Reliable

Pulp & Paper Industry Sealing Products

- Mechanical Seals
- Barrier Fluid Systems
- Return On Investment
- Case Histories
- Patent Pending & Patented Innovations

AESSEAL®

EXPERIENCE THE EXCEPTIONAL

Mechanical Seals and Support System solutions for the Pulp and Paper Industry

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Screen Seals

Refiner Seals

Centrifugal Pump Seals

*** Designs marked with an asterisk (*) are Equipment Specific “special” seal designs with features aimed at improving MTBF.**

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Pulper Seals

Agitator Seals

Mixer Seals

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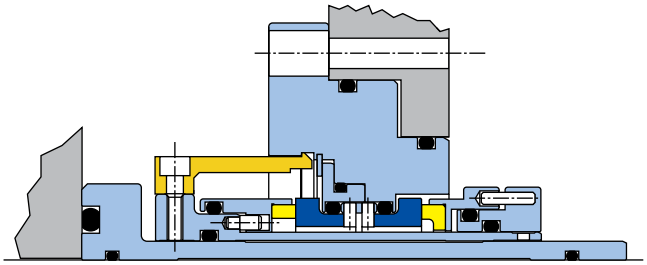
Index of Standard AESSEAL® Mechanical Seals

02 - Seals to Suit Screens

Ahlstrom Moduscreens



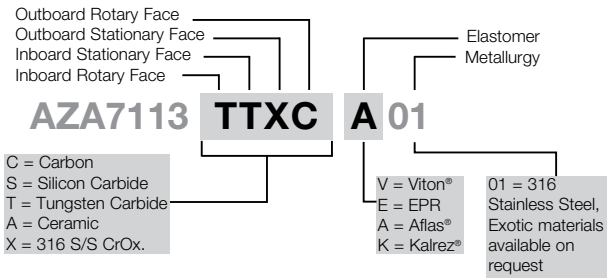
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Ahlstrom Moduscreen models F1, F3, F4 and F5.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

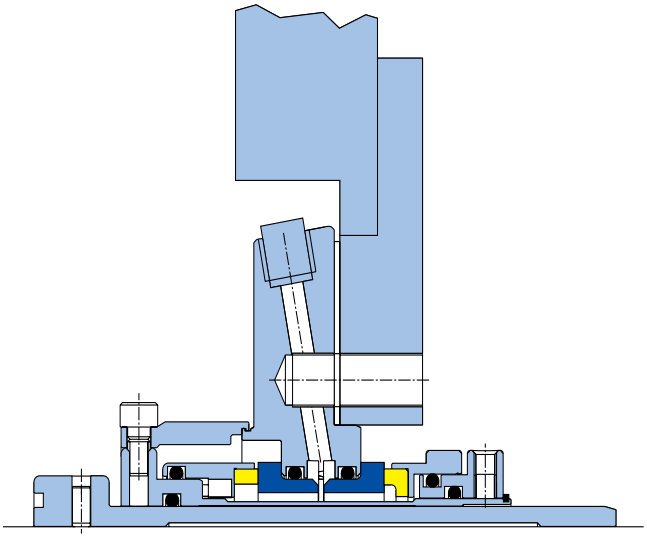
- Modular Design using standard components.
- Available as flow induced designs
- Reduces water consumption when used with a barrier fluid system

Z Reference Details

Model	Shaft	Z Ref	Drawing Number
F1	55mm	Z7522	7108513
F2	70mm	-	-
F3	110mm	Z7113	7104236
F4	110mm	Z7113	7104236
F5	5.875”	Z8619	7115842



Ahlstrom Pressure Screens



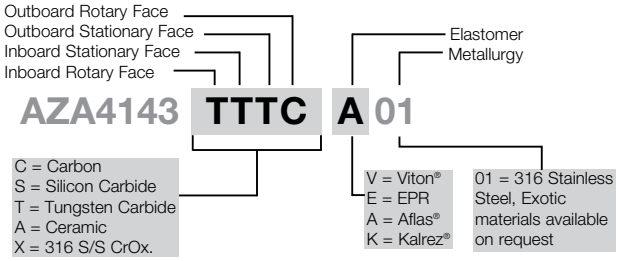
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Ahlstrom pressure screen models F1, F2, F3, F3F, F4, HB4 and HB5.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.

Z Reference Details

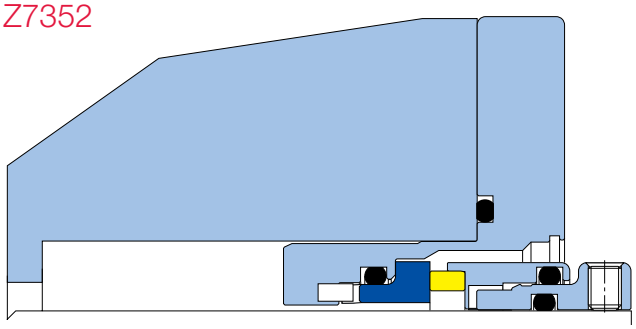
Model	Shaft	Z Ref	Drawing Number
F1	55mm	-	6462874
F2	70mm	Z9004	7120935
F3	110mm	Z4143	6460904
F4	110mm	Z4143	6460904
F3F	120mm	Z8934	7119672
HB4 & HB5	140mm	Z8749	7117311



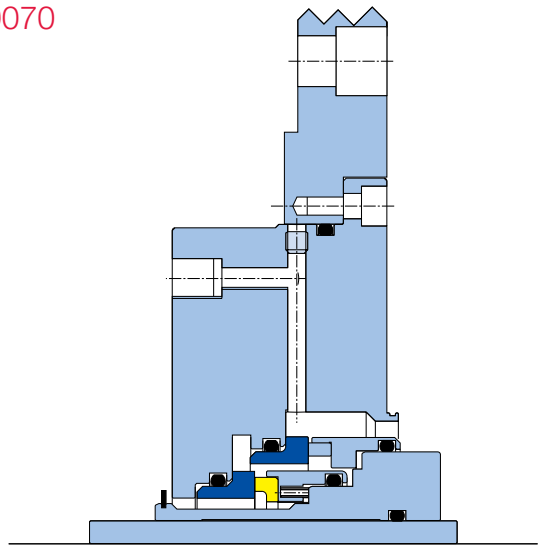
02 - Seals to Suit Screens

Beloit Screens

Z7352



Z9070



Seal Designs to suit Beloit Screens

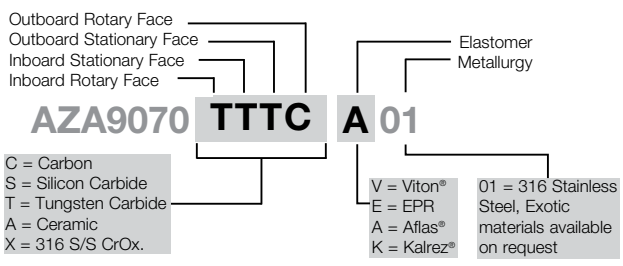
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Beloit Screens.

The cross sections shown above have been chosen to illustrate typical examples of the wide variety of designs available for this type of equipment.

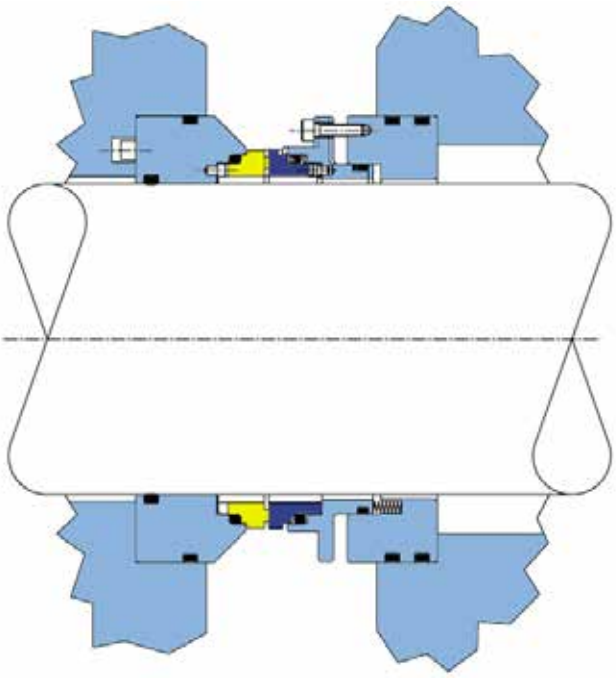
- Modular Design using standard components.

Z Reference Details

Model	Shaft	Z Ref	Drawing Number
30A	3.000”	Z9070	7121682
B80	5.500”	Z7352	7106443



Beloit Jones Low Pulse Screens



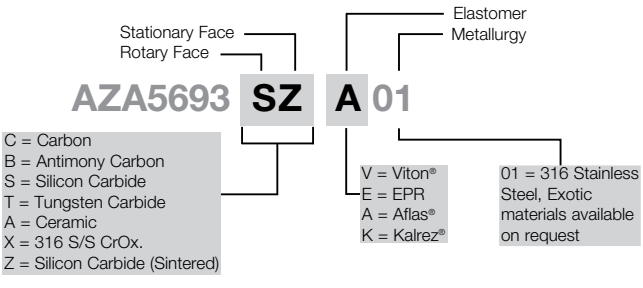
Component Seal Design to suit Beloit Jones Low pulse Screens

AESSEAL® have designed and supplied a single component mechanical seal for the 3.125”, 4.000” and 5.500” Beloit Jones Low pulse Screen sizes M44, M32, M50, M58, M18, M24 and M28.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

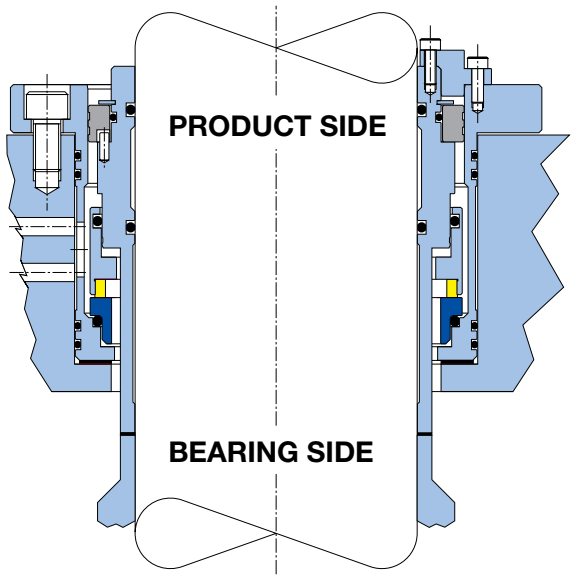
Z Reference Details

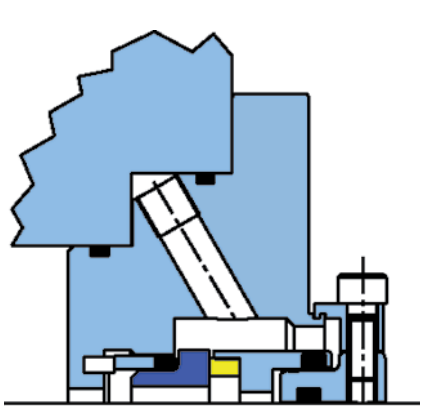
Model	Shaft	Z Ref	Drawing Number
M18/M24/M28	3.125”	Z8358	7114055
M44/M32	4.000”	Z5693	6469433
M50/M58	5.500”	Z7166	7104921

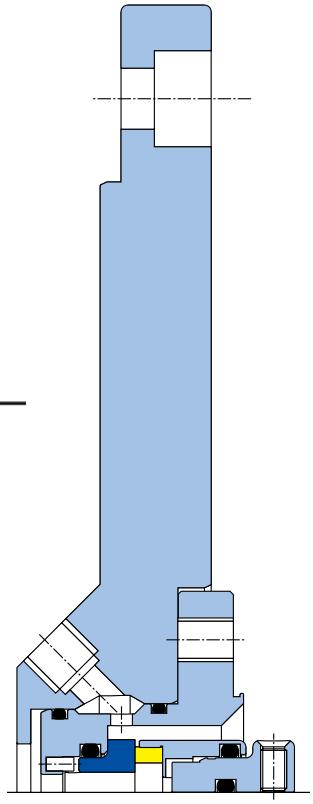


02 - Seals to Suit Screens

Bird Screens





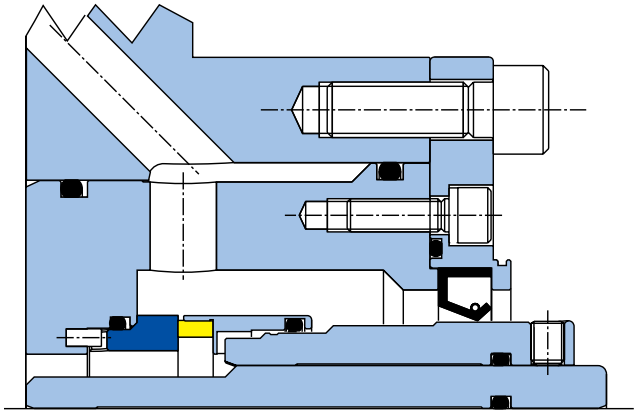


AESSEAL® have designed a range of cartridge mechanical seals specifically to suit a wide range of Bird Screens.

