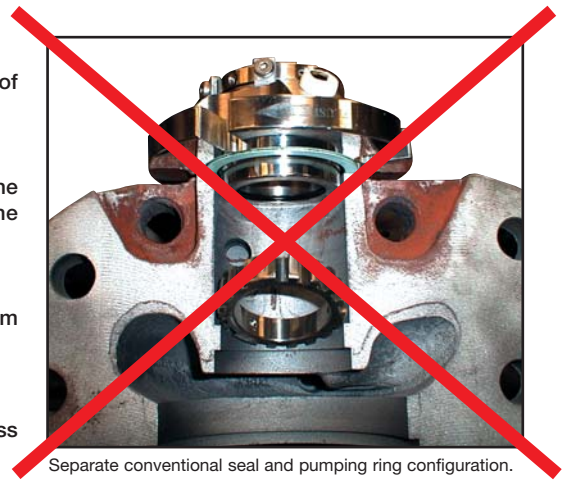
All environmental Control Ports are 3/8” NPT, helping to maximize the cooling effect around the seal faces. The position of the port, directly over the seal faces, helps with the venting operation.

## Stationary Seal Design

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

## Optional Integral Floating Bush

Upon request, the CAPI-23™ is supplied with a throttle bush to help isolate the hot process media from the Plan 23 system.

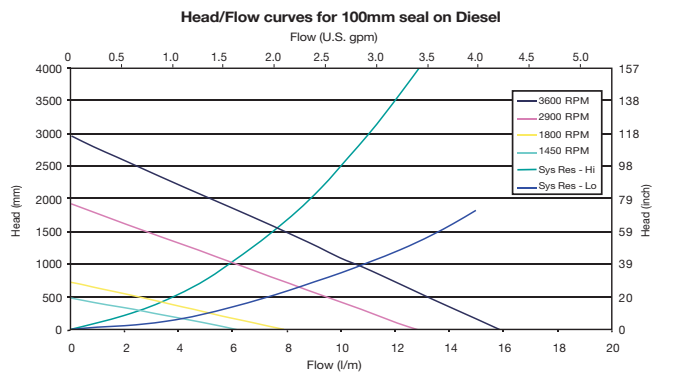
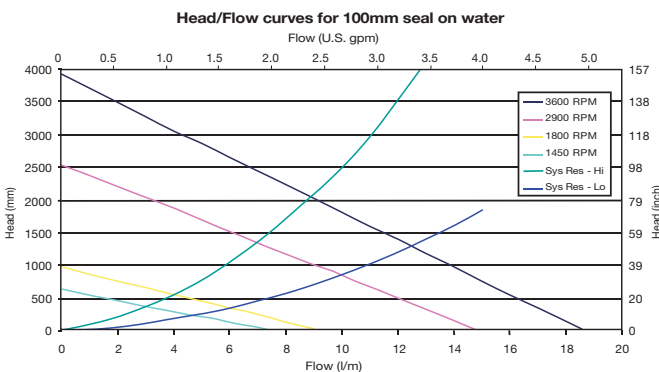
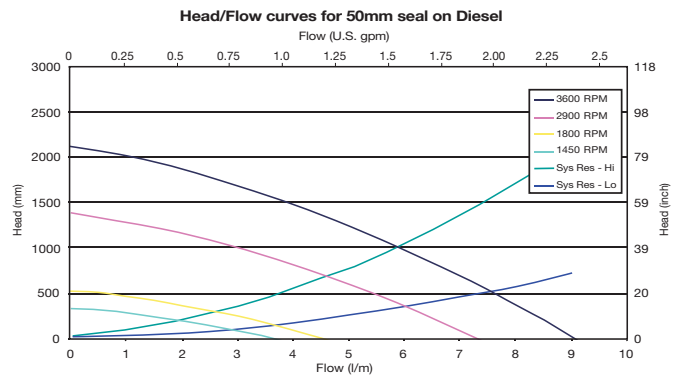
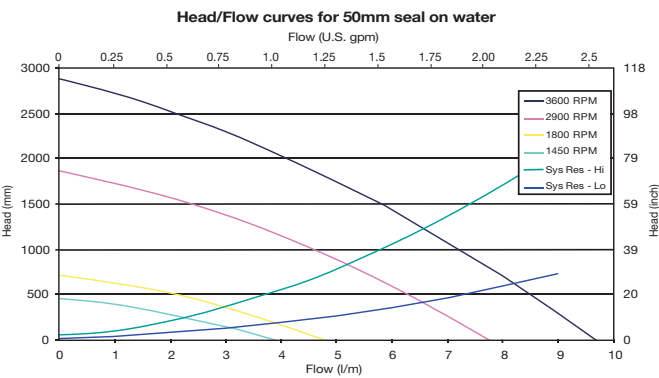


Separate conventional seal and pumping ring configuration.

**NOT RECOMMENDED**

# Technical Pumping Performance

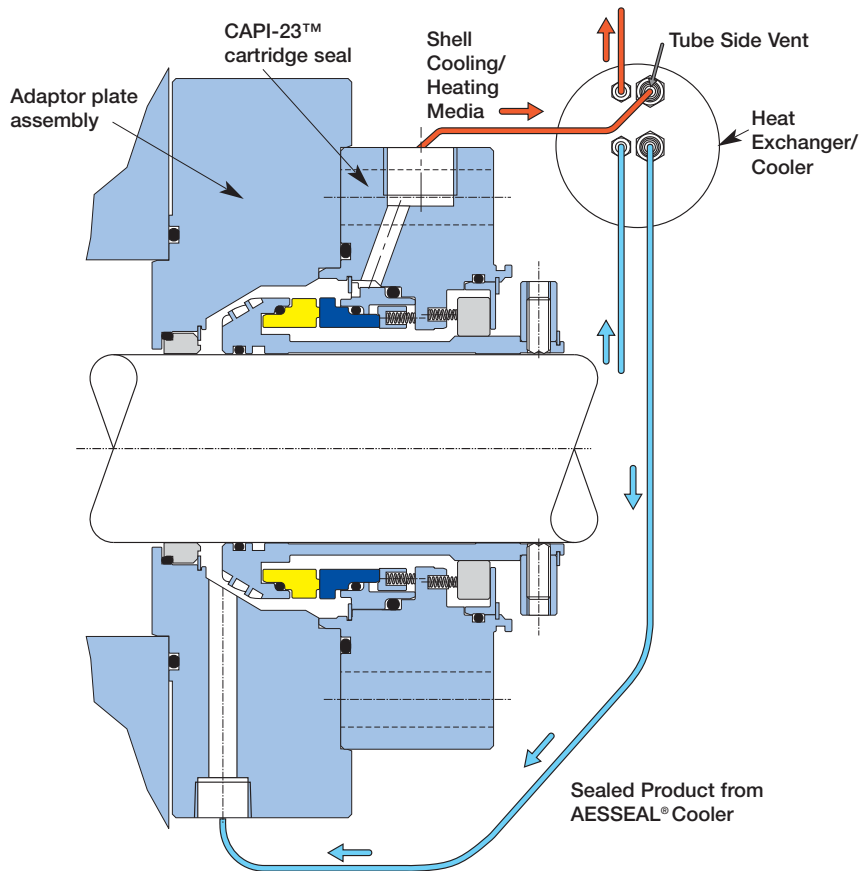
## Typical Flow Rates and Head Generated by the Pumping Scroll with Diesel, Thermotec and water as the Pro



# Principles of Operation

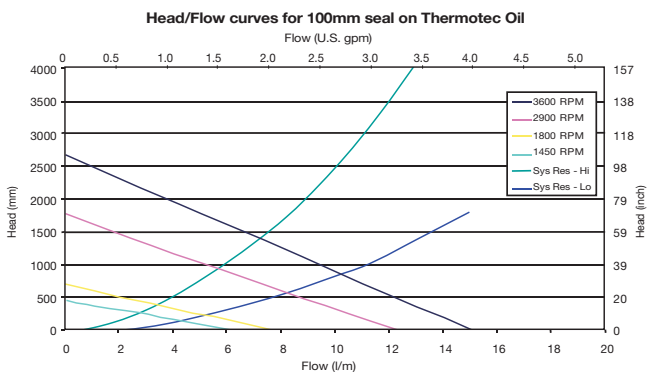
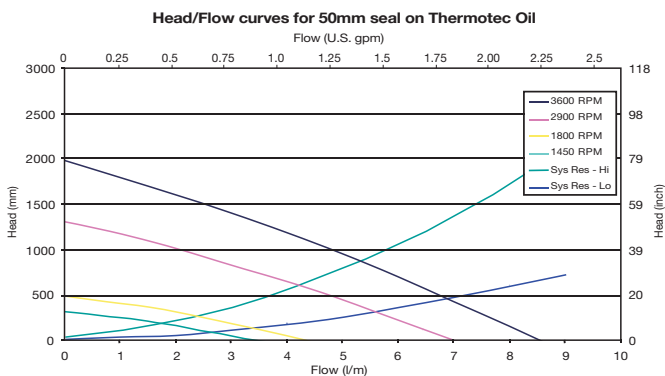


## Typical CAPI-23™ design configuration (Based on API Plan 23)



MOST SEAL DESIGNS ARE A COMPROMISE. THE CAPI-23™ IS EVERYTHING YOU NEED TO SEAL BOILER FEED AND LOW VAPOUR PRESSURE PRODUCTS.

### Process Media on 50mm and 100mm shaft sizes



Typical barrier/buffer system flow resistance curves are shown on the graphs for guidance only. Users must substitute actual or calculated system resistance curves in order to estimate the flow rates in their applications.

**CAPI-23™ 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 in the UK (+44 (0) 1709 369966) or in the US (+1 865 531 0192)

# Environmental Control Systems

## European Spec

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

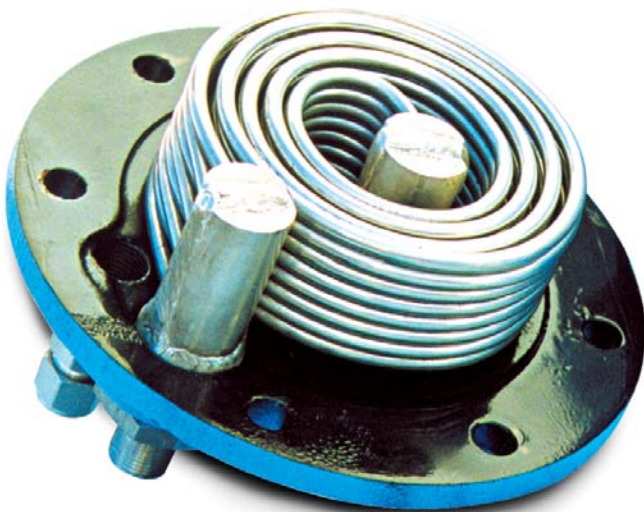
KIT	Allowable Working Pressure / Temperature					
	Shellside	Tubeside				
AES23-25X6C	177°C @ 6bar	93°C @ 138bar	149°C @ 135bar	204°C @ 130bar	316°C @ 125bar	427°C @ 118bar
AES23-27X6C	177°C @ 5.7bar	93°C @ 90bar	149°C @ 86bar	204°C @ 85bar	316°C @ 80bar	427°C @ 76bar

## US Spec

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

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

## CAPI-23™ 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 CAPI-23™ and the Standard Kit are sold as a package by combining the codes for each item.

This kit comprises 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 consult with AESSEAL (MCK) Ltd. on +44 (0) 28 9266 9966.

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.



**USE DOUBLE MECHANICAL SEALS WITH HAZARDOUS PRODUCTS. ALWAYS TAKE SAFETY PRECAUTIONS:**

- GUARD YOUR EQUIPMENT
- WEAR PROTECTIVE CLOTHING



**WARNING**

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Templeborough  
Rotherham  
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Fax: +44 (0) 1709 720788  
E-mail: seals@aes seal.com  
Internet: http://www.aes seal.com

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### USA Sales & Technical advice:

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Rockford  
TN. 37853  
USA

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

### Systems Sales & Technical advice:

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