

INCORPORATING
PRODUCTS AWARDED
THE QUEEN'S AWARD
FOR ENTERPRIZE:
INNOVATION
2006



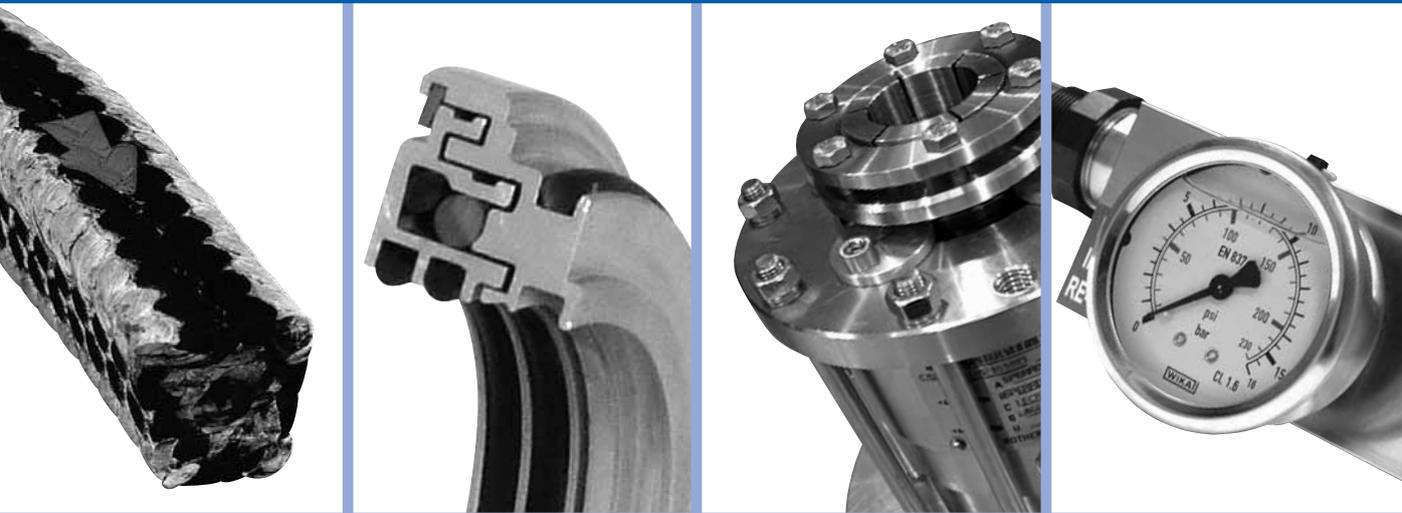
THE QUEEN'S AWARDS
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reliability-focused-solutions.com

Reliability
Focused
Solutions



general product range



environmental technology

the AESSEAL® group of companies

designers and manufacturers of mechanical seals,
engineered seal support systems and bearing protection
which maximize rotating equipment up-time

- SHAFT PACKING
- MECHANICAL SEALS
- BEARING SEALS
- SUPPORT SYSTEMS

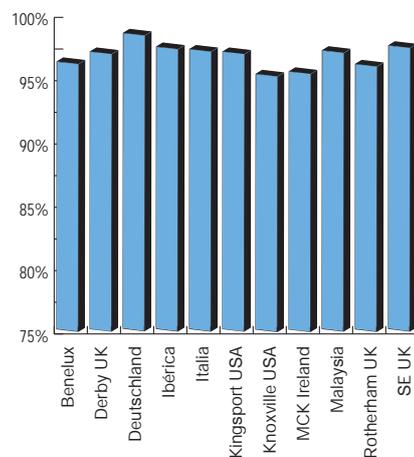
Customer Service

Customers buy from AESSEAL® because of the exceptional delivery performance.

- 96.4% on-time delivery performance
- 62% of all products despatched within 24 hours
- one global delivery performance standard
- in our industry; **inventory = service**
- AESSEAL® holds inventory so customers have no need to do so; probably the highest level of inventory to sales value in the industry, with a strategic inventory turn of 2 times
- a modular product range with over 10 million permutations ensures AESSEAL® can supply the right solution to meet a customer's time frame

24 HOUR SERVICE

Sample on-time delivery performance (standard products)



Seamless integration of CAD/CAM and 9-axis machine tools.

ENVIRONMENTAL TECHNOLOGY
AESSEAL
CUSTOM ENGINEERED PRODUCTS
 Account for over 56% of our business and we have the design and manufacturing infrastructure to deliver them FAST.

Does your existing supplier offer you unconditional product/service guarantees?



As part of a seal management program, AESSEAL® provides the following unconditional guarantees:

- any standard product not shipped within 48 hours will be provided free of charge
- 'no work no pay' warranty
- we guarantee to seal your plant at 25% less cost than the total charge of your incumbent suppliers



A seal management program should be a partnership between the supplier and the customer - the AESSEAL® model.

This brochure provides a brief overview of our extensive inventoried product range.

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 Over 10 million
 inventoried standard
 product permutations
 PLUS - CUSTOM
 ENGINEERED
 SOLUTIONS.



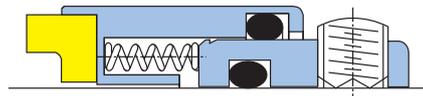
Component Seals

AESSEAL® has a comprehensive range of component seals for all applications. Some of the more popular designs are shown below.



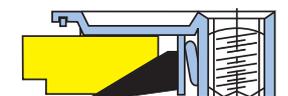
SAI™ - Internal Balanced Mechanical Seal

- Non-shaft fretting design to reduce cost in pump and equipment overhaul
- Provides maximum seal life in clogging and congealing liquids such as slurries given the smooth non-clogging profile (springs out of the product)
- Hydraulically balanced seal face
- Premium drive integrity (milled metallic lug drive)
- Sizes available from 0.750" to 6.000" (18mm - 155mm)



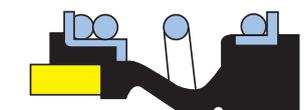
MO series - Internal Monolithic Face Mechanical Seal

- Available with a hydraulically balanced or unbalanced seal face
- Non-clipped, multiple spring design
- Enhanced flush with non-clogging spring design
- PTFE wedge or elastomer shaft seal options
- Available in 12 generic forms, covering shaft sizes 0.750" to 4.000" (20mm - 100mm)



B02™ - Internal Bellows Mounted Mechanical Seal

- Bellows with NO bonded joints, available in Viton®, Nitrile or EPR
- Single coil spring design with bi-directional shaft rotation feature
- Available in 3 generic forms, covering shaft sizes (10mm - 100mm)



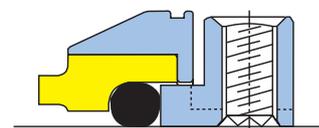
P0 series - Internal Single Coil Spring Mechanical Seal

- One of the most commonly utilized component seal designs globally
- Single coil spring design with bi-directional shaft rotation feature
- Positive face drive mechanism
- Available in 9 generic forms, covering shaft sizes 0.375" to 3.000" (10mm - 75mm)



CS™ / CSC™ Range - External Seal with Non-Metallic Parts

- External seal with hydraulically balanced seal face
- Non-metallic wetted parts for use on chemical applications
- Supplied clipped and pre-set to working length
- Available with collet drive for use with hardened or non-metallic sleeves
- Sizes available from 0.625" to 4.000" (20mm - 100mm)



For more information and dimensions see the individual product brochures.



MULTI-SPRING COMPONENT SEALS



SINGLE SPRING COMPONENT SEALS

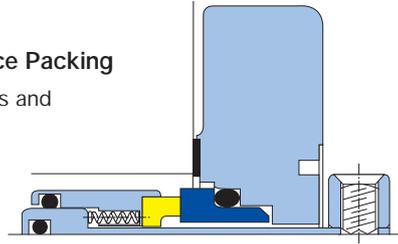
Single Cartridge Rotary Seals

All of the following range of rotary seals have:

- Hydraulically balanced seal face technology for reduced power consumption
- Non-clogging rotaries and non-shaft fretting elastomers
- Multiple spring seal face loading and positive set screw shaft drive

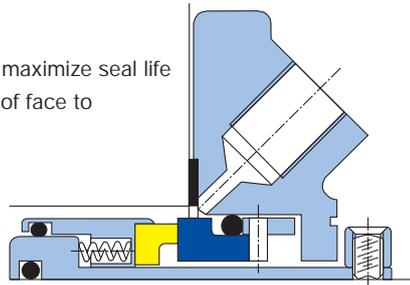
Convertor II™ - Cartridge Seal Designed to Replace Packing

- Cartridge seal designed to replace two part component seals and conventional packing arrangements
- Short external length
- Compact gland for use on applications with limited space
- Sizes available from 1.000" to 4.000" (24mm - 100mm)



SCUSI™ - Short Cartridge Mechanical Seal

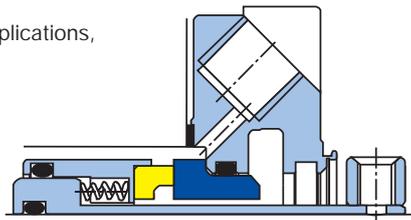
- Available with flush port as standard for cooling or venting to maximize seal life
- Self aligning stationary face ensures perpendicular alignment of face to shaft axis, maximizing seal life
- Stationary face drive with radial contacting pins eliminates damage in stop/start applications and viscous fluids
- Sizes available from 1.000" to 2.750" (24mm - 70mm)



CSSN™ & CSSN-R™ - Single Cartridge Seal

- Modular range of cartridge mechanical seals for general applications, supplied with Quench, Flush and Drain ports as standard
- Non-self aligning stationary seal face
- Optional modular restriction bush (CSSN-R™) supports Plan 62
- Sizes available from 1.000" to 3.375" (24mm - 85mm)

*Larger sizes termed CSS™

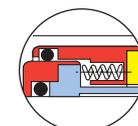


CSSN-R™
Includes
restriction bush

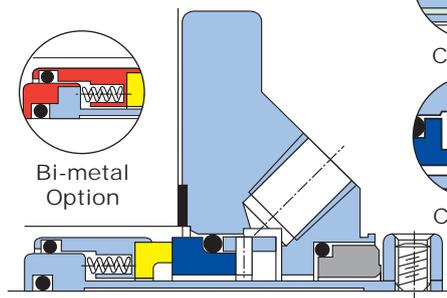


CURC™, CRCO™ & CURE™ - Cartridge Single Seal

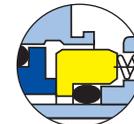
- Self aligning stationary face ensures perpendicular alignment of face to shaft axis, maximizing seal life
- Stationary face drive with radial pins eliminate damage in stop/start applications and viscous fluids
- Quench, drain and flush ports for cooling or heating options to maximize seal life
- Sizes available from 1.000" to 5.000" (24mm - 125mm)
- Bi-Metal option - maintains the features of the standard CURC™, CRCO™ and CURE™ but includes Exotic Alloy wetted components for use with corrosive chemicals



Bi-metal
Option



CRCO™



CURE™



CONVERTOR II™



CSS™/CDP™



SCUSI™



CURC™

For more information
and dimensions
see the individual
product brochures.



Single Cartridge Stationary Seals

All of the following Single Cartridge Stationary Seals have:

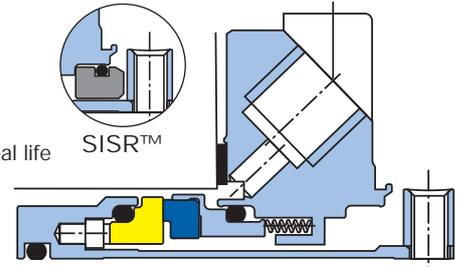
- Hydraulically balanced seal face technology for reduced power consumption
- Non-shaft fretting sleeve elastomer and positive set screw shaft drive
- Multiple spring seal face loading
- Stationary design to allow for some angular misalignment between the shaft and equipment housing



SISS™ & SISR™ - Single Stationary Seals

Modular range of stationary cartridge mechanical seals for all industry sector general applications.

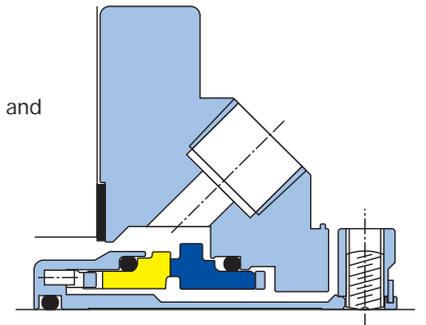
- High integrity drive design features for improved reliability & seal life
- Supplied with Quench, Flush and Drain ports as standard
- Optional modular restriction bush (SISS-R™) supports Plan 62 allowing control of the seal environment, maximizing seal life
- Sizes available from 1.000" to 3.375" (24mm - 85mm)



SMSS™ - Single Monolithic Stationary Seal

A single cartridge stationary seal with modular monolithic seal faces.

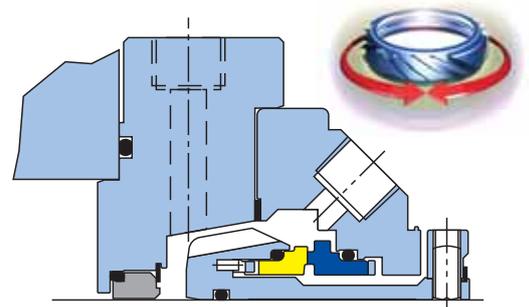
- Monolithic seal faces provide maximum face stability in high pressure and high temperature applications improving seal longevity
- Seal face drive by large contact area preventing damage to faces in stop/start applications and viscous fluids
- Large 3/8" NPT ports maximize cooling and extend seal life
- Short inboard axial length
- Sizes available from 1.000" to 5.000" (24mm - 125mm)



SMSS23™ - Plan 23 Single Stationary Seal

A single cartridge stationary seal with integral Plan 23.

- Extremely effective Plan 23 bi-directional integral pumping scroll (no individual setting of separate pumping rings)
- Ideal for boiler feed and boiler circulation duties
- Integral inboard restriction bush configuration, adapted to suit the equipment
- Total package solution available including heat exchanger
- Sizes available on request. Please contact AESSEAL®



For more information and dimensions see the DISP™/SISS™, SMSS™ and SMSS23™ brochures.



DISP™/SISS™



SMSS™



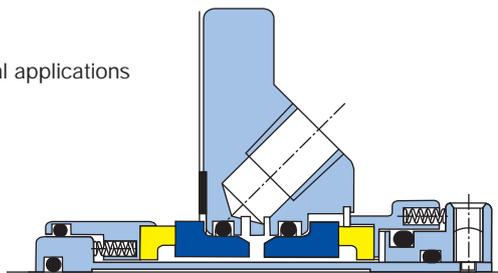
SMSS23™

All of the following Double Cartridge Rotary Seals have:

- Hydraulically balanced seal face technology for reduced power consumption
- Non-shaft fretting sleeve elastomer and positive set screw shaft drive
- Independent seal face design to enhance safety containment of process fluid in the event of damage to any individual sealing element
- Multiple spring seal face loading

CDP™ - Cartridge Double Seal

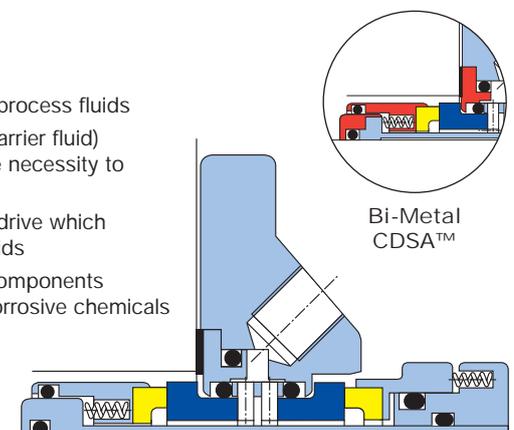
- Modular range of cartridge dual mechanical seals for general applications
- Supplied with Quench, Flush and Drain ports as standard
- Non-self aligning stationary seal faces
- Sizes available from 1.000" to 12.000" (24mm - 300mm)



CDSA™ - Cartridge Mounted Double Seal

- This modular seal is ideal for the containment of hazardous process fluids
- Flexible design allows use as a double seal (high pressure barrier fluid) or tandem seal (low pressure barrier fluid) which reduces the necessity to inventory two designs of seals
- Self aligning stationary seal faces with radial contacting pin drive which eliminates damage in stop/start applications and viscous fluids
- Bi-Metal CDSA™ option also includes Exotic Alloy wetted components in Titanium, Alloy 276, Alloy 400 and Alloy 20 for use with corrosive chemicals
- Sizes available from 1.000" to 6.000" (24mm - 150mm)

* Larger sizes up to 12.000" available on request

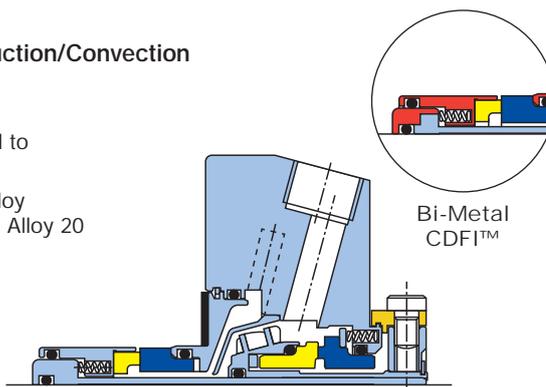


Bi-Metal CDSA™



CDFI™ / CDFC™ - Cartridge Double Flow Induction/Convection

- Integral deflector guides cooling barrier fluid to the most essential areas and extends seal life
- Incorporates highly effective bi-directional pumping scroll to maximize cooling and increase seal life
- Bi-Metal CDFI™/CDFC™ options also includes Exotic Alloy wetted components in Titanium, Alloy 276, Alloy 400 and Alloy 20 for use with corrosive chemicals
- Sizes available from 1.125" to 6.000" (28mm - 150mm)



Bi-Metal CDFI™



CSS™/CDP™



CDSA™



CDFI™

For more information and dimensions see the CSS™/CDP™, CDSA™ and CDFI™ brochures.



Double Cartridge Stationary Seals

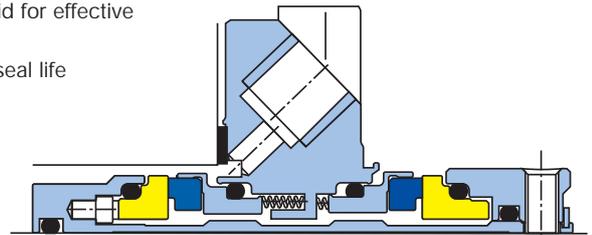
All of the following Double Cartridge Stationary Seals have:

- Hydraulically double balanced seal face technology for reduced power consumption with the ability to withstand pressure fluctuations
- Non-shaft fretting sleeve elastomer and positive set screw shaft drive
- Independent seal face design to enhance safety containment of process fluid in the event of damage to any individual sealing element
- Multiple spring seal face loading with hydraulic pressure balanced for improved reliability and seal performance
- Stationary design which allows for some angular shaft to equipment housing misalignment and is suitable for high speed applications



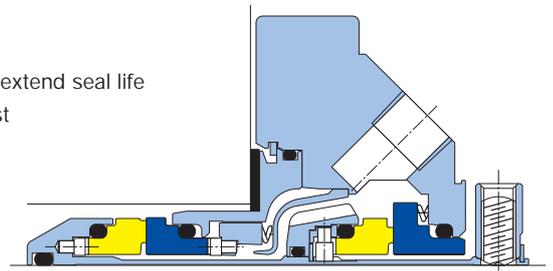
DISP™ - Double Stationary Seal with Pumping

- Efficient bi-directional pumping ring circulates barrier fluid for effective seal face cooling and extended seal life
- High integrity drive design features improve reliability & seal life
- Thin radial faces reduce heat generation compared to alternative dual balanced designs
- Supplied with Quench, Flush and Drain ports
- Sizes available from 1.000" to 3.375" (24mm - 85mm)



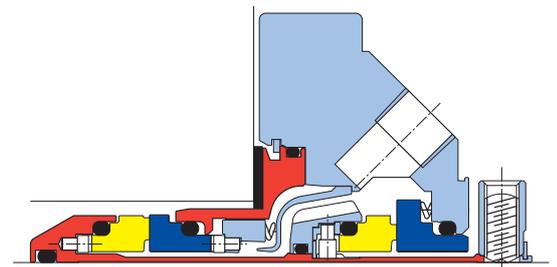
DMSF™ / DMSC™ - Double Monolithic Stationary Flow/Convection

- Monolithic seal faces provide maximum face stability in high temperature applications improving seal longevity
- Seal face drive by large contact area prevents damage to faces in stop/start applications and viscous fluids
- Incorporates a highly effective bi-directional pumping scroll to maximize cooling and increase seal life
- Large 3/8" NPT seal gland ports maximize cooling and extend seal life
- Integral deflector guides cooling barrier fluid to the most essential areas and extends seal life
- Sizes available from 1.000" to 6.000" (24mm - 150mm)



Exotic DMSF™ / DMSC™

- Bi-Metal DMSF™/DMSC™ option also includes Exotic Alloy wetted components in Titanium, Alloy 276, Alloy 400 and Alloy 20 for use with corrosive chemicals
- Sizes available from 1.000" to 6.000" (24mm - 150mm)



For more information and dimensions see the DISP™/SISS™ and DMSF™ brochures.



DISP™/SISS™



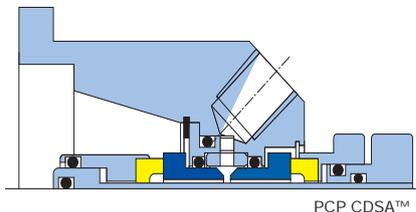
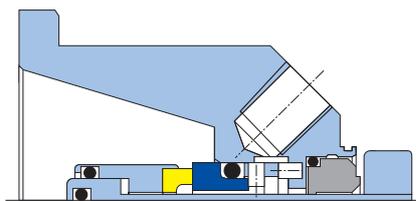
DMSF™

Progressive Cavity Pump Seal Range

PCPS™ Range – Progressive Cavity Pump Seals

Over 1,500 PCP designs available to suit all major manufacturers across the globe, such as Mono, Robbins & Myers, Netzsch, PCM, Seepex or Orbit and many more.

- Available as single or double seal options
- No pump modification necessary, reducing cost of conversion as seal replaces existing stuffing box seal chamber
- Modular design for improved availability
- Big bore flared housing maximizes cooling and lubrication and increases seal life. Prevents clogging when pumping slurries/liquids
- Non-shaft fretting design to reduce cost in pump/equipment overhaul

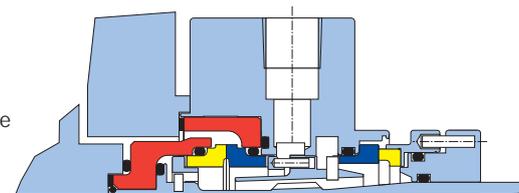


Non-Metallic Seals for Chemical Pumps

- Non-metallic wetted components in silicon carbide and carbon, for use with corrosive chemicals
- Non-shaft fretting design to reduce cost in pump and equipment overhaul
- Robust construction and cartridge design for ease of installation
- Hydraulically balanced seal faces
- Incorporates pumping scroll to maximize cooling and increase seal life with a directed barrier fluid flow path to both sets of seal faces

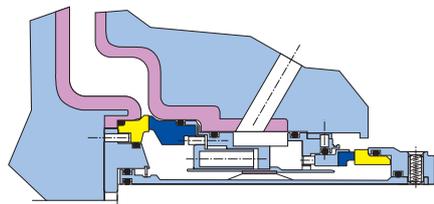
FI-DSNM-R™

The FI-DSNM-R™ is designed to suit the **Richter (Goulds), PCK and SCK** non-metallic process pumps. This unique cartridge design eliminates the OEM ceramic sleeve.



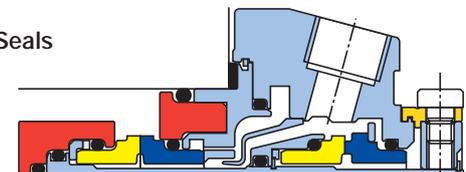
LSEAL™

The LSEAL™ is designed to suit the **Flowserve, Polychem 'L' series, Group I and Group II** non-metallic process pumps. This unique cartridge design simplifies installation.



DSNM™ & FI-DSNM™ - Non-Metallic Mechanical Seals

The DSNM™ is designed to suit the **Flowserve, Polychem 'S' series MkIII** non-metallic process pump.



PCPS™ RANGE



FI-DSNM-R™



LSEAL™



CHEMICAL

For more information and dimensions see the PCPS™, FI-DSNM-R™, L-SEAL™ and CHEMICAL brochures.



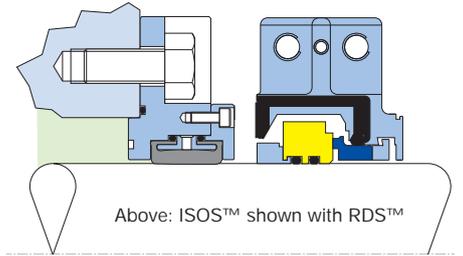
Radially Divided Seals



RDS™ - Radially Divided Seal

The RDS™ eliminates the need to remove or strip equipment for seal replacement. The design of this Radially Divided Seal enables it to be the quickest to install two part seal currently available in the market place.

- Hydraulically balanced seal faces for reduced seal face loading, maximizing seal life and allowing for vacuum service capability
- Visible external pin which indicates remaining life assists preventative maintenance
- Minimum parts to assemble
- Self aligning stationary face
- Precision lapped (not cracked) rotary seal face provides industry leading separation technology and predictable sealing
- Sizes available from 2.625" and equivalent" (63mm - 300mm)



ISOS™ - Inflatable Shut Off Seal

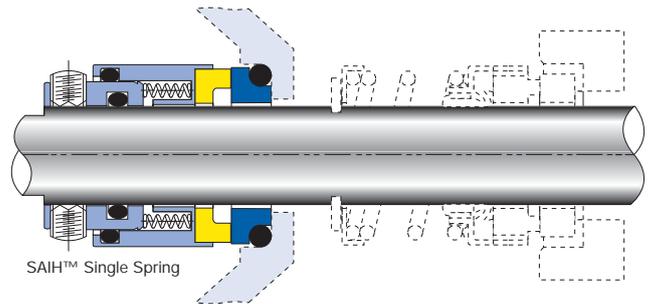
- Eliminates the need for pump shut off valves when changing a seal with no need for subsequent pump re-priming
- Fitted between the pump and seal it allows quicker and easier changing of the mechanical seal with no need to drain equipment

Submersible Pump Seal Range

AESSEAL® has a wide range of seals to suit the following submersible pump types: Flygt®, Grindex®, Emu, ABS, Sarlin, Hidrostal and many more.

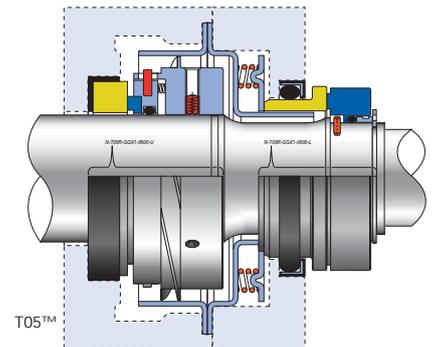


SAIH™ to suit Hidrostal



T05™ Series - Replacement Seals to suit Flygt® and Grindex® Pumps

- Easy to install because it is pre-set
- No pump modifications necessary
- No special fitting tools required
- No plastic parts
- Stainless steel metal parts
- Many seals in the range utilize monolithic seal faces
- Significant cost savings possible



For more information and dimensions see the RDS™ and T05™ SERIES brochures.



RDS™



T05™ SERIES

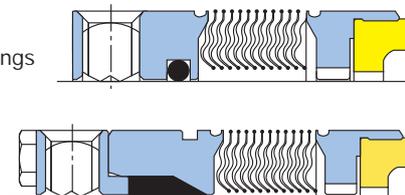
Metal Bellows Seal Range

With 50% more bellows than the industry standard (12 instead of 8) there is less stress on each convolution in the bellows stack which helps increase seal life. AESSEAL® standard bellows material, Alloy 276, also has superior mechanical and corrosion resistance properties compared to other industry standard bellows materials such as 300 series Stainless Steel or Alloy 20. The hydraulically balanced bellows unit is available in a variety of different material options with either elastomer or graphite packing sealing rings.



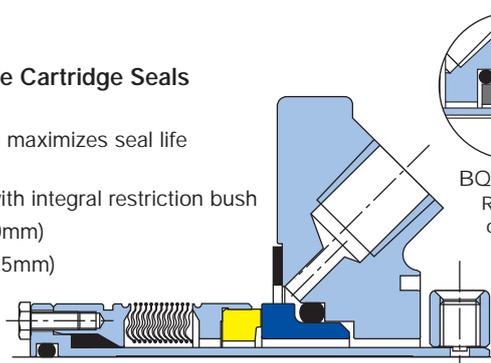
BSAI™ & BSAIG™ - Bellows Component Seals

- Short working length suitable for DIN 24960 or BSEN 12756 housings
- Suitable for compact limited space applications
- Hydraulically balanced for reduced seal face loading which maximizes seal life and allows for vacuum service capability
- Sizes available from 1.000" to 5.000" (24mm to 125mm)



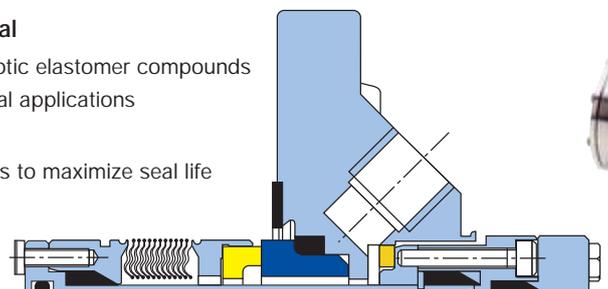
BSIV™, BQFD™ & BQFD-R™ - Bellows Single Cartridge Seals

- Unit design for ease of installation
- Hydraulically balanced for reduced seal face loading which maximizes seal life and allows for vacuum service capability
- The BQFD™ designs have quench, flush and drain ports with integral restriction bush
- BSIV™ sizes available from 1.000" to 4.000" (24mm to 100mm)
- BQFD™ sizes available from 1.000" to 5.000" (24mm to 125mm)



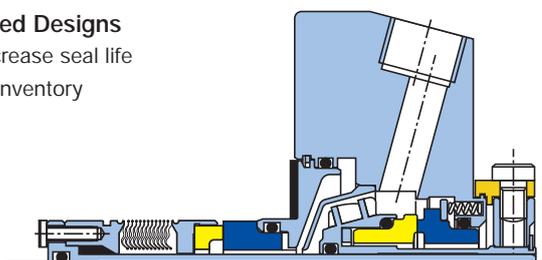
BSFG™ - Bellows Single Full Graphite Cartridge Seal

- Eliminates the costly and often long lead time issues of exotic elastomer compounds
- Full graphite seal for high temperature or corrosive chemical applications
- Fits pumps with thin radial seal chamber cross sections
- Quench, drain and flush ports for cooling or heating options to maximize seal life
- Unit design for ease of installation
- Sizes available from 1.000" to 4.000" (24mm to 100mm)



BDFI™ / BDTP™ - Bellows Double Flow Induced Designs

- Incorporates pumping scroll to maximize cooling and increase seal life
- Unique bi-directional pumping scroll helps reduce plant inventory
- Large 3/8" ports maximize cooling and extend seal life
- Integral deflector guides cooling barrier fluid to the most essential areas and extends seal life
- Sizes available from 1.000" to 5.000" (24mm to 125mm)
- BDTP™ (not shown) is a double cartridge seal with bellows inboard and outboard



BSAI™

BSIV™

BQFD™

BSFG™

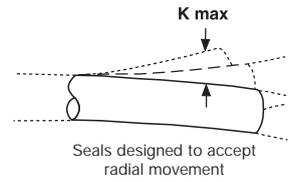
BELLOWS

BDTP™



AESSEAL® offer a complete product range to seal Mixers, Agitators and Reactors.

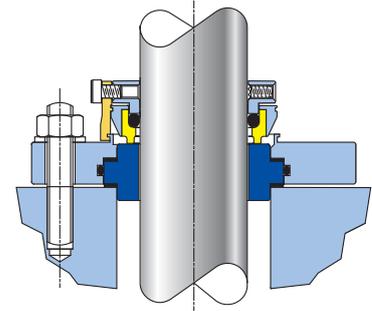
- Hydraulically balanced for reduced seal face loading which maximizes seal life and allows for vacuum service capability
- Unit design for ease of installation
- Non-shaft fretting design to reduce cost in pump and equipment overhaul
- Modular designs for improved availability and industry leading prices



ESMTM Range - External Seal For Mixers

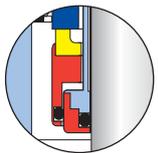
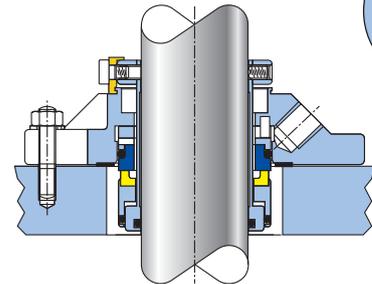
- Flange manufactured to suit OEM constraints
- External seal for mixers with non-metallic wetted faces
- Collet drive option available for soft or hard shafts
- Sizes available from 1.000" to 2.625" (25mm - 65mm)

*For other sizes please contact AESSEAL®



CSM™ - Cartridge Single for Mixers

- Single cartridge seal with non-self aligning stationary faces
- Can accept greater radial movement than pump seals (K max)
- Can be used on mixers with long overhanging shafts
- Suitable for top entry agitator service and vapor applications
- Exotic alloy wetted parts available for use with corrosive chemicals
- Smooth non-clogging profile (springs out of the product)
- Sizes available from 1.000" to 12.000" (24mm - 300mm)

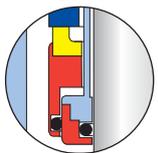
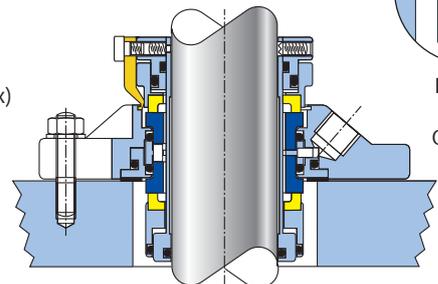


Exotic Alloy Option



CDM™ - Cartridge Double for Mixers

- Double cartridge seal with non-self aligning stationary faces
- Can accept greater radial movement than pump seals (K max)
- Exotic alloy wetted parts available for use with corrosive chemicals
- Smooth non-clogging profile (springs out of the product)
- Sizes available from 1.000" to 12.000" (24mm - 300mm)



Exotic Alloy Option

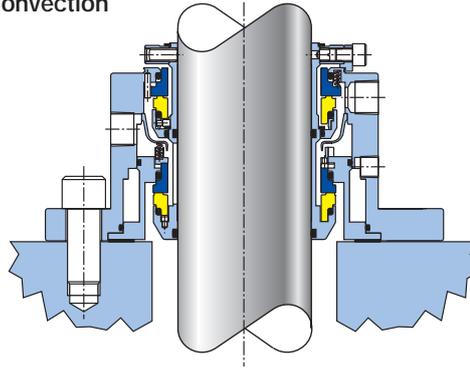
For more information and dimensions see the MIXER BASIC cartridge seal range brochure.



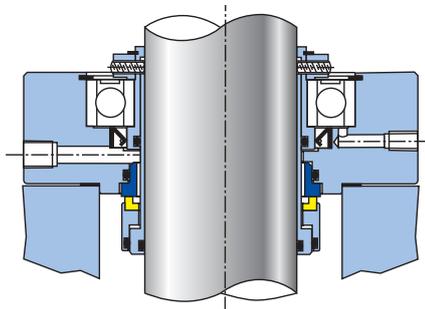
MIXER BASIC

CDMSC™ - Canister Double Monolithic Stationary Convection

- Monolithic seal faces provide maximum face stability in high pressure and high temperature applications improving seal longevity in these type of applications
- Large contact area of seal face drive prevents damage to faces in stop/start applications and viscous fluids
- Large internal clearances to maximize seal cooling and heating and extend seal life
- Can accept greater radial movement than pump seals
- Offered with an integral cooling and heating jacket which improves the seal environment and extends seal life
- Sizes available from 1.250" to 8.000" (30mm - 200mm)

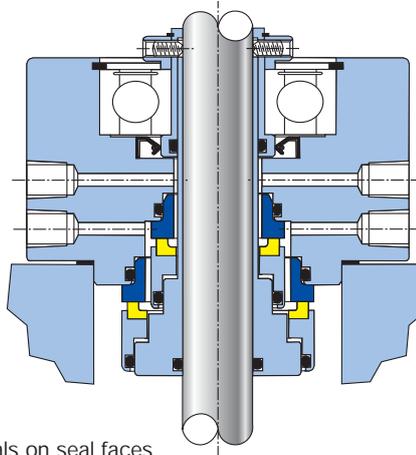


CSWIB™ (Mixmaster I™)
Cartridge Single with Integral Bearing



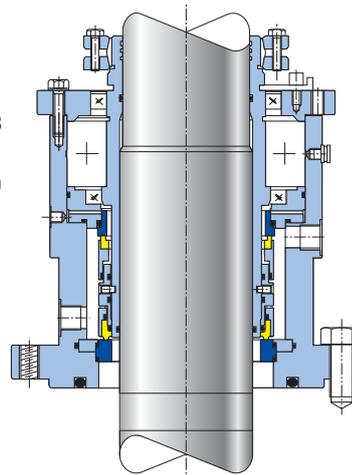
- Designed for agitators and mixers
- Fitted with an integral bearing to stabilize shaft and seal faces
- Ideal for use on mixers with long overhanging shafts
- Quench, drain and grease ports prevent solidification of materials on seal faces and can provide cooling or heating to maximize seal life in arduous applications

DSWIB™ (Mixmaster II™)
Double Seal with Integral Bearing



Mixmaster IV™ - Range of Cartridge Seals for Mixers

- Can be used on mixers with long overhanging shafts and suitable for top entry agitator services
- Offered with and without shaft load carrying bearing to DIN 28-138 parts 1 and 2
- Hydraulically reverse balanced for reduced seal face loading which maximizes seal life and allows for vacuum service capability
- Non-shaft fretting design to reduce cost in mixer and equipment overhaul
- Available in a wide range of flange designs
- All sizes available from 1.000" to 10.250" (24mm - 260mm)



CDMSC™



MIXMASTER RANGE

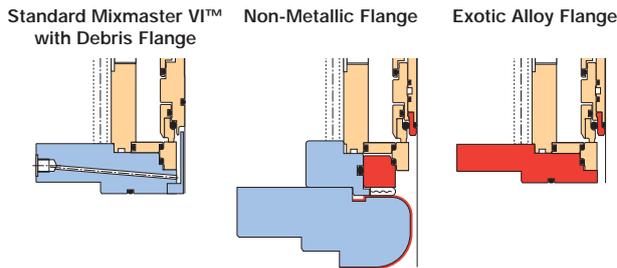
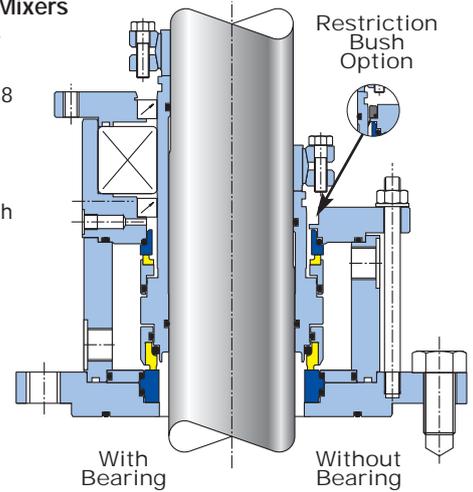
For more information and dimensions see the CDMSC™ and MIXMASTER Range brochure.



Seals for Mixers, Agitators & Reactors

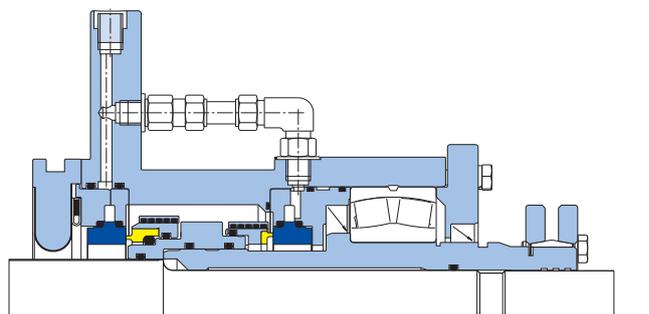
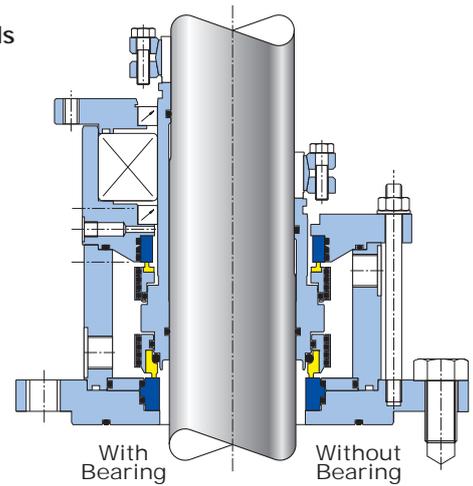
Mixmaster V™ & VI™ - Range of Cartridge Seals for Mixers

- Can be used on mixers with long overhanging shafts and suitable for top entry agitator services
- Offered with and without shaft load carrying bearing to DIN 28-138 parts 1 and 2
- Available with exotic alloy and non-metallic wetted parts for applications with corrosive chemicals
- Hydraulically reverse balanced for reduced seal face loading which maximizes seal life and allows for vacuum service capability
- Smooth non-clogging profile (springs out of the product)
- Non-shaft fretting design to reduce cost in mixer and equipment overhaul
- Available in a wide range of flange designs (shown below)
- All sizes available from 1.000" to 10.250" (24mm - 260mm)

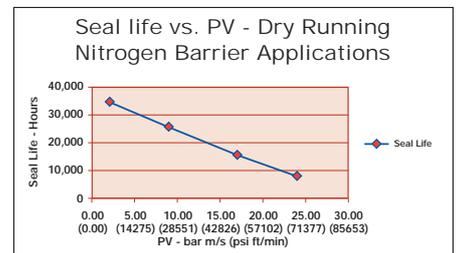


Mixmaster VII™ - Range of Dry Running Cartridge Seals

- Designed for use with gas barrier systems
- Contact seal face technology for low gas consumption and high sealing integrity
- Offered with and without shaft load carrying bearing to DIN 28-138 parts 1 and 2
- Available with exotic alloy and non-metallic wetted parts for applications with corrosive chemicals
- Non-shaft fretting design to reduce cost in mixer and equipment overhaul
- Available in a wide range of flange designs (shown below)
- Inboard & outboard stationary seal face cooling option available (see below)
- All sizes available from 1.000" to 10.250" (24mm - 260mm)



Mixmaster VII-DD™ - Inboard and outboard cooled stationary seat option



For more information and dimensions on the Mixmaster see the Mixmaster and Mixmaster VII™ brochures.



MIXMASTER RANGE



MIXMASTER VII™

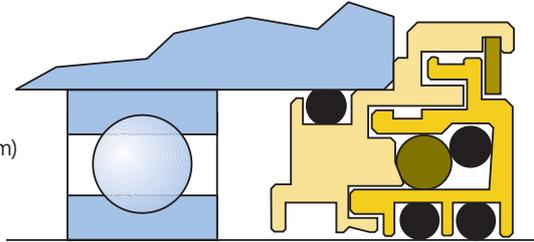
Bearing Protector Range

AESSEAL® believe that they are the only global company which equally promotes Labyrinth and Face Seal Bearing Protectors. This ensures you get the right seal for your application.



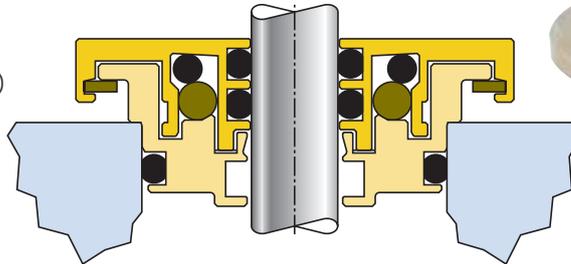
LabTecta™ - Labyrinth Bearing Seal

- Non-contacting Labyrinth Bearing Protector ideally suited for high shaft speed or marginal lubrication applications
- Inexpensive to repair and guaranteed to last 3 times longer than a conventional lip seal
- Sizes available from 0.750" to 12.000" (16mm - 300mm)
- Larger sizes available on request



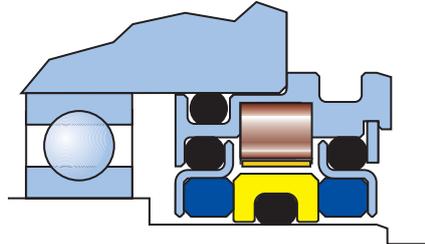
LabTecta-TE™ - Top Entry/Vertical Applications

- Designed for vertical applications
- Shrouded rotary design
- Sizes available from 0.750" to 12.000" (16mm - 300mm)
- Larger sizes available on request



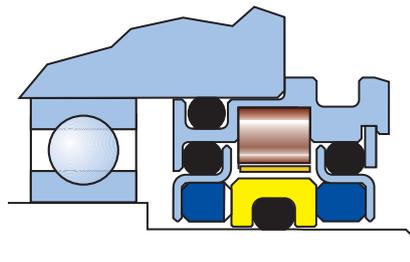
MagTecta™ - Magnetic Face Seal Design

- Double faces supplied in Carbon/TC for double protection
- Compact housing will fit the majority of lip seal cavities without the need for modification of equipment
- Sizes available from 0.750" to 5.875" (16mm - 145mm)
- Larger sizes 6.000" to 12.000" (150mm - 300mm) also available on request

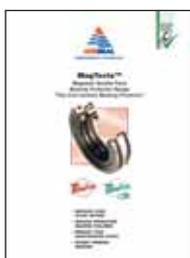


MagTecta-OM™ - Oil Mist Applications

- Unique oil mist collecting and retainment system for improved seal life
- Sizes available from 0.750" to 5.875" (16mm - 145mm)
- Larger sizes 6.000" to 12.000" (150mm - 300mm) also available on request



Designs for Pillow Blocks, axial shaft movement and split seal designs are available on request.



MAGTECTA™



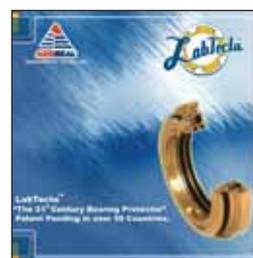
LABTECTA™



LABTECTA-PB™



LABTECTA-AX™



LABTECTA™ CD-ROM

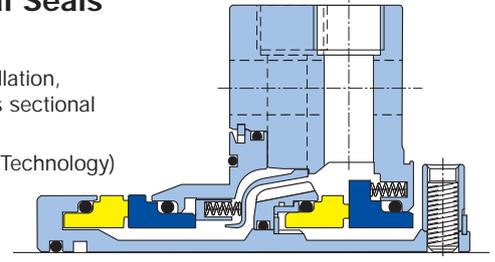


Having supplied the Hydrocarbon processing and associated industry sectors since the early 1990's, AESSEAL® has a proven track record of extending equipment life, reducing expenditure on seals and optimizing inventory levels for customers in over 80 countries.



Type A, B and C Category I Single & Dual Seals

- Employs Qualification Tested API 682 Technology
- Thin cross section (TXS) seal designs for mature asset installation, including API 610, 5th Ed. with a 0.500" (12mm) radial cross sectional space between the shaft and seal chamber
- Robust and reliable seal face drive (Patented Floating Drive Technology) reduces high stress points at equipment start-up
- Probably the most compact single and dual API cartridge seals on the market which employ API 682 qualified technology
- All sizes available from 1.000" to 6.000" (24mm - 150mm)

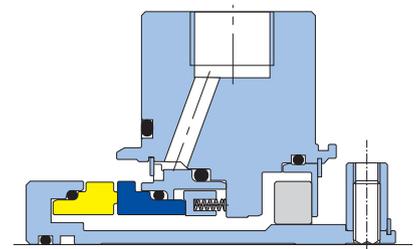


AESSEAL® CAPI-TXS™ Type A1 Dual Seal



Type A Category II & III Single & Dual Seals

- Qualification Tested to API 682
- Stationary flexible element offered as standard for improved pusher design performance as outlined in API 682 Section 6.1.1.5. Rotary design is available on request
- Multi-port flush design offered as standard for optimum seal face cooling
- World-leading bi-directional pumping ring performance with 0.062" (1.5mm) radial clearance between rotor and stator; conforming with API 682 Section 8.6.2.3 WITHOUT COMPROMISE
- All sizes available from 1.000" to 6.000" (24mm - 150mm)

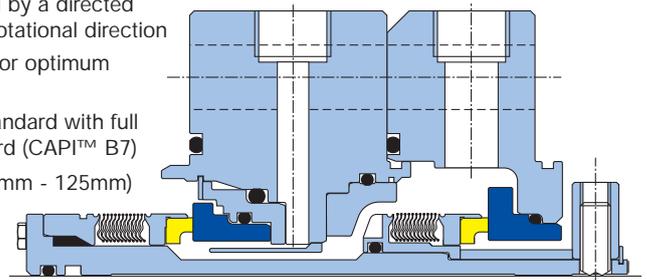


AESSEAL® CAPI™ Type A1 Single Seal



Type B Category II & III Single & Dual Seals

- Qualification Tested to API 682
- Effective seal face heat dissipation achieved by a directed barrier fluid flow path, irrespective of shaft rotational direction
- Multi-port flush design offered as standard for optimum seal face cooling
- 12 edge welded bellows convolutions as standard with full graphite secondary seal available as standard (CAPI™ B7)
- All sizes available from 1.000" to 5.000" (24mm - 125mm)



AESSEAL® CAPI™ Type B3 Dual Seal

Bellows Convolution Materials:
Alloy 718, AM350 and Alloy 276 as standard

Seal Face Holder Materials:
Alloy 42, Alloy 625, 316L S/S and Alloy 276 as standard

For more information see the individual product brochures and CD-ROM.



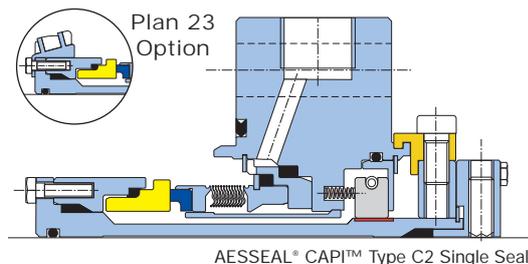
CAPI MAIN



API CD-ROM

Type C Single & Dual Seals

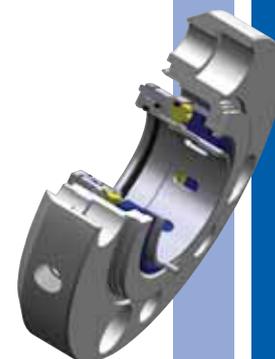
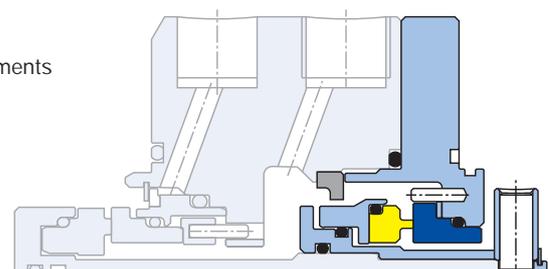
- Qualification Tested to API 682
- Effective seal face heat dissipation achieved by directed barrier fluid flow path in both single and dual designs
- World-leading bi-directional pumping ring performance with 0.062" (1.5mm) clearance between rotor and stator, conforming with API 682 Section 8.6.2.3 WITHOUT COMPROMISE
- Segmented floating containment bush operates on a hard plated cartridge sleeve as standard (single seal)
- Identical seal face technology employed at the inboard and outboard positions (dual seal)
- All sizes available from 1.000" to 5.000" (24mm - 125mm)



Containment Seals

- Containment seal technology that exceeds the requirements of API 682 Ed 3, Section 4.2 and ISO 21049
- Eliminates the need for liquid barrier systems
- High heat dissipation properties due to the AESSEAL® close-coupled technology supplied in a robust, short working length pusher design
- Isolation bushing available
- Modular design to all Type A, B and C configurations
- All sizes available from 1.000" to 3.375" (24mm - 85mm)

*Larger sizes available on application

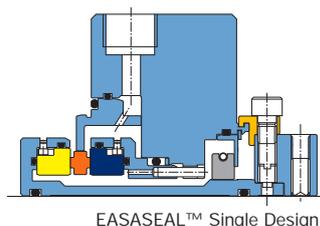


High Pressure Seals

EASASEAL™ - Advanced High Pressure Sealing Technology

This unconventional yet innovative design employs a robust, uniformly shaped floating face, which acts as an interface between the rotary and the stationary seal faces. In single seal format, process pressure acts on the outside circumference of the floating face. This creates a force that is uniformly distributed through the centroid of the seal face. Unlike conventional seal face technology, the floating face is centroidally balanced and will not twist or deform under pressure. This ensures the seal faces remain flat and damage free.

- Verification Tested Category II, High Pressure Seal Technology, applicable for pipeline duties
- Excellent performance in high shaft speed applications
- Ideal for produced water re-injection applications
- Centroidally balanced design ensures seal longevity
- Available in soft/hard and hard/hard seal face combinations, which have been tested at over twice the PV limit of conventional technology
- Offered in single, double and dual formats and containment seal



EASASEAL™



API PIPING PLANS

For more information see the individual product brochures.

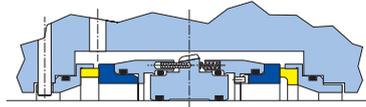


Industry Specific Designs

AESSEAL® offers a wide range of products, both standard and standard plus designs for specific requirements for individual industries. Examples of a few Pulp & Paper Industry products are shown below.

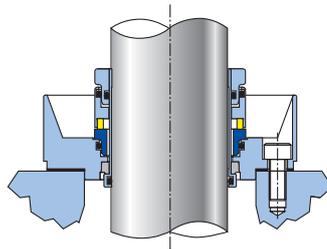
PULP & PAPER INDUSTRY

The majority of these seals are designed from modular components, which assist in reducing costs and improving availability.



GCS™ - Gyroclean Seal

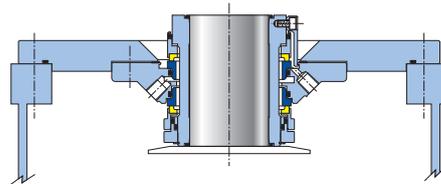
Designed specifically for the Lamort Gyroclean light reject rotary cleaner.



IASC™ / IADC™ -

Single & Double Screen Seals

Standard AESSEAL® screen seals are available to suit many of the popular screen models including Voith, Impco, Hooper, Valmet and Ahlstrom.



Other industries with standard AESSEAL® product offerings.

You can find details on all of these brochures on our web site at: www.aesseal.com or request them from our marketing department by email at: marketing@aes seal.com



BIO FUELS



AUTOMOTIVE



CHEMICAL



CORN MILLING

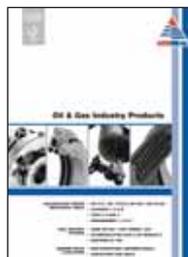


ELECTRICITY



ETHANOL

For more information see our industry specific product range literature.



CAPI MAIN



PULP & PAPER

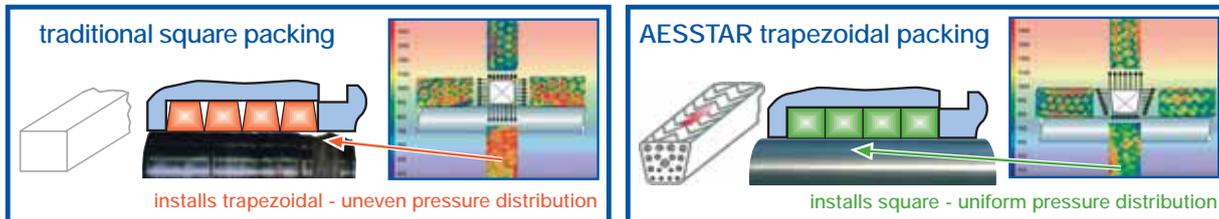


PULP & PAPER GUIDE

AESSTAR packing range offers high sealability and better compression distribution.

DESIGN BENEFITS

- Low energy consumption
- Less shaft wear and heat generation
- More efficient running
- Less adjustment and maintenance time



Style 275/275TP SLURRYSTAR

- e-PTFE/graphite packing with para-Aramid corner reinforcement and pore-filler
- Suitable for Pumps, Gate valves, Agitators, Filters, Blenders, Valves and Refiners
- Suitable for Pulp & Paper, Sugar, Waste Water and Chemical industries

Style 770/770TP PULPSTAR

- e-PTFE/graphite packing with PTFE corner reinforcement and pore-filler
- Suitable for Pumps, Agitators, Filters and Blenders
- Suitable for Pulp & Paper, Sugar and Chemical industries

Style 285/285TP PAPERSTAR

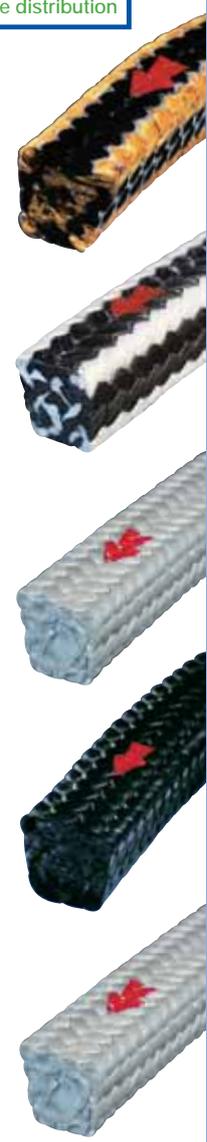
- Meta-Aramid fiber packing with PTFE and run in lubricant
- High cross section density and structural consistency, elasticity and adaptability
- Impregnation ensures that the packing does not harden, whilst improving flexibility and resisting wear
- Suitable for Pulp & Paper, Sugar and Power Generation industries
- Excellent in acidic, alkaline, as well as in hardening and crystallizing fluids

Style 795/795TP UNISTAR

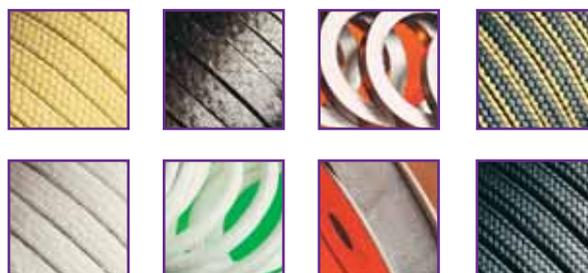
- e-PTFE/graphite fiber with run in lubricant
- Very good thermal conductivity
- Does not harden in use allowing easy removal
- Excellent chemical resistance
- Suitable for Agitators, Pumps, Refiners and Gate Valves

Style 745/745TP FOODSTAR

- Universal packing resistant to wear
- High cross section density and structural consistency, elasticity and adaptability
- Suitable for Food, Pharmaceutical and Chemical industries
- Clean white packing for use where contamination is a concern



For more information and dimensions see the Packing brochure.



PACKING



AESSEAL® offers a wide range of modular seal support systems to complement all its mechanical seal designs. Some of these are shown below.



SWFF-TF™ - Flow Fuse™ Water Management System

Features Benefits

- Flow sensing shut off valve:** Protects the process from barrier fluid contamination upon catastrophic seal failure
- Water Regulator:** Maintains water level and pressure, which reduces due to normal seal operation
- Automatic Re-Set Facility:** Protects the mechanical seal from running dry during process up-sets
- Thermal Relief Valve:** Maintains System pre-set pressure by accommodating any thermal expansion



SW Range (SW2™ & SW3™) - Water Management Systems

Features Benefits

- 304 SS Vessel Construction:** Suitable for a range of challenging environments
- Water Regulator:** Maintains vessel water level and pressure
- Flow Indicator:** Visually alerts the user to an inboard seal failure
- Non-return Valve:** Protects plant water supply from contamination, and maintains vessel pressure in the event of supply interruption



SP Range (SP1™ - SP3™) - Gas Pressurized Barrier Fluid Systems

Features Benefits

- Integral 304 SS Weld Pad Level Gauge:** Robust and industrially acceptable visual indication of fluid level
- 304 SS Vessel Construction:** Suitable for a wide range of arduous environments
- Satin Bead Blast Vessel Finish:** Suitable for a wide range of industrial environments
- Available with/without Cooling Coil:** Adaptable to a wide range of modular piping plans



FLOWTRUE® - Water Flow Control System

Features Benefits

- Innovative Flow tube cleaning mechanism:** The device can be cleaned without interrupting flow and pressure to the seal
- Unique Segmental valves:** Prevents FLOWTRUE® from clogging
- Integrated non-return valve:** Protects plant water supply from product contamination
- Modular design:** Ensures that the device can be easily upgraded and repaired



PP-01™ & PP-SOU™ - API Plan 54 Forced Circulation System

The AESSEAL® PUMPPAC™ System is normally used when the heat dissipation from a conventional thermosyphon system is not sufficient for the application. There are both oil and water versions of the PUMPPAC™ available.

Features Benefits

- Forced Circulation:** Maximizes heat dump potential for the more arduous applications
- Back Pressure Control Valve:** Ensures a positive barrier fluid pressure at the seal faces
- Modular Design:** Allows the PUMPPAC™ to be installed in a variety of zoned environments by interchanging the instrumentation options

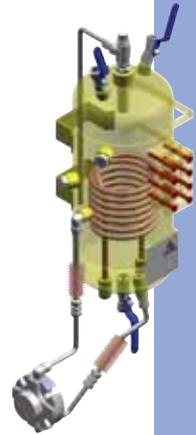


SWC™ Condensate System

The SWC™ takes an API Plan 11 feed from the pump discharge to pressurize the vessel and then forms a API Plan 53A System with the mechanical seal.

Features Benefits

- Level and pressure maintained by pump discharge:** Eliminates the need for an external water and/or pressure source
- Uses the thermosyphon effect:** Eliminates the need for forced circulation
- Finned tubing enhances surface area:** Eliminates the need for secondary cooling through heat exchangers
- Modular design:** Additional instrumentation may be added in a number of configurations



AES-28™ - Seal Support System For API 610 & 682 Industries

Features Benefits

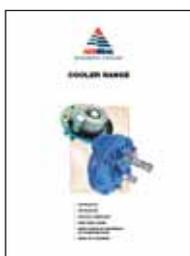
- Vessels are designed and manufactured in accordance with ASME III Div.1 1995 agenda 1997, AD Merkblatter 2000, API MODULE H and are certified by TÜV to cover PED requirements:
- 316 SS vessel and weld pad construction:** Robust vessel suitable for a range of challenging environments
 - 28 liter/7.39 US gallon vessel:** Large barrier fluid capacity for seal cooling
 - The vessel has a modular design:** A range of intrinsically safe and EEXD Explosion proof instrumentation options can be fitted



Specialized System Products



Specialized System Products can be developed for the more demanding barrier fluid applications



COOLER RANGE



GAS16-P1™



SWB™ SYSTEM



SYSTEMS CD-ROM

For more information and dimensions see the Systems range of brochures and CD.





AESSEAL plc Group Headquarters, Rotherham, UK.

AESSEAL® is one of the leading global specialists in the design and manufacture of mechanical seals, support systems and bearing seals. With operations in six continents, AESSEAL® is the world's 4th largest supplier of mechanical seals, achieving growth through exceptional customer service and innovative products that provide real customer benefits.

In 2007, AESSEAL was named "Company of the Year" by the Confederation of British Industry, building on the 2006 accolades of "Best UK Business" and "Best Engineering Plant".

In addition, AESSEAL® was also named as the winner of the Overall Award for UK Manufacturing Excellence in the prestigious Institution of Mechanical Engineers MX2006 Awards.



AESSEAL® was named **Company of the Year** in 2007 and selected as the UK's **Best Manufacturer** and the **Best UK Business** in 2006

corporate infrastructure



Environment

- we are BS EN ISO 14001 certified in branches in two continents
- we save 5 billion gallons of water for customers each year
- our products reduce harmful emissions and energy consumption
- we encourage environmental improvements from our suppliers



Community

- we sponsor CAD software in 49 schools
- we mentor students of all ages and abilities
- we actively improve the quality of life for under privileged and disadvantaged groups
- we promote the use of foreign languages in schools



AESSEAL's UK mechanical seal test facilities are probably the most technically advanced in Europe.

Computer controlled test bays can be programmed to validate seal designs to any pre-determined cyclic pressure, temperature and shaft speed configuration. Take a virtual tour by visiting www.aesseal.com



260°C (500°F) Hot Oil test bay

Research & Development Test Facilities

Pressure: 350 bar (5,000 psig) Gas Seals
200 bar (3,000 psig) Liquid Seals

Temperature: Up to 260°C (500°F)

Shaft Speed: Up to 46,000 rpm

Flashing & Non-Flashing Hydrocarbons ✓

Caustics, Water and Hot Oil ✓

Volatile Organic Compounds ✓



Charity registration number 288701

AESSEAL® is delighted to support WaterAid's vision of a world where everyone has access to safe water and sanitation. www.wateraid.org



Ethical

- we avoid all types of corruption
- we promote equal opportunities
- we invest in regions of economic deprivation
- we communicate with our stakeholders in their native language

Health & Safety

- we are OHSAS 18001 certified
- we aim to reduce noise pollution and manual handling operations
- we are committed to the Five S's
- we have a company wide unlimited budget for any safety related issue





ENVIRONMENTAL TECHNOLOGY

Our Purpose:

'To give our customers such exceptional service that they need never consider alternative sources of supply.'

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 AESSEAL plc, Derby, UK	Tel: +44 (0) 1332 366738	derby@aesseal.co.uk
 AESSEAL plc, Peterborough, UK	Tel: +44 (0) 1733 230787	peterborough@aesseal.co.uk
 AESSEAL plc, Hamilton, UK	Tel: +44 (0) 1698 540422	scotland@aesseal.co.uk
 AESSEAL plc, Middlesbrough, UK	Tel: +44 (0) 1642 245744	northeast@aesseal.co.uk
 AESSEAL plc, Upminster, UK	Tel: +44 (0) 1708 256600	se@aesseal.co.uk
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 AESSEAL plc, Warrington, UK	Tel: +44 (0) 1925 812294	warrington@aesseal.co.uk
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Due to continuously fluctuating exchange rates this document assumes that UK £1 is equal to US \$1.75 / €1.5