The cross sections shown on this page have been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

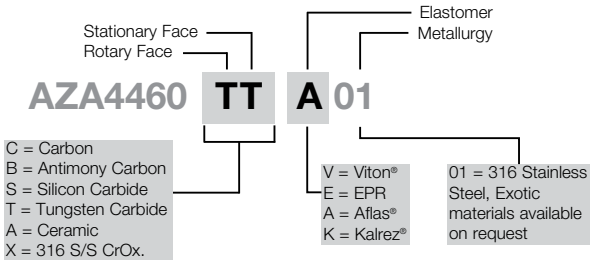
For further information see Case Histories 224, 273, 706, 723 and 1208

- Modular Design using standard components.
- Designed to maximize MTBF
- Innovative high performance solutions
- Flushed cavity design, generally with secondary containment seal / throttle bush



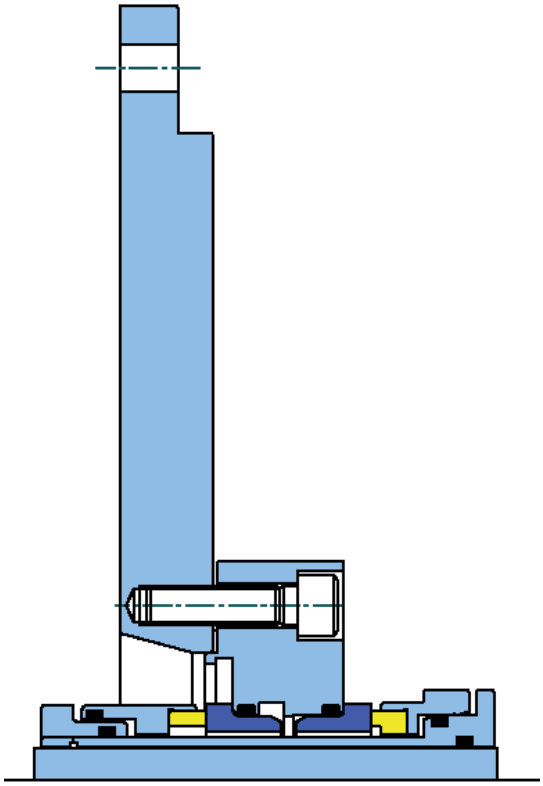
Z Reference Details

Model	Shaft	Z Ref	Drawing Number
100	1.750”	Z8828	7118395
400	3.000”	Z5755	6469586
400	85mm	Z7386	7107036
14	3.750”	Z7644	7109521
14B	3.750”	Z9034	7121614
50	3.848”	Z4460	6462135
80	4.724”	Z4267	6461080



02 - Seals to Suit Screens

Bird Centriscreen CN70



5.500” IADC™ SEAL to suit a Bird Centriscreen CN70

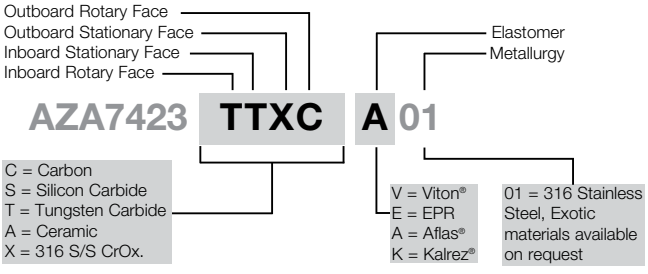
AESSEAL® Reference: Z7423

AESSEAL® Drawing Number: 7107509

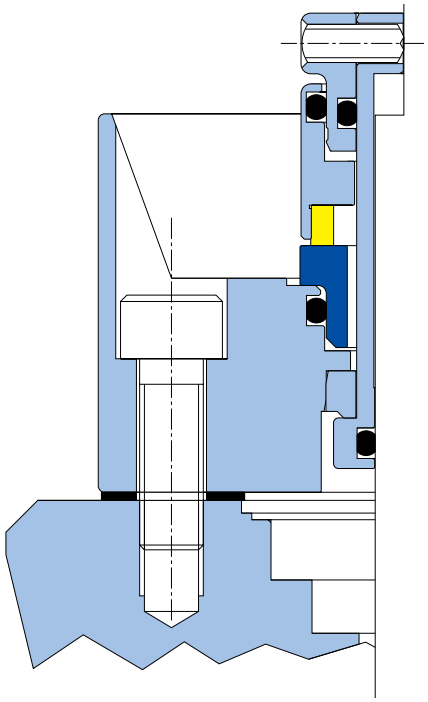
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Bird Centriscreens.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Economical replacement due to Seal / Adapter plate design



Black & Clawson Seletigier 8PH



55/64mm IASC™ to suit a Black & Clawson Seletigier 8PH

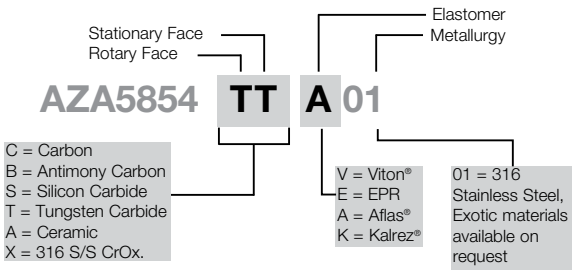
AESSEAL® Reference: Z5854

AESSEAL® Drawing Number: 6470299

AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Black & Clawson Seletigier 8PH.

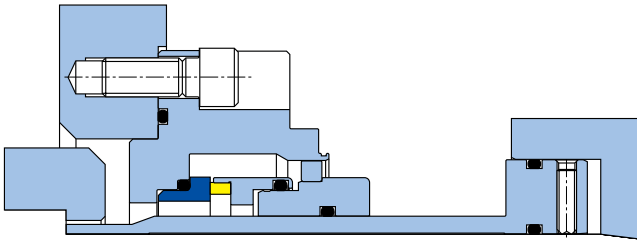
The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Gland cavity design prevents hang-up / dry running on shutdown / start up cycle, as fluid is retained at the seal faces when the basket is drained.



02 - Seals to Suit Screens

Black & Clawson UV 500



100mm IASC™ to suit a Black & Clawson UV 500

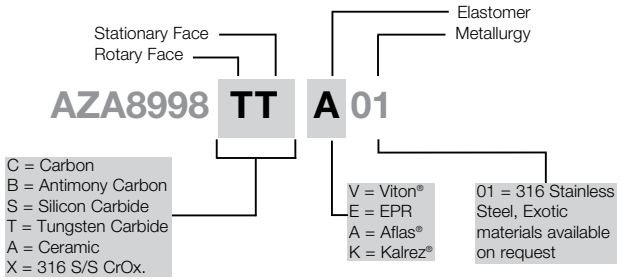
AESSEAL® Reference: Z8998

AESSEAL® Drawing Number: 7120908

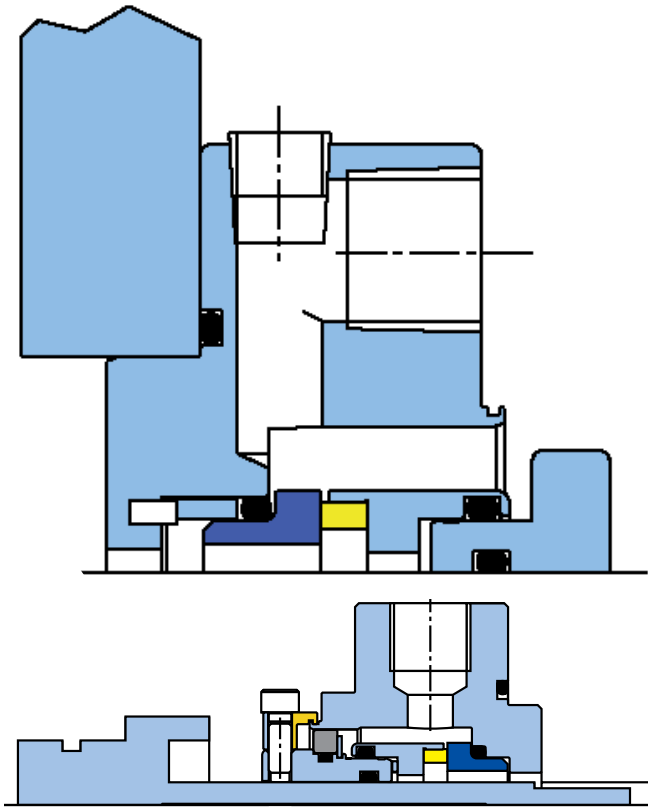
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Black & Clawson UV 500.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Flushed cavity design, generally with secondary containment seal / throttle bush



Black & Clawson Ultra Screens



AESSEAL® have designed a range of cartridge mechanical seals specifically to suit various Black & Clawson Ultra screen models.

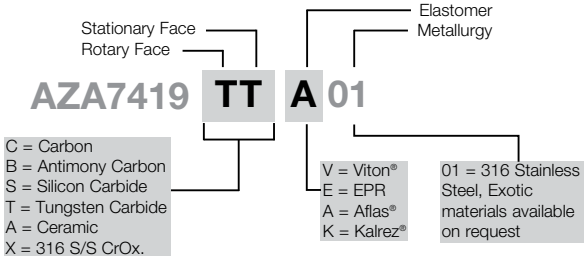
The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.

For further information see Case Histories 1396K & 1446K

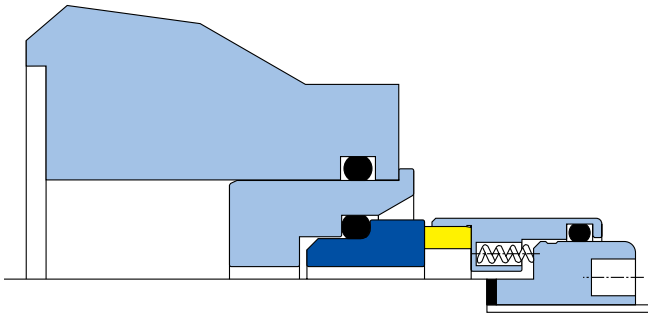
Z Reference Details

Model	Shaft	Z Ref	Drawing Number
676 Ultra	100mm	Z7419	7107454
Ultra	3.500”	Z7510	7108441
Ultra	80mm	Z8892	7119098
Ultra	3.625	Z9372	7125401



02 - Seals to Suit Screens

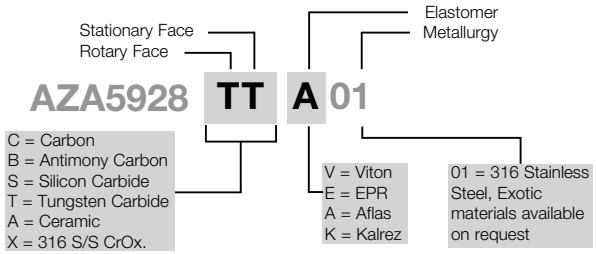
Black & Clawson Screen (62 / 55mm)



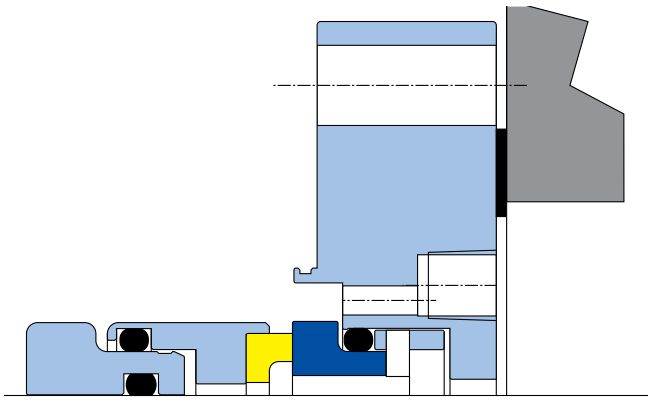
62/55mm Special SAI™ and Stationary to suit a Black & Clawson Screen

AESSEAL® Reference: Z5928

AESSEAL® Drawing Number: 6470610



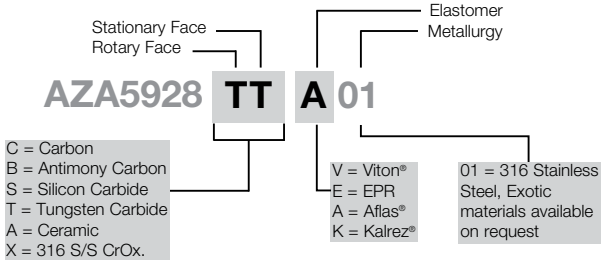
Black & Clawson P24 Screen



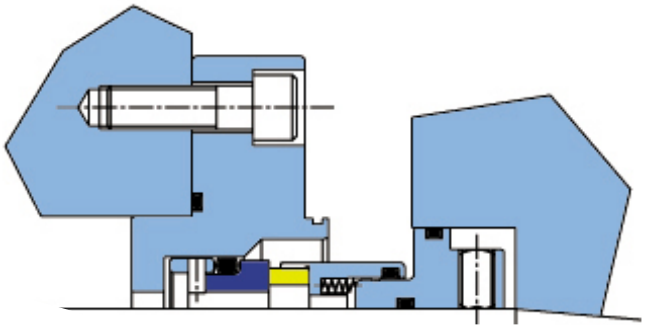
80mm IASC™ to suit a Black & Clawson P24 Screen

AESSEAL® Reference: Z5978

AESSEAL® Drawing Number: 6470703



Black & Clawson 300 Ultra H Screen (5.500")

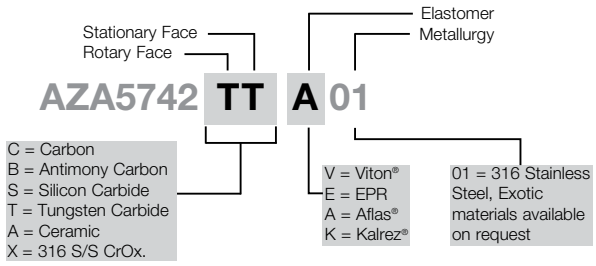


AESSEAL® have designed and supplied clipped single mechanical seals, 5.500" IASC™, to suit a Black & Clawson 300 Ultra-H Horizontal Screen.

The gland has been designed to align with the existing flush holes in the equipment, whilst the volume around the seal faces has been maximized to facilitate seal face cooling.

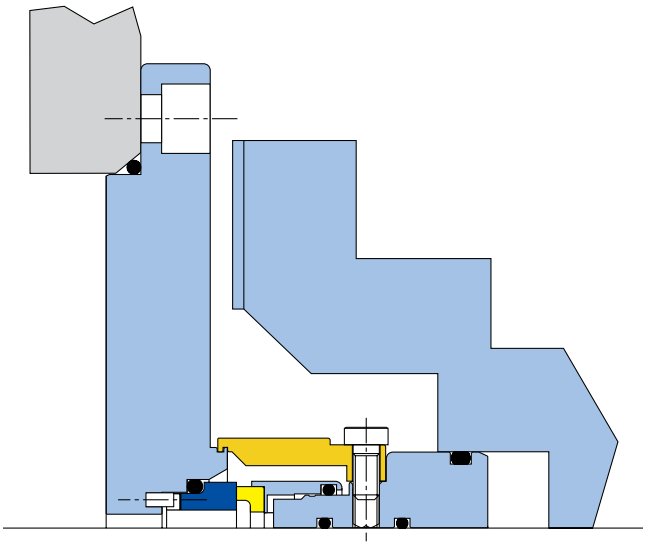
The stationary has been designed using the AESSEAL® standard, patented self aligning seat technology, and the sleeve has been extended to seal inside the hub of the rotor.

For further information, see Z Reference 5742 and AESSEAL® general arrangement 6469547.



02 - Seals to Suit Screens

Black & Clawson P30 Selectifier Screen



2.125" IASC™ to suit a Black & Clawson P30 Selectifier Screen

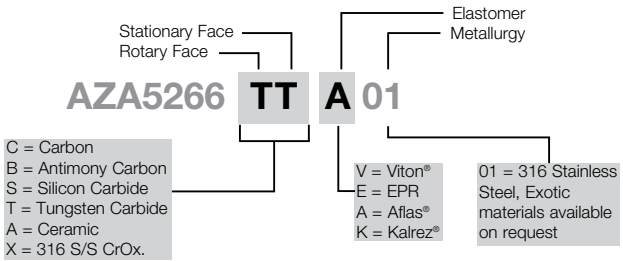
AESSEAL® Reference: Z5266

AESSEAL® Drawing Number: 6467103

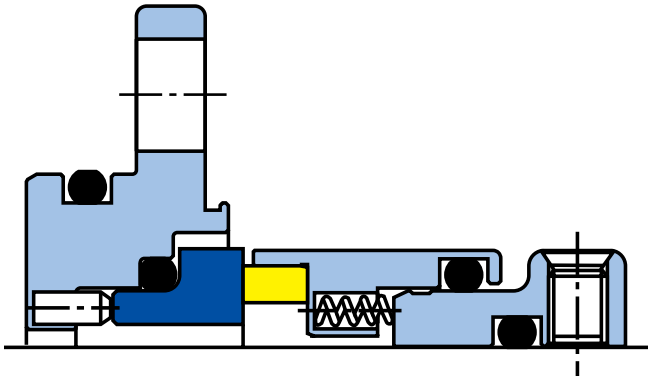
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Black & Clawson P30 Selectifier Screens.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.



Finckh Screens



3.5625 IASC™ seal arrangement to suit a Finckh GR2 screen

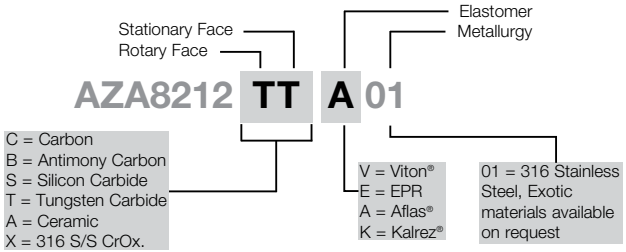
AESSEAL® Reference: Z8212

AESSEAL® Drawing Number: 7113102

AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Finckh Screens.

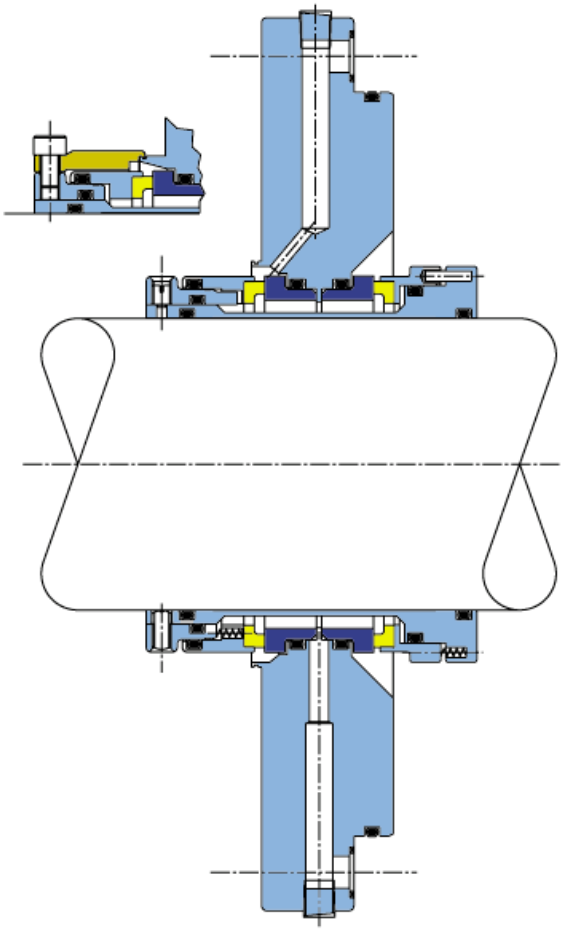
The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Clipped Unit Design for ease of installation.



02 - Seals to Suit Screens

Heinrich Fielder Screen



90mm IADC™ to suit a Heinrich Fielder Screen

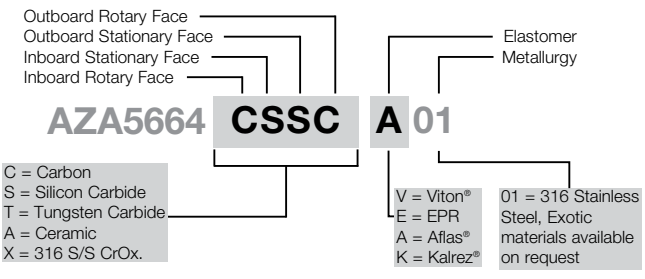
AESSEAL® Reference: Z5664

AESSEAL® Drawing Number: 6469213

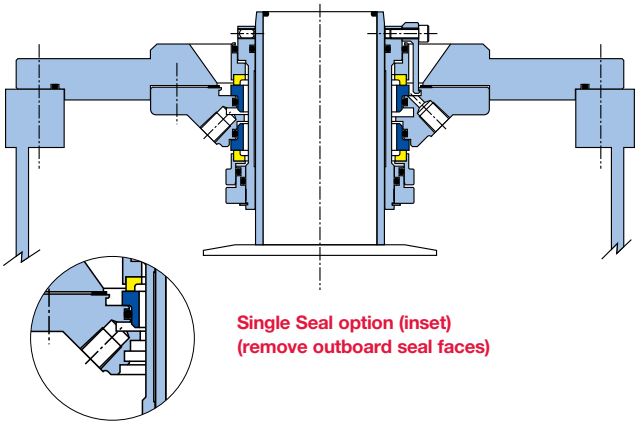
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Heinrich Fielder Screens.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.



Hooper / Impco Pressure Screens



AESSEAL® have designed a range of Screen and Knotter seals designed specifically to suit the Impco HI-Q Knotters and Impco HI-Q Fine Screen ranges, models 208, 210, 212, 300 and 400.

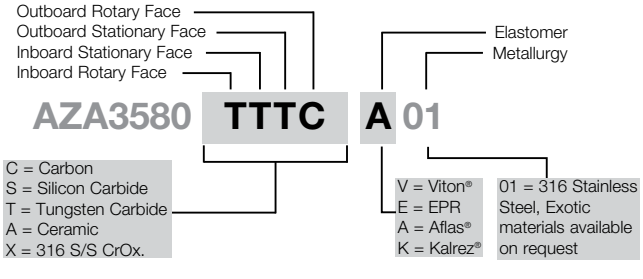
The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

AESSEAL® has demonstrated proven COST savings, as described in case history 1210. Further case histories include 700, 703 and 705.

- Modular Design using standard components.
- Special Adapter plate accepts “standard” seal.

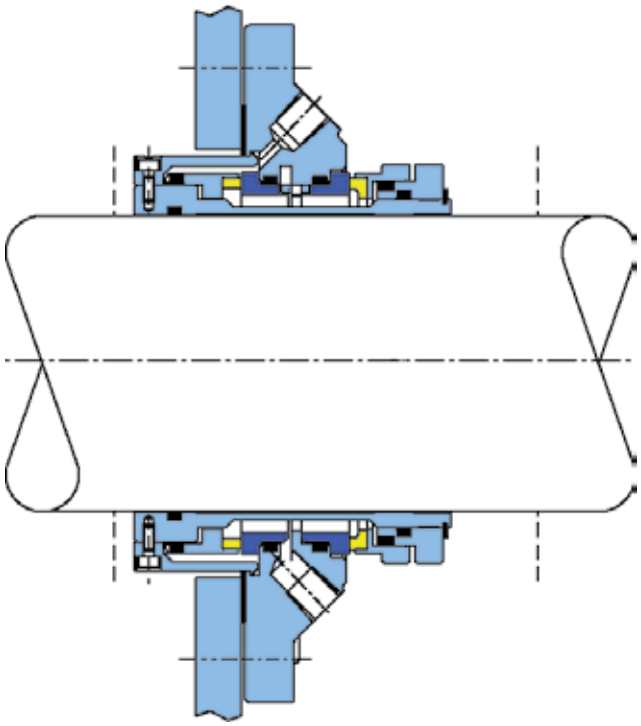
Z Reference Details

Model	Shaft Size	Seal Size	Z Ref Seal	Z Ref Adapter Plate	Drawing Number
Hi-Q Fine	-	3.500”	Z8351	-	7114013
Hi-Q Fine	-	3.500”	Z8460	Z8460	7114616
Hi-Q Fine	-	3.500”	Z9027	Z9027	7121187
PSV2600	4.000”	4.125”	Z4422	Z4423	6462045
PSV400 ‘B’	-	4.125”	Z4596	-	6462849
PSV400 ‘C’	4.000”	4.125”	Z4422	Z4597	6462850
Hi-Q Fine	-	85mm	Z4855	-	6464344
Hi-Q Fine	2.634”	85mm	Z5534	-	6468559



02 - Seals to Suit Screens

Jylhavaara Screen



100mm IADC™ c/w. FMG. Screen Seal to suit a Jylhavaara Screen

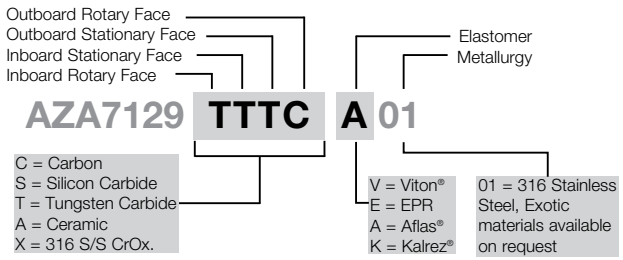
AESSEAL® Reference: Z7129

AESSEAL® Drawing Number: 7104494

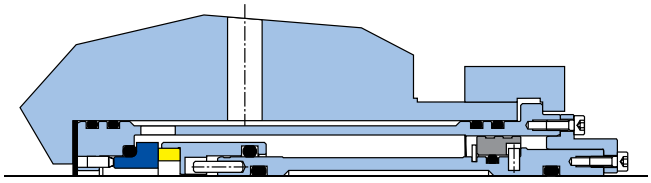
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Jylhavaara Screens.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Cartridge design for ease of installation.



Jylhavaara 150 Screen



100mm USFC™ seal arrangement to suit a Jylhavaara 150 screen

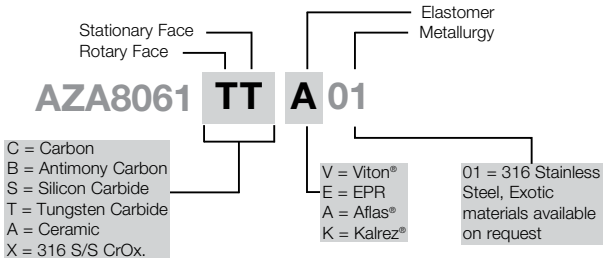
AESSEAL® Reference: Z8061

AESSEAL® Drawing Number: 7112057

AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Jylhavaara Screens.

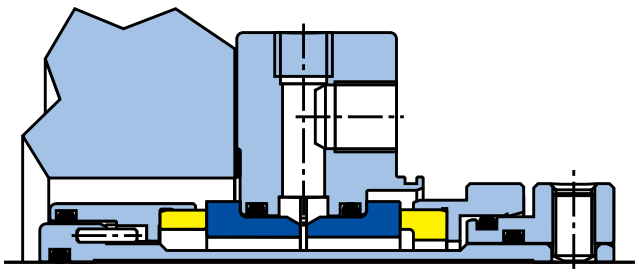
The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Innovative flushed cavity design optimizes seal face environment.
- Multiple gland elastomers to compensate for poor stuffing box surface finish typically found in previously packed applications
- Cartridge design for ease of installation



02 - Seals to Suit Screens

Jylha Sunds Defibrator JP3



150mm CDM™ to suit a Jylha Sunds Defibrator JP3.

AESSEAL® Reference: Z9369

AESSEAL® Drawing Number: 7125379

For further information see Case History 1727K

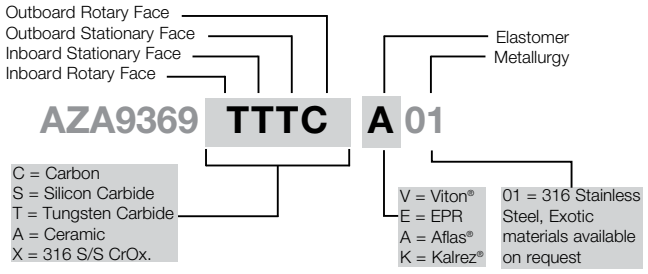
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit a Jylha Sunds Defibrator.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

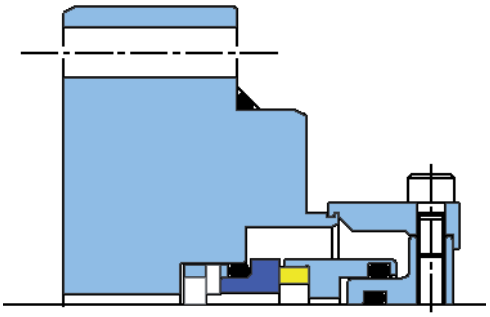
- Modular Design using standard components.
- Large Internal Clearances.
- Large Barrier Fluid ports for optimum seal face cooling and Lubrication.
- Cartridge design for ease of installation

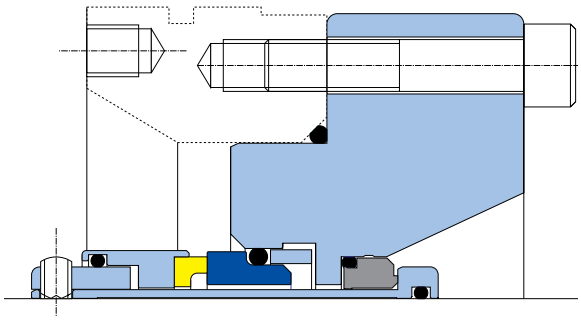
Z Reference Details

Model	Shaft	Z Ref	Drawing Number
-	100mm	Z9589	7128681
JP3	150mm	Z9369	7125379



Lamort Screen - Single Designs





IASC™ Seal designs to suit Lamort Screens.

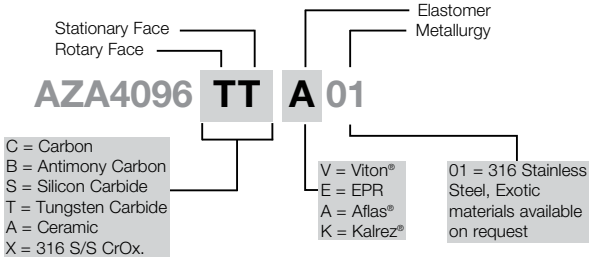
AESSEAL® have designed and supplied IASC™ seals for a wide range of Lamort Screens in various sizes.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Designs using standard components.
- Cartridge design for ease of installation

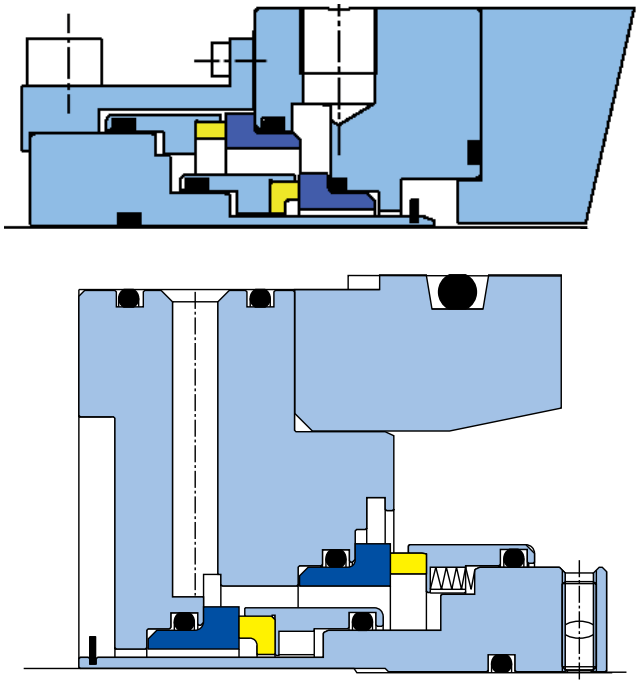
Z Reference Details

Model	Shaft	Z Ref	Drawing Number
SPN4	40mm	Z7638	7109462
-	50mm	Z7577	7108949
SPN800	60mm	Z4096	6460759
SPN12	90mm	Z5902	6470478
-	90mm	Z7151	7104674



02 - Seals to Suit Screens

Lamort Screens - Double Concentric Designs



Double Concentric Seal designs to suit Lamort Screens.

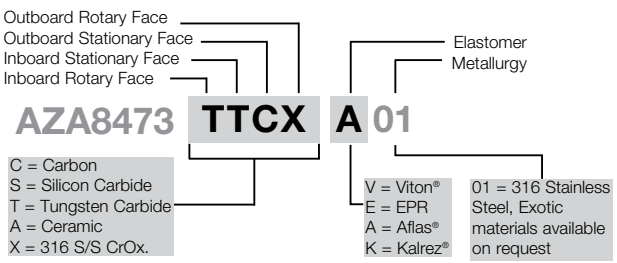
AESSEAL® have designed and supplied Double Concentric seals for a wide range of Lamort Screens in various sizes.

The cross sections shown above have been chosen to illustrate typical examples of the wide variety of designs available for this type of equipment.

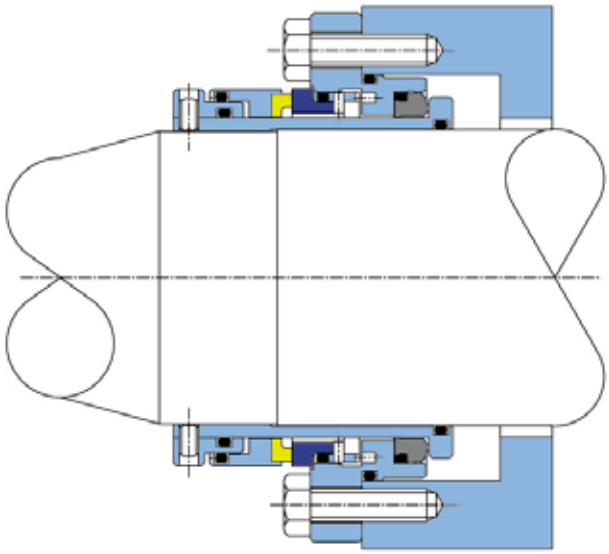
- Modular Designs using standard components.
- Cartridge design for ease of installation

Z Reference Details

Model	Shaft	Z Ref	Drawing Number
SP1200	90mm	Z8473	7114661
-	100mm	Z7152	7104706



Model 25 Screen



Single Cartridge Seal to suit Screen (Model 25) 90mm/91mm

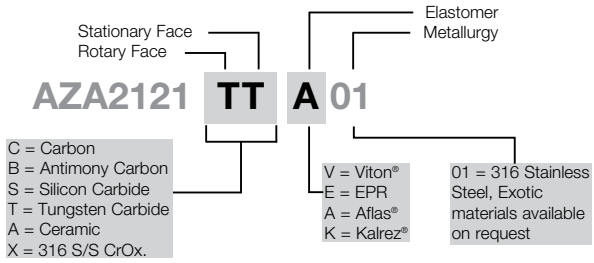
AESSEAL® Reference: Z2121

AESSEAL® Drawing Number: 6453744

AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Model 25 Screens.

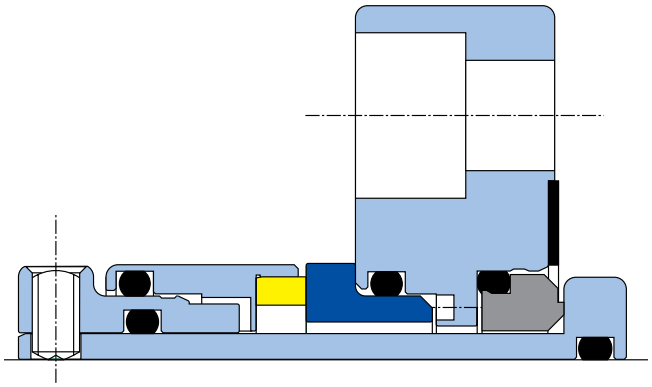
The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Cartridge design for ease of installation



02 - Seals to Suit Screens

Omega Screens



60 mm IASC™ Seal to suit an Omega Screen

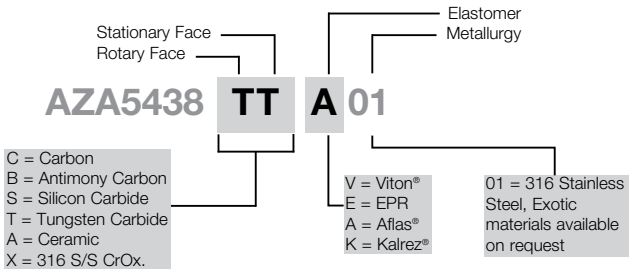
AESSEAL® Reference: Z5438

AESSEAL® Drawing Number: 6468137

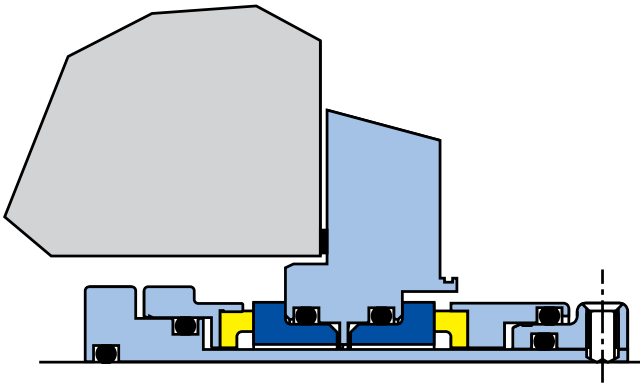
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Omega Screens.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Robust single seal design
- Cartridge design for ease of installation



Sunds Jyla Screen



MDC™ seal to suit Sunds Jyla Screens

For more information see Case Histories 1206 and 1207

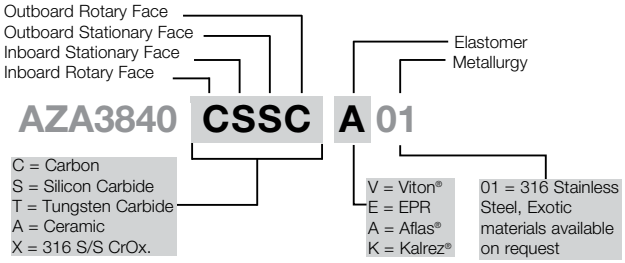
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Sunds Jyla Screens.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Cartridge design for ease of installation

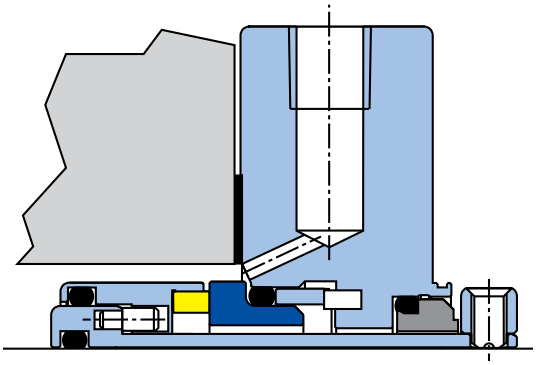
Z Reference Details

Model	Shaft	Z Ref	Drawing Number
JYLA 100	75mm	Z3840	6459736
JYLA 150	100mm	Z3615	6458574



02 - Seals to Suit Screens

Sunds Screens



Single Cartridge Seal designs to suit Sunds Screens.

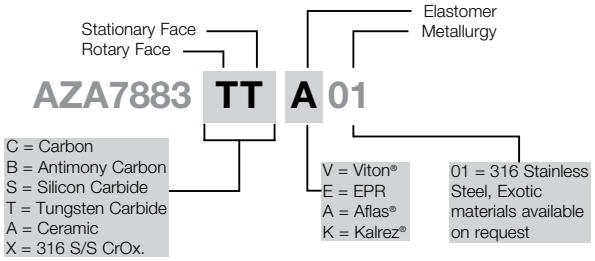
AESSEAL® have designed and supplied single cartridge mechanical seals for a wide range of Sunds Screens in various sizes.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

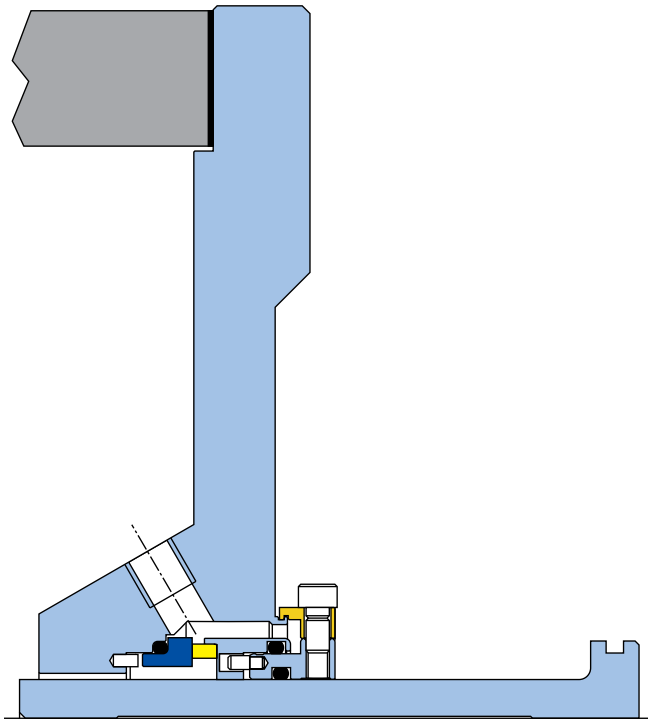
- Modular Designs using standard components.

Z Reference Details

Model	Shaft	Z Ref	Drawing Number
T9-CURC™	100mm	Z7883	7111145
T9	100mm	Z7370	7106736



Toschi Screens



120mm IASC™ Seal arrangement to suit a Toschi ECT4 screen

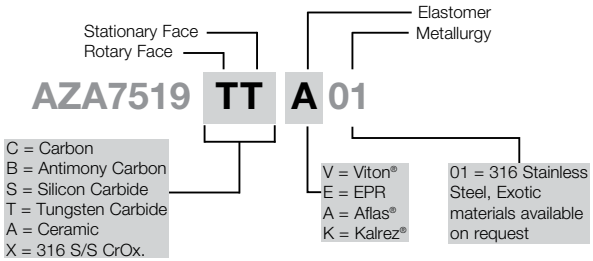
AESSEAL® Reference: Z7519

AESSEAL® Drawing Number: 7107388

AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Toschi Screens.

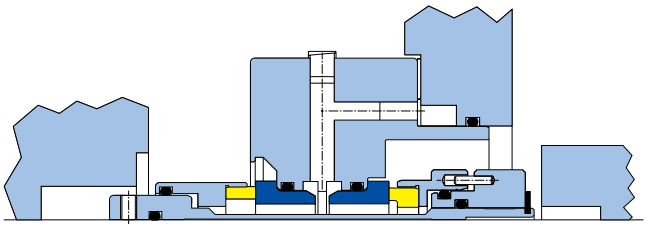
The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

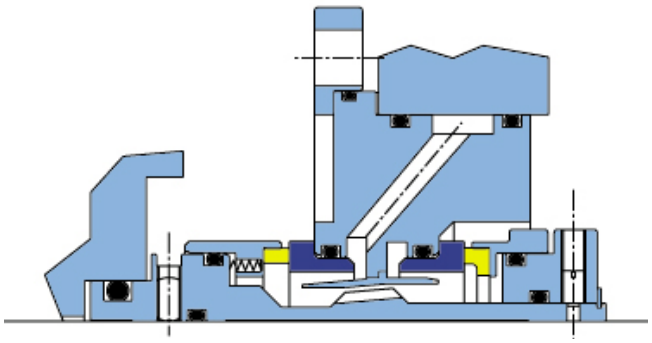
- Modular Design using standard components.



02 - Seals to Suit Screens

Valmet Screens





Double Seal Designs to suit Valmet Screens

For more information see Case History 1205

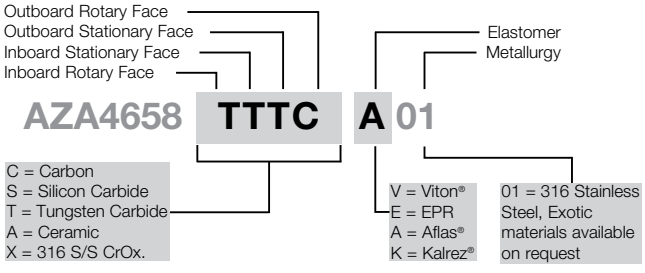
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Valmet Screens

The cross sections shown above have been chosen to illustrate typical examples of the wide variety of designs available for this type of equipment.

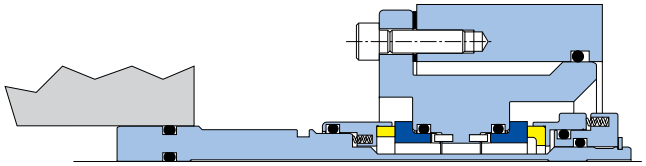
- Modular Design using standard components.
- Used with SSE25 “jumbo” tank system
- Patented Pumping Ring
- 18 Months+ seal life & massive water cost savings

Z Reference Details

Model	Shaft	Z Ref	Drawing Number
TL450/TL600	150mm	Z8500	7114799
TP100	80mm	Z4658	6463079
TAS 25H	70mm	Z8879	7118982



Valmet FS200 Tampella Screen



120mm IADC™ Seal to suit Valmet FS200 Tampela Screen

AESSEAL® Reference: Z4840

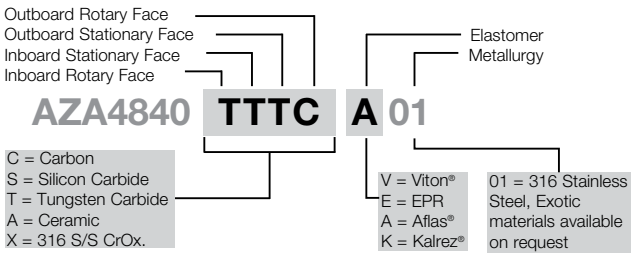
AESSEAL® Drawing Number: 6464264

For more information see Case History 1209

AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Valmet Tampela Screens.

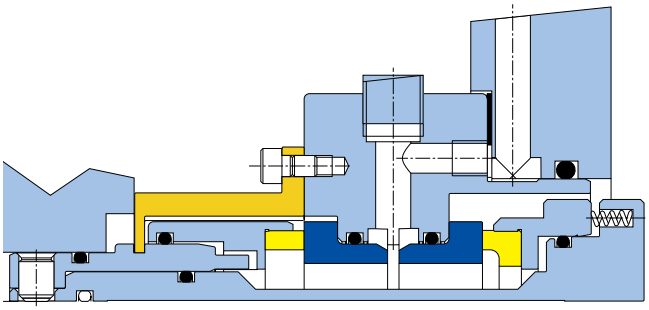
The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Large Internal Clearances



02 - Seals to Suit Screens

VALMET MS900 Screen



180mm IADC™ to suit a VALMET MS900 Screen

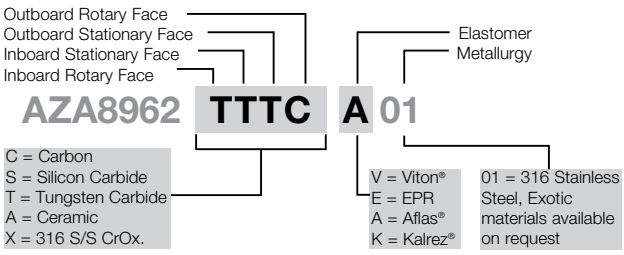
AESSEAL® Reference: Z8962

AESSEAL® Drawing Number: 7119997

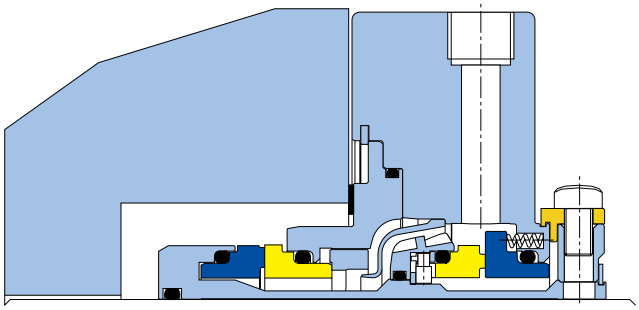
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit VALMET MS900 Screens.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Cartridge design for ease of installation



VALMET SDF 50/1G CMD Tampella



140mm DMSF™ to suit a VALMET SDF 50/1G CMD Tampella

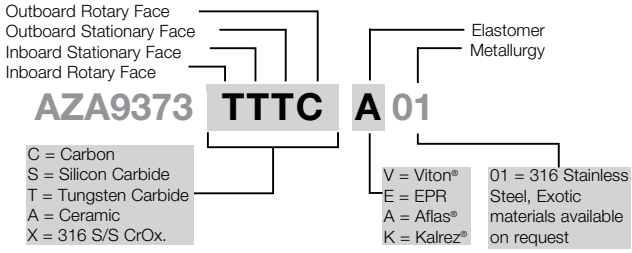
AESSEAL® Reference: Z9373

AESSEAL® Drawing Number: 7125408

AESSEAL® have designed a range of cartridge mechanical seals specifically to suit VALMET SDF 50/1G CMD Tampella.

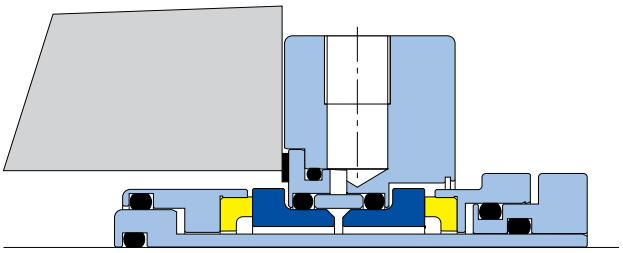
The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Cartridge design for ease of installation



02 - Seals to Suit Screens

Voith Entstipper Screen



90mm CDSA™ seal to suit Voith type 2E Entstipper Screen.

AESSEAL® Reference: Z7103

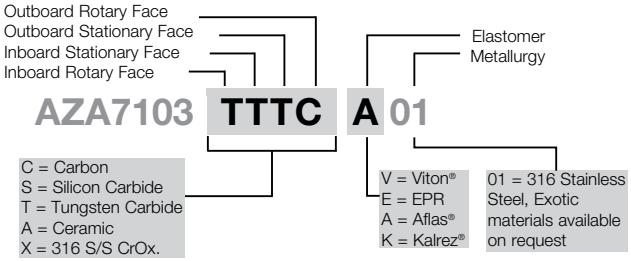
AESSEAL® Drawing Number: 7103883

For further information see Case Histories 1253J

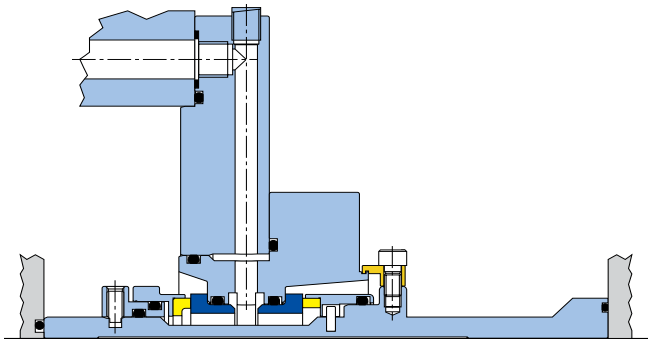
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Voith Entstipper screens.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Cartridge design for ease of installation



VOITH MF310 Screen



101mm IADC™ to suit a VOITH MF310 Screen

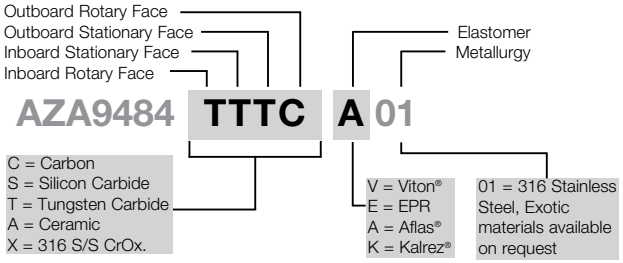
AESSEAL® Reference: Z9484

AESSEAL® Drawing Number: 7127006

AESSEAL® have designed a range of cartridge mechanical seals specifically to suit VOITH MF310 Screens.

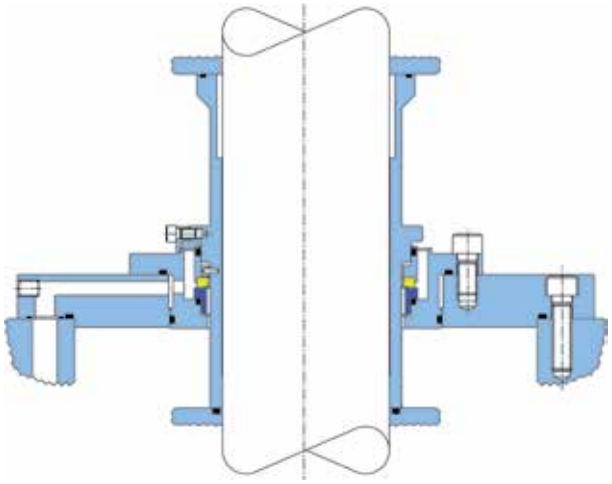
The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Cartridge design for ease of installation



02 - Seals to Suit Screens

Voith Screens - MSS Range



IASC™ Seal to suit Voith Screen models MSS 08/05, MSS 10/06, MSS 12/12, and MSS 15/15

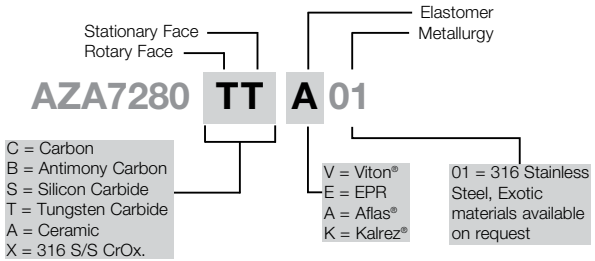
AESSEAL® have designed and supplied IASC™ single cartridge mechanical seals for a wide range of Voith Screens in various sizes.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

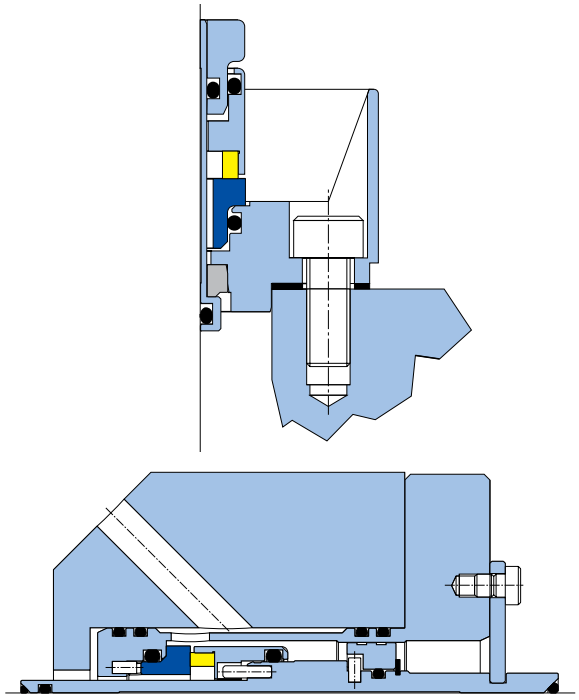
- Modular Designs using standard components.
- Cartridge design for ease of installation

Z Reference Details

Model	Shaft	Z Ref	Drawing Number
MSS 08/05 MSS 10/06	94mm	Z7280	6470880
MSS 12/12	101mm	Z7277	6470881
MSS 15/15	130mm	Z7278	6470890



Voith Screens - OS Range



Single Cartridge Seal designs to suit Voith Screens.

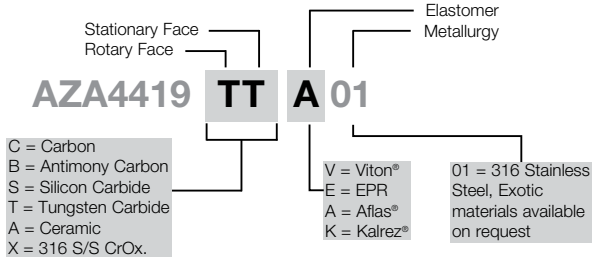
AESSEAL® have designed and supplied single cartridge mechanical seals for a wide range of Voith Screens in various sizes.

The cross sections shown above have been chosen to illustrate typical examples of the wide variety of designs available for this type of equipment.

- Modular Designs using standard components.

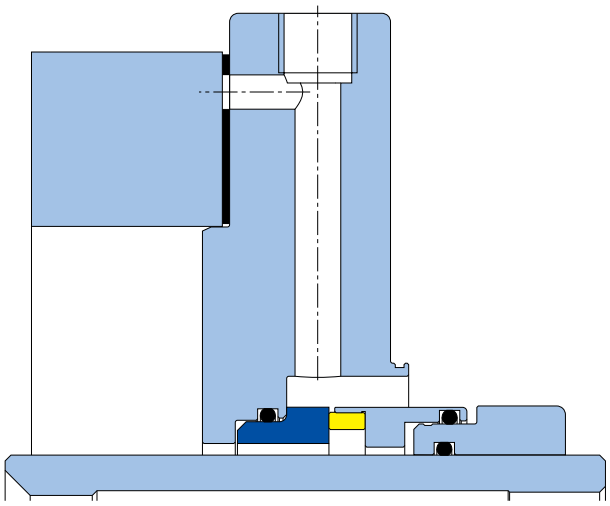
Z Reference Details

Model	Shaft	Z Ref	Drawing Number
GR12	60mm	Z8931	7119576
OS2	70.0mm	Z4418	-
OS4	80.0mm	Z4419-	
OS8	90.0mm	Z4420	-
VHO1T	95mm	Z8733	7117000
VS5	2.125”	Z8933	7119667



02 - Seals to Suit Screens

VOITH 052 Minisorter



55mm IASC™ to suit a VOITH 052 Minisorter

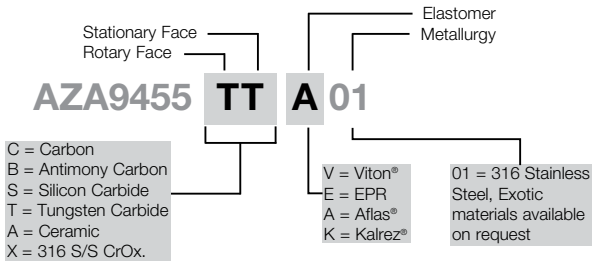
AESSEAL® Reference: Z9455

AESSEAL® Drawing Number: 7126575

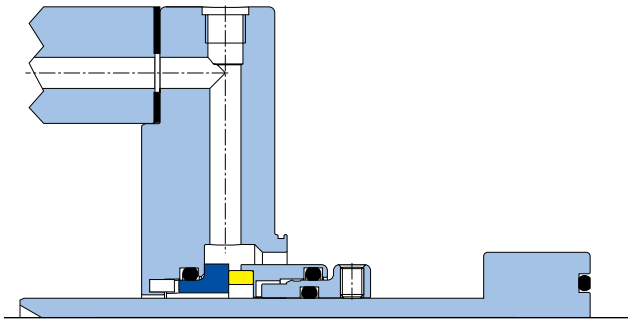
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit VOITH 052 Minisorters.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.



VOITH Minisorter Gr II Single Design



70mm IASC™ to suit a VOITH Minisorter Gr II

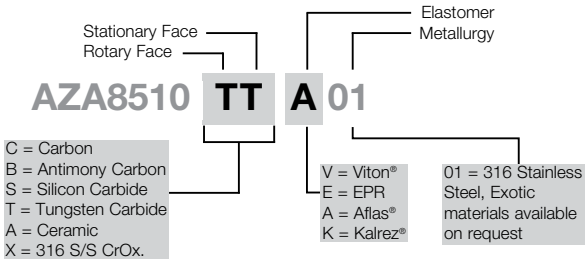
AESSEAL® Reference: Z8510

AESSEAL® Drawing Number: 7114882

AESSEAL® have designed a range of single cartridge mechanical seals specifically to suit VOITH Minisorter Gr II.

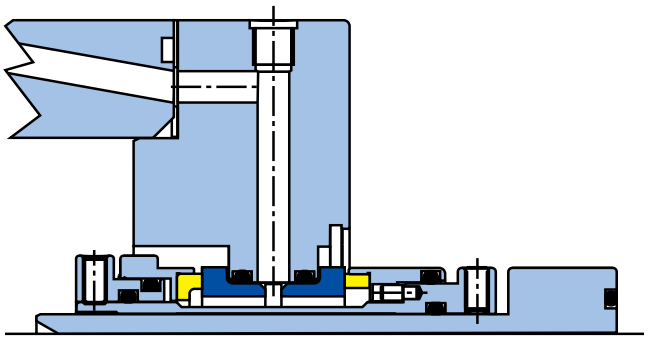
The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.



02 - Seals to Suit Screens

VOITH Minisorter Gr II Double Design



70mm IADC™ to suit a VOITH Minisorter Gr II

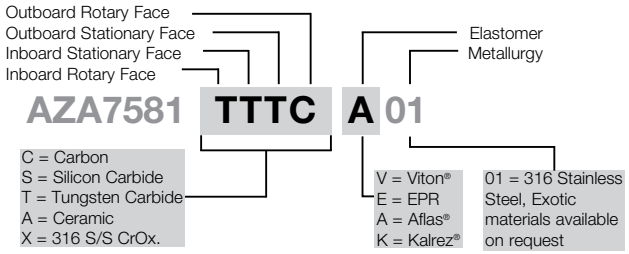
AESSEAL® Reference: Z7581

AESSEAL® Drawing Number: 7108967

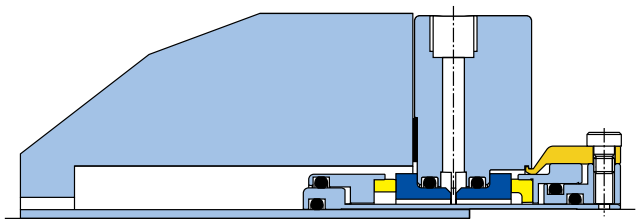
AESSEAL® have designed a range of double cartridge mechanical seals specifically to suit VOITH Minisorter Gr II.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Cartridge design for ease of installation



VOITH 34/3 GEV



5.000” CDM™ to suit a VOITH 34/3 GEV

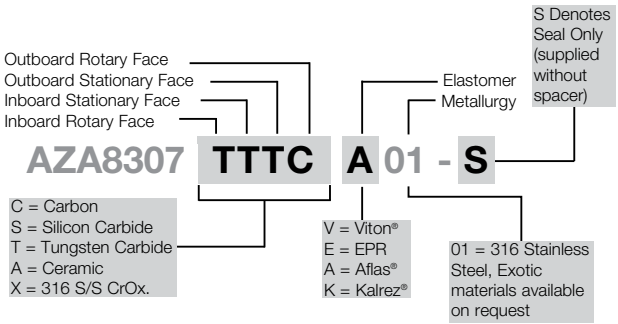
AESSEAL® Reference: Z8307

AESSEAL® Drawing Number: 7114283

AESSEAL® have designed a range of cartridge mechanical seals specifically to suit VOITH 34/3 GEV

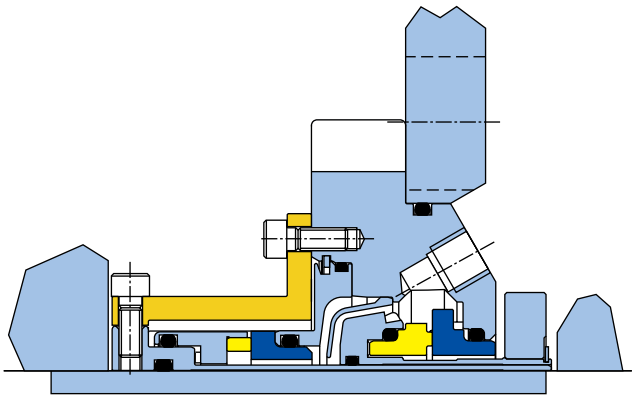
The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Cartridge design for ease of installation



02 - Seals to Suit Screens

VOITH OS2 Omnifractor



70mm IFDC™ to suit a VOITH OS2 Omnifractor

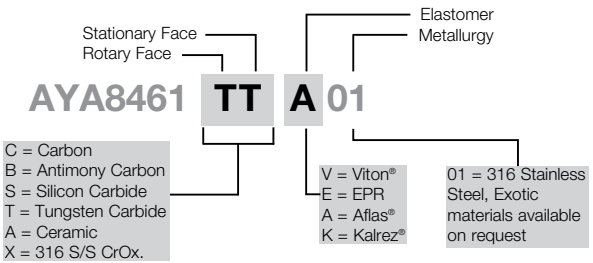
AESSEAL® Reference: Y8461

AESSEAL® Drawing Number: 7114793

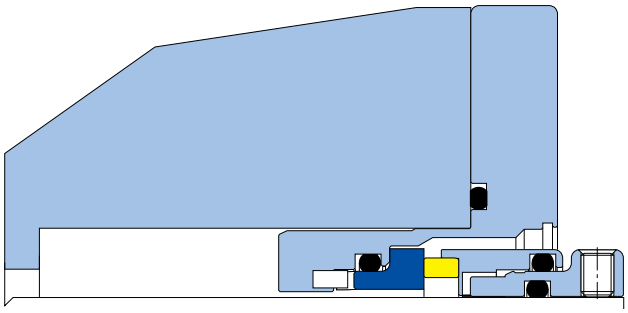
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit VOITH OS2 Omnifractors.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Patented pumping scroll design maximizes cooling at inboard seal faces.
- Large Quench & Drain ports increase barrier fluid flow.
- Cartridge design for ease of installation



VOITH Screen



70mm IASC™ to suit a VOITH Screen

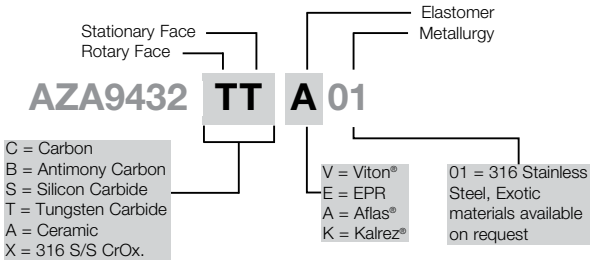
AESSEAL® Reference: Z9432

AESSEAL® Drawing Number: 7126182

AESSEAL® have designed a range of cartridge mechanical seals specifically to suit VOITH Screens.

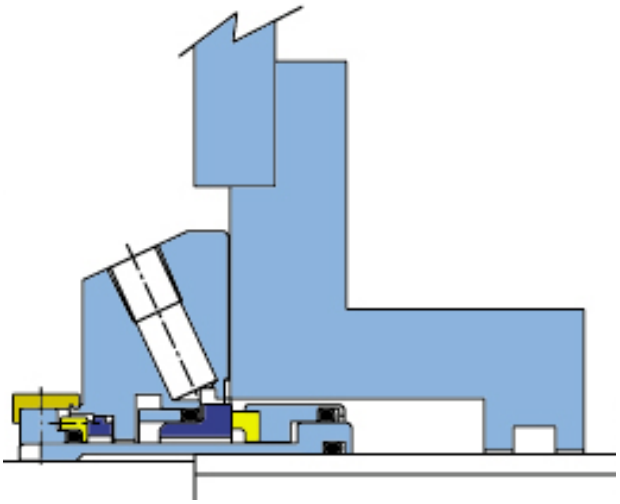
The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Cartridge design for ease of installation



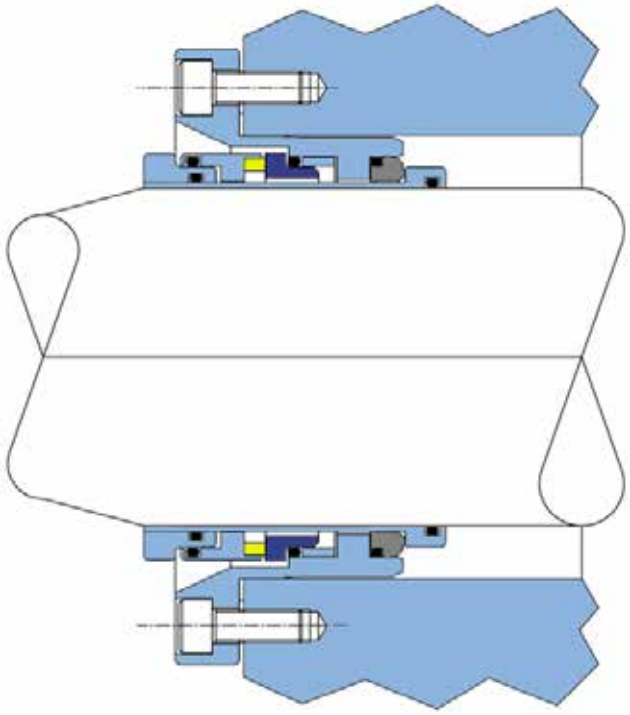
02 - Seals to Suit Screens

Additional screen seal designs



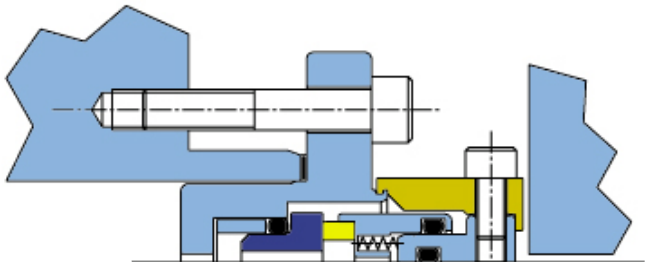
100mm CURE™ to suit Finckh Cyclo Screen (model 2)

AESSEAL® Drawing Number: 6462934



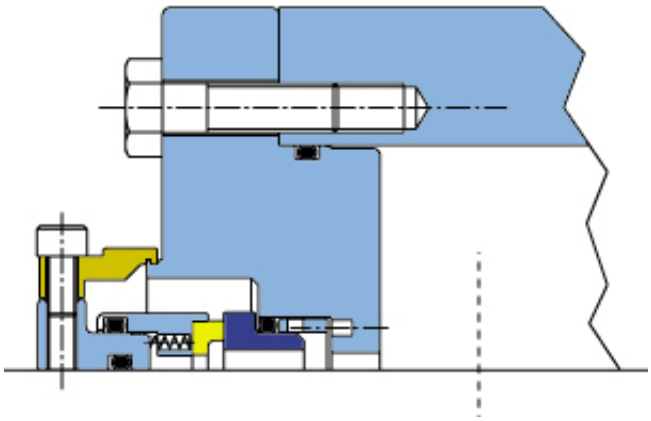
AESSEAL® Bird Screen design

AESSEAL® Drawing Number: 6459757



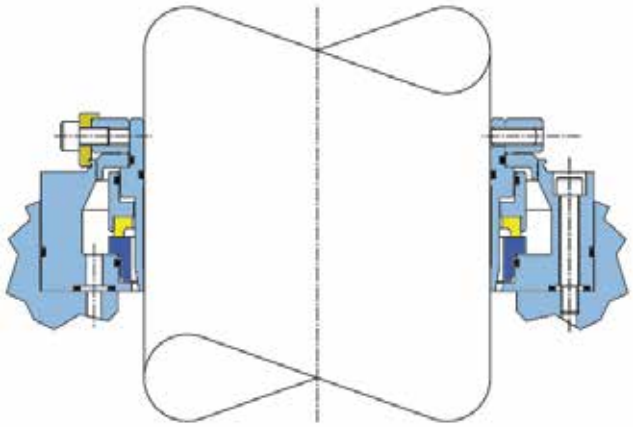
100mm IASC™ to suit Sunds Pressure Screen - Arjo Wiggins

AESSEAL® Drawing Number: 6470062



90mm IASC™ to suit a Heinrich Fielder Screen

AESSEAL® Drawing Number: 6467456

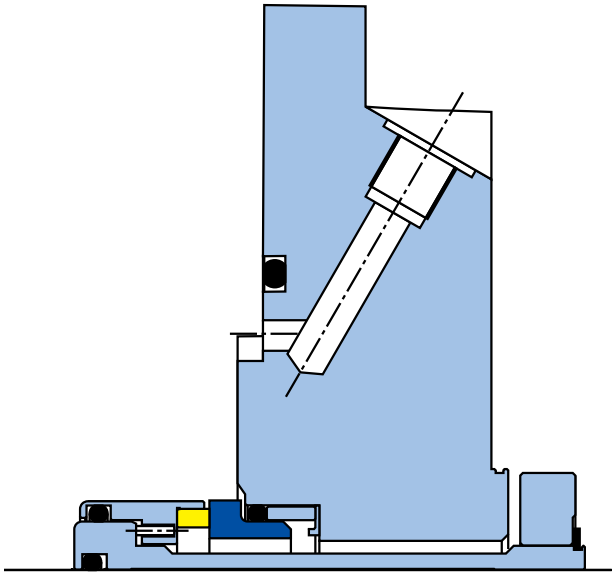


7.374" Screen Seal to suit Lamort SPM1900 Stock Screen

AESSEAL® Drawing Number: 6461781

03 - Seals to Suit Refiners

Andritz Screw Feeder Refiner



4.250” CURC™ to suit a Andritz Screw Feeder Refiner

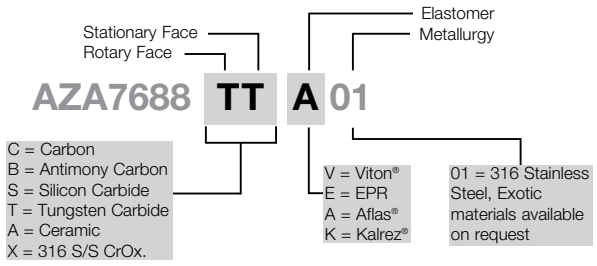
AESSEAL® Reference: Z7688

AESSEAL® Drawing Number: 7109774

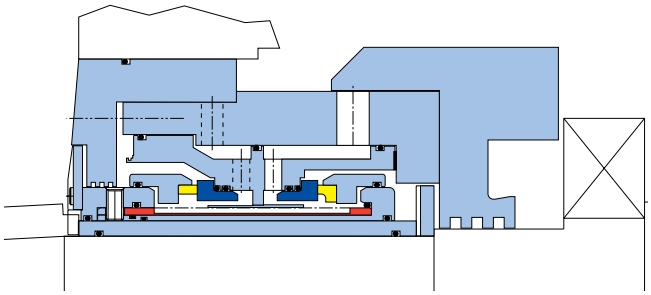
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Andritz Screw Feeder Refiners.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.



Andritz Sprout Bauer Refiner



AESSEAL® Double Seal Design to suit the 42/45-ICP Andritz Sprout Bauer Refiner

AESSEAL® Drawing Number: 6462166

Andritz Sprout Bauer are a typical manufacturer of wood chip refiners. The installed seal assemblies, on horizontal ICP refiners, gave approximately 12 months survival, and consumed approximately 1/4 Gallon per minute of flush water to prevent the inboard lip seal from burning out. Assuming a 24 hr/day, 365 day/year operation, typical water usage equates to 131,040 gallons per year, per refiner.

Typical operating conditions of the seal include ;

Shaft Size: 5.970”

Axial movement: 0.012” (Kingsbury type tilt pad bearing opposite end to the refiner head).

Design Pressure: 11 barg (150 psig)

Shaft Speed: 1,800 rpm

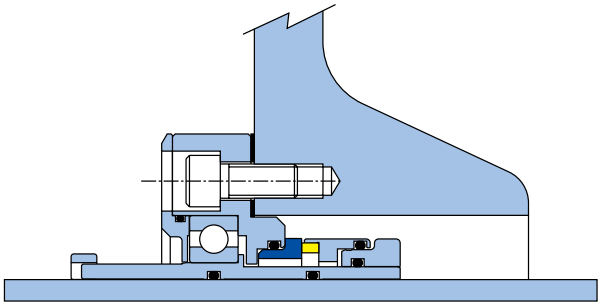
Temperature: 180ºC (350ºF)

AESSEAL® have designed the arrangement shown to be fitted to such equipment. In particular, the design shown above is for the 42/45-ICP Andritz Sprout Bauer Refiner.

AESSEAL® have a PATENT PENDING application on this design.

03 - Seals to Suit Refiners

Beloit Jones DD Refiner



BJDD™ seal to suit a Beloit Jones DD Refiner.

AESSEAL® Drawing Number: 6460811

The AESSEAL® design shown above for the Beloit range of refiners offers the following features / advantages;

Design principles

1. The clamp drive collar is secured to the shaft, and drives the seal sleeve through integral drive lugs.
2. The seal gland plate is secured to the housing / bearing frame.
3. The integral seal bearing helps to support the seal faces, and is designed to withstand the resulting thrust forces derived from the product pressure acting on the end of the sleeve.

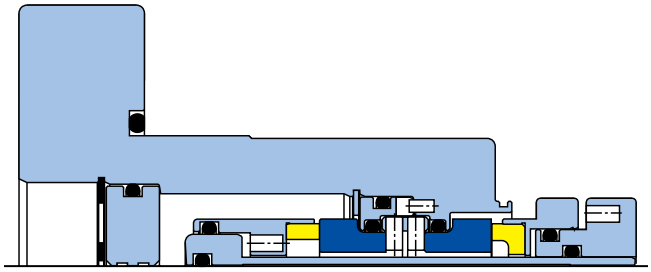
As the shaft moves axially with respect to the housing (or vice versa), the movement is taken by the clamp ring through the sleeve drive lugs, whilst the drive lugs transmit rotational shaft movement from shaft to seal sleeve. Seal face loading is therefore unaffected by the axial movement, helping to ensure that the correct “idealized” face sealing conditions are achieved.

A double seal variant, employing concentric seal face technology, is available upon request.

AESSEAL® have a PATENT PENDING application on this design.

- Will accept any amount of axial movement without disturbing the seal faces
- Cartridge design for ease of installation

Cavitron CD 1048-F Deflaker



60mm CDSA™ to suit a Cavitron CD 1048-F Deflaker

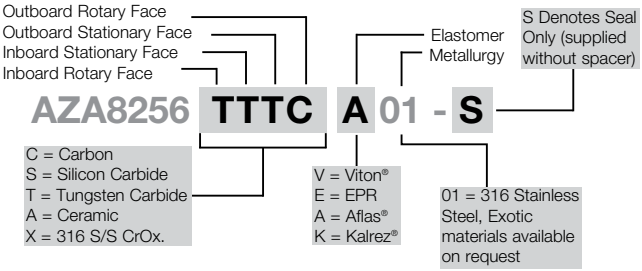
AESSEAL® Reference: Z8256

AESSEAL® Drawing Number: 7113487

AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Cavitron CD 1048-F Deflakers.

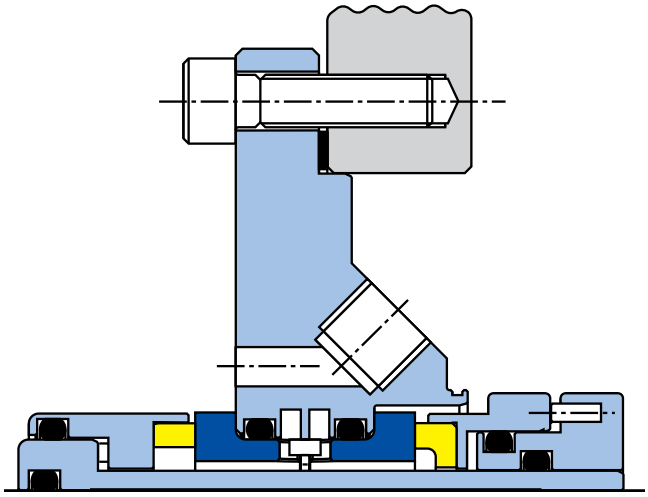
The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Canister Design with throttle bushing enhances seal operating environment and reduces flush volume.
- Cartridge design for ease of installation



03 - Seals to Suit Refiners

E4000 Deflaker



105mm CDM™ to suit an E4000 Deflaker

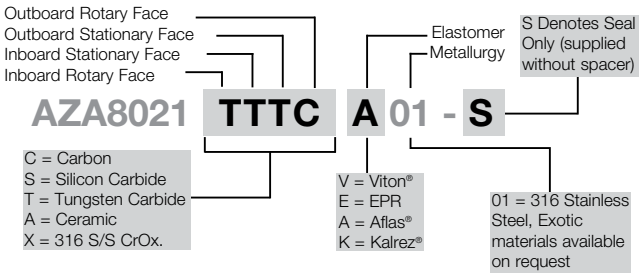
AESSEAL® Reference: Z8021

AESSEAL® Drawing Number: 7111880

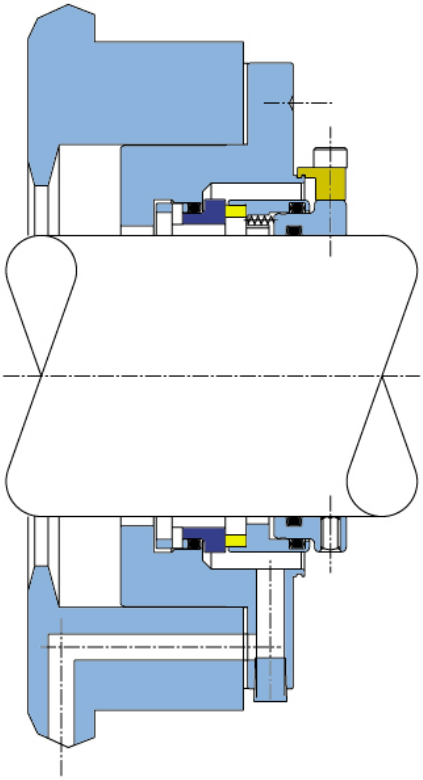
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit E4000 Deflakers.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Cartridge design for ease of installation



Recard Refiner



IASC™ Seal Design to suit Recard Refiners

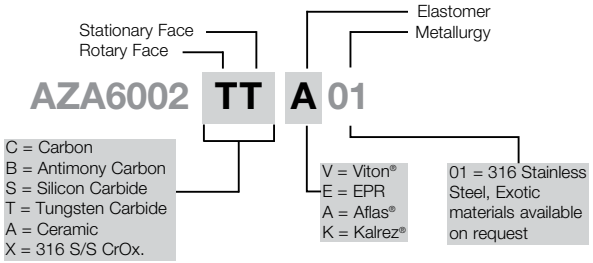
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Recard Refiners.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Cartridge design for ease of installation

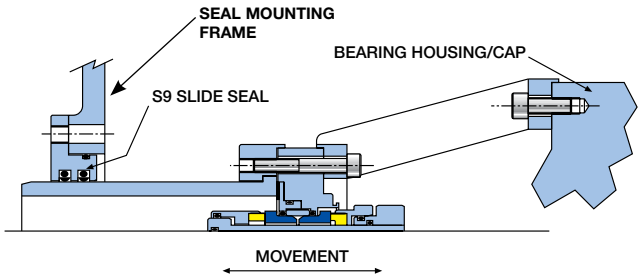
Z Reference Details

Model	Shaft	Z Ref	Drawing Number
80	80mm	Z6002	6470845
85	85mm	Z5807	6469875
105	105mm	Z5808	6469853



03 - Seals to Suit Refiners

Sunds Defibrator Jalavarra Refiners



The diagram above shows a Sunds Defibrator JC04 Refiner converted to a DMAX-AX™ Double Cartridge Seal arrangement with large axial movement capabilities. This solution uses a Z Reference CDSA™ or CDM™ seal with standard modular components, ensuring reliable performance and economical repair.

For further information see Case History 481.

- Modular Design using standard components.
- No sleeve or shaft damage
- Eliminates requirement for re-setting seal or re-packing stuffing box on machine shutdown.
- 2 Years+ seal life with no stripdown of equipment.
- Will accept any amount of axial movement without disturbing the seal faces
- Cartridge design for ease of installation

Model	Shaft Size	Z Reference
JC01	115mm	Z4386
JC02	-	-
JC03	150mm	Z1427
JC04	200mm	Z3580

Outboard Rotary Face
Outboard Stationary Face
Inboard Stationary Face
Inboard Rotary Face

Elastomer
Metallurgy

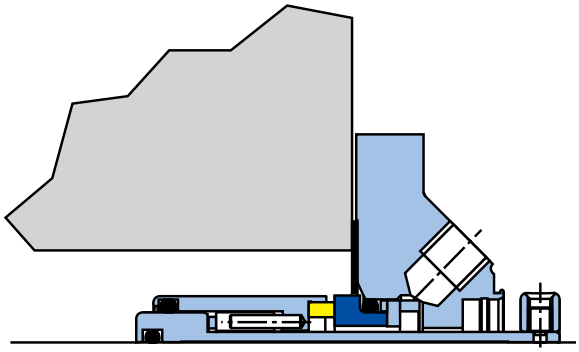
AZA3580 TTTC A 01

C = Carbon
S = Silicon Carbide
T = Tungsten Carbide
A = Ceramic
X = 316 S/S CrOx.

V = Viton®
E = EPR
A = Aflas®
K = Kalrez®

01 = 316 Stainless Steel, Exotic materials available on request

VOITH AJS31 Turbo



125mm CMAX™ Type A to suit a VOITH AJS31 Turbo

AESSEAL® Reference: Z7719

AESSEAL® Drawing Number: 7110030

AESSEAL® have designed a range of cartridge mechanical seals specifically to suit VOITH AJS31 Turbo

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Axial movement capabilities.
- Cartridge design for ease of installation.

Stationary Face
Rotary Face

Elastomer
Metallurgy

AZA7719 TT A 01

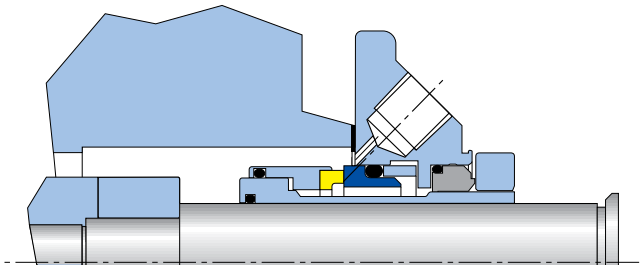
C = Carbon
B = Antimony Carbon
S = Silicon Carbide
T = Tungsten Carbide
A = Ceramic
X = 316 S/S CrOx.

V = Viton®
E = EPR
A = Aflas®
K = Kalrez®

01 = 316 Stainless Steel, Exotic materials available on request

04 - Seals to Suit Centrifugal Pumps

Ahlstrom APP / APT Pumps Standard Single Seals



CURC™ to suit Ahlstrom APP/APT Pumps

AESSEAL® have designed a range of Single cartridge mechanical seals specifically to suit Ahlstrom APP/APT Pumps.

The design shown removes the need for the OEM hooked sleeve and replaces this with a simple spacer. The mechanical seal is then mounted directly on to the shaft. This gives the following benefits over a standard seal.

- Large stuffing box clearances provide greater heat dissipation to optimize seal operating environment.
- Seal is mounted directly on to the equipment shaft to eliminate potential tolerance stack ups.

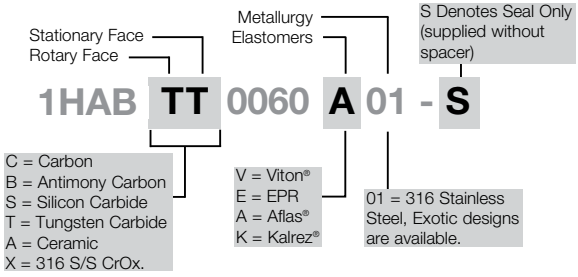
CURC™ Seal Ordering Information

Bearing Unit	Bare Shaft	GA Drg. No.	Stock Code
1	30mm	6463383	1HABTT0030A01*
2	40mm	6463383	1HABTT0040A01*
3	50mm	6463383	1HABTT0050A01*
4	60mm	6463383	1HABTT0060A01*
5	80mm	6463383	1HABTT0080A01*
6	90mm	6463383	1HABTT0090A01*

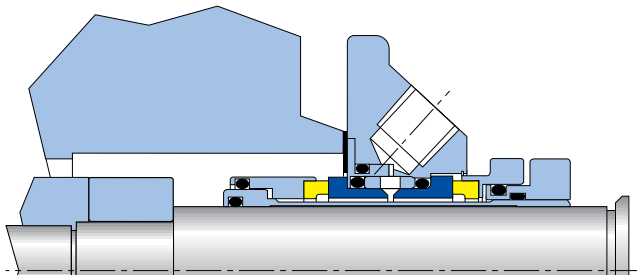
*Note: the codes shown in the table are for a Seal supplied with a spacer as standard. To order a seal only add a -S suffix to the stock code as shown in the example below.

Seal stock codes show TC v TC seal faces and Aflas® elastomers, adjust stock code using the example below to meet your process requirements.

EG. 60mm CURC™ TC/TC Aflas



Ahlstrom APP / APT Pumps Standard Double Seals



CDSA™ to suit Ahlstrom APP/APT Pumps

AESSEAL® have designed a range of Double cartridge mechanical seals specifically to suit Ahlstrom APP/APT Pumps.

The design shown removes the need for the OEM hooked sleeve and replaces this with a simple spacer. The mechanical seal is then mounted directly on to the shaft. This gives the following benefits over a standard seal.

- Large stuffing box clearances provide greater heat dissipation to optimize seal operating environment.
- Seal is mounted directly on to the equipment shaft to eliminate potential tolerance stack ups.

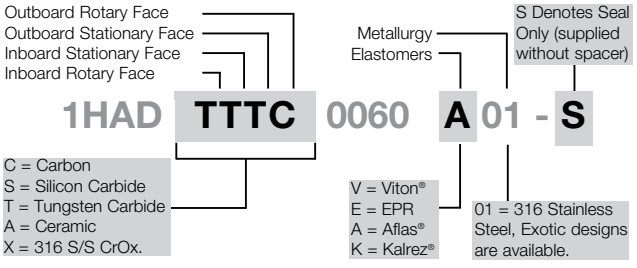
CDSA™ Seal Ordering Information

Bearing Unit	Bare Shaft	GA Drg. No.	Stock Code
1	30mm	6463373	1HADTTTC0030A01*
2	40mm	6463373	1HADTTTC0040A01*
3	50mm	6463373	1HADTTTC0050A01*
4	60mm	6463373	1HADTTTC0060A01*
5	80mm	6463373	1HADTTTC0080A01*
6	90mm	6463373	1HADTTTC0090A01*

*Note: the codes shown in the table are for a Seal supplied with a spacer as standard. To order a seal only add a -S suffix to the stock code as shown in the example below.

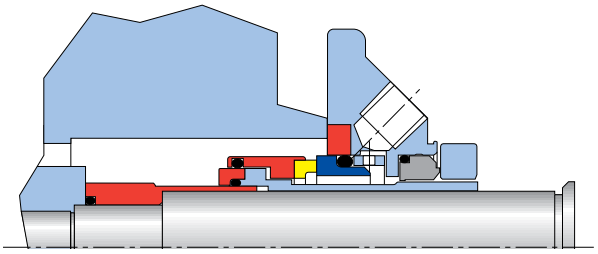
Seal stock codes show TC/TC//TC/C seal faces and Aflas® elastomers, adjust stock code using the example below to meet your process requirements.

EG. 60mm CDSA™ TC/TC//TC/CARBON Aflas



04 - Seals to Suit Centrifugal Pumps

Ahlstrom APP / APT Pumps Exotic Single Seals



Exotic Alloy CURC™ to suit Ahlstrom APP/APT Pumps

AESSEAL® have designed a range of Single cartridge mechanical seals specifically to suit Ahlstrom APP/APT Pumps with exotic alloy wetted parts.

The design shown replaces the OEM exotic sleeve with a special exotic stubshaