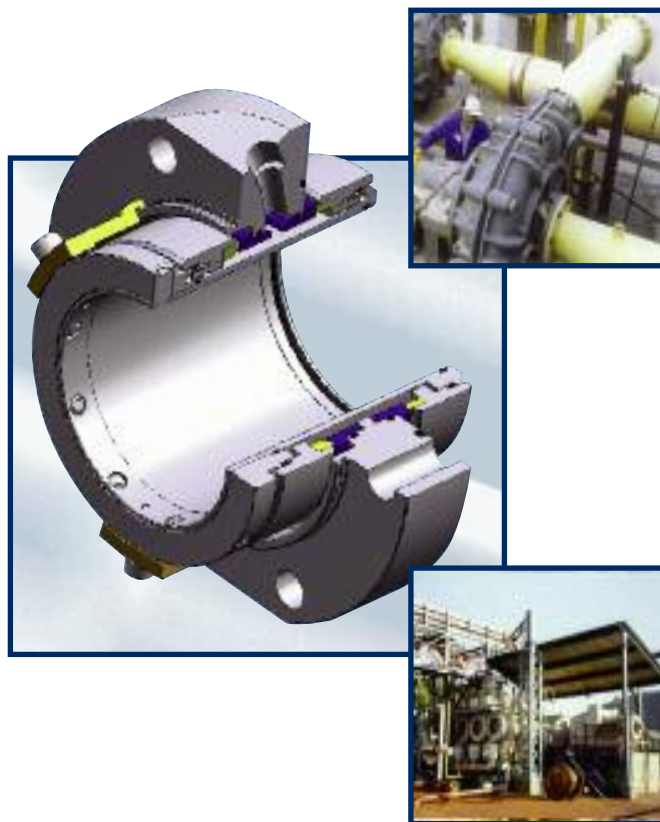




ENVIRONMENTAL TECHNOLOGY

CDPH™

Mining & Mineral Ore Medium/Heavy-Duty Double Slurry Seal



- **DOUBLE SEAL SUITABLE FOR ALL MINING AND MINERAL ORE PRODUCTION APPLICATIONS**
- **SEAL FACE TECHNOLOGY DESIGNED TO ACCOMMODATE PROCESS UPSETS**
- **ROBUST CONSTRUCTION DESIGNED FOR EASE OF INSTALLATION**
- **OEM & NON-AES SEAL REPAIR AND UPGRADE SERVICE**
- **RAPID DELIVERY ON ENGINEERED CUSTOMIZED DESIGNS**

Slurry Sealing - Over Two Decades of Sealing Expertise

AESSEAL® has been successfully sealing slurries for decades throughout all industries including:

- Mining & Mineral Extraction: Cutting Heads and Conveying
- Pulp & Paper: Black Liquor, Coatings and Medium/High-Duty Stock Processing
- Power Generation: Flue Gas Desulphurization/Scrubbers and Coal Slurry
- Waste Water Production: Macerators and Digested Sludge
- Textiles: Dye Liquors and Fibrous Slurries
- Off-Shore Production: Sand/Gravel Oil Extraction
- Building Services: Asphalt, Pitch, Sand and Cement

Over the years, AESSEAL® has sealed nearly **ALL** major slurry equipment types and models. Solutions for some of the more commonly encountered manufacturers include Warman, Denver Orion, Goulds and KSB.



AES seal installed on a paper stock pump

Our wide range of seal support systems and bearing protectors complement the mechanical seal range, enabling the supply of **TOTAL** packaged solutions for all slurry applications.

Successful Sealing - Change the Seal Environment

Not all sealing solutions are the same. Equipment reliability improvements can be made by changing the seal environment and/or upgrading the seal design.

AESSEAL® can provide inexpensive seal conversion kits to upgrade non-AES seal designs or to change the OEM equipment seal environment in order to dramatically improve seal life.

- **Creates an ideal seal environment**
- **Produced in a wide range of abrasion/chemical resistant materials**
- **One-off purchase**
- **No primary equipment/shaft wear**

AESSEAL® offers a full repair service for most of the common slurry seals found on the market today. This service includes:

- **The supply of new faces in silicon carbide and/or tungsten carbide;**
- **Replicated exotic alloy metallic components; and**
- **Metal recovery spraying of worn seal areas, particularly the seal carrier.**



Conversion Kit for ABS™ Scan pump with integral vortex breaker



One of over 70 AESSEAL® slurry seals and SSE-25™ systems installed at SQM Mining, Chile.

Seal support systems save water consumption and the environment by reducing or eliminating seal/gland water.

AESSEAL® has a wide range of environmental seal support systems to change the sealing environment to maximize the performance of the mechanical seal.

“AESSEAL® support systems save over **five-billion** gallons of water consumption each year.”



FLOWTRUE™ units allow the user to monitor and regulate the flow at the seal faces.



PUMPPAC™ Range - High-duty self-contained forced lubrication system available in oil and water formats.



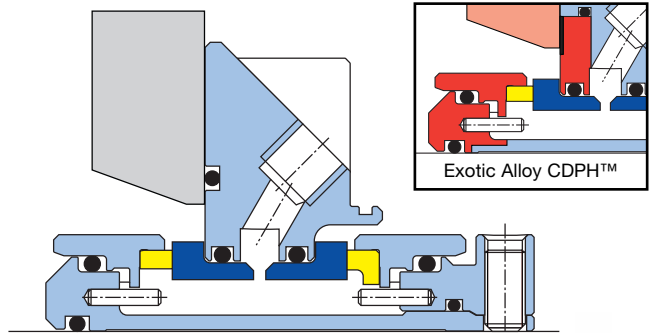
SW2™ Water Management System

CDPH™ - Double Cartridge Seal for Medium/Heavy-Slurry Duties

The CDPH™ double seal is designed to meet the arduous requirements of slurry applications. Large ports and increased radial clearances enable the seal, when coupled with the correct sealing plan, to maintain a stable fluid film for extended seal face life.

Shaft Size*†	up to 9.500" (240mm)
Face Materials	Carbon, Silicon Carbide and Tungsten Carbide
Elastomer Options	Viton®, EPR, Nitrile, Kalrez® & Alfas®

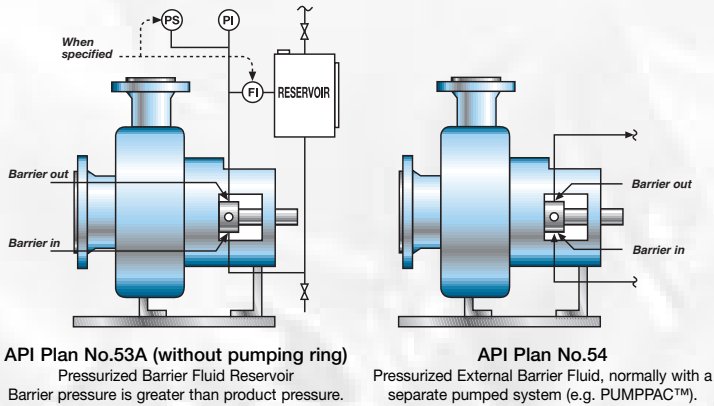
* Not all sizes inventoried, not all metallurgies may be offered in all sizes. Contact your nearest AESSEAL® office for availability



CDPH™ - Double Cartridge Seal

Design Feature	Customer Benefit
Inboard reverse seal face balance	Seal faces will withstand process/system upset ✓
Generally available in 316L Stainless Steel, DIN 1.4462 Duplex, Alloy 255 and Alloy C276†	Improved abrasion and erosion resistance create seal life longevity ✓
Metal to metal fits	Improved alignment and seal performance ✓
Robust drive mechanisms (non-elastomeric)	Reduced possibility of seal face damage ✓
Large radial clearances and non-clogging multi-spring design	Improved seal face loading increases seal life ✓
No flush port/connection	Removes the need for constant seal service water ✓
Hydraulically balanced seal faces	Reduced seal face heat generation and improved life ✓

† Exotic materials may not be available in larger sizes. Other sizes and/or materials may be offered subject to review & approval by AESSEAL® technical department



AESSEAL® CDPH™ slurry seal designs suit the equipment shown in the table below and/or similar equivalent pumps:

OEM	Model	OEM	Model
Warman®	1.5/1 B-AH	Warman®	8/6 F-AH
Warman®	3/2 C-AH	Warman®	10/8 F-AH
Warman®	4/3 D-AH	Warman®	10/8 G-AH
Warman®	6/4 E-AH	Warman®	650 TUL

Size	50mm					60mm					85mm					100mm					5"					7"				
	Pressure BAR					Pressure BAR					Pressure BAR					Pressure BAR					Pressure BAR					Pressure BAR				
	5	10	15	20	25	5	10	15	20	25	5	10	15	20	25	5	10	15	20	25	5	10	15	20	25	5	10	15	20	25
1,000rpm	Plan 53 Water																													
	Plan 54 Water																													
	Plan 54 Oil																													
1,300rpm	Plan 53 Water																													
	Plan 54 Water																													
	Plan 54 Oil																													
1,800rpm	Plan 53 Water																													
	Plan 54 Water																													
	Plan 54 Oil																													
2,750rpm	Plan 53 Water																													
	Plan 54 Water																													
	Plan 54 Oil																													
3,200rpm	Plan 53 Water																													
	Plan 54 Water																													
	Plan 54 Oil																													

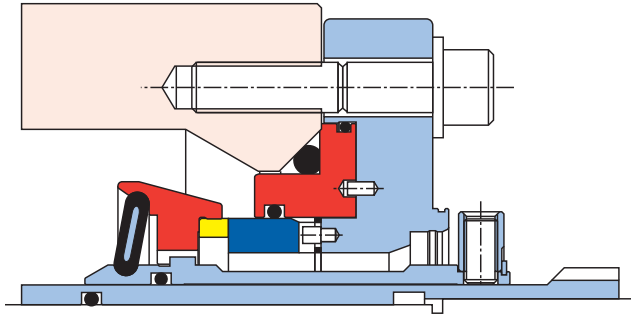
CDPH™ - Seal Selection

- Meets the required PV limits TC/TC/TC/Carbon
- Check actual speed with technical
- Cooling coil recommended
- Above recommended PV limits see AES technical dept

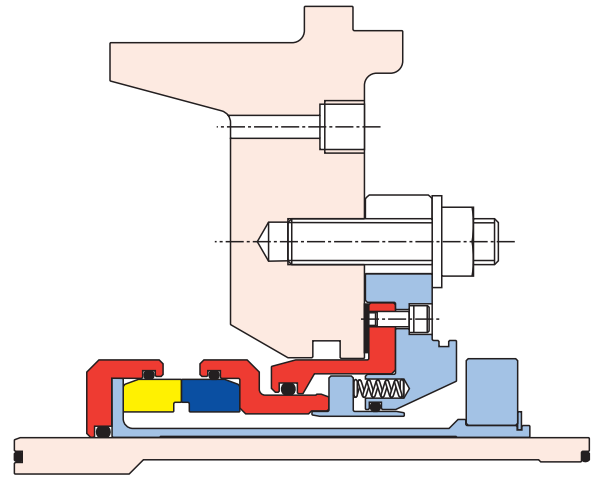
Single Cartridge Seals - Low/Medium-Duty Range

AESSEAL® has a comprehensive product range to seal slurries including Vulcanized Spring Disk single cartridge seals and Multi-Spring monolithic seal face designs.

The CVSD™ and FGDSST™ range of single cartridge seals are shown below.



CVSD™ Cross Section



Exotic Alloy FGDSST™ Cross Section

Bearing Protection - All Rotating Equipment

Typically, wherever there is slurry there is also abrasive dust that works its way into the bearings of the rotating equipment.

AESSEAL® is a world leader in bearing seal technology and has a proven product range to seal all types of aggressive environments, specifically those synonymous with sealing slurries.



LabTecta™ installed on a Falk gearbox

Applications

- Conveyor sealing
- Pillow block sealing
- Gearbox sealing
- Electric motor sealing
- Pump & agitator sealing
- Fans and blower sealing

Bearing Seal Designs

- Contact seal designs
- Non-contact seal designs
- Designs which accept angular misalignment
- Designs which accept axial shaft movement
- Split seal designs
- Air purge designs



LabTecta-OAP-PB™ installed on mining conveyor belt

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



UK Sales & Technical advice:

AESSEAL plc
Mill Close
Templeborough
Rotherham
S60 1BZ
United Kingdom



INVESTOR IN PEOPLE

Telephone: +44 (0) 1709 369966
Fax: +44 (0) 1709 720788
E-mail: seals@aes seal.com
Internet: http://www.aes seal.com

Distributed by:

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

USA Sales & Technical advice:

AESSEAL Inc.
355 Dunavant Drive
Rockford,
TN. 37853
USA

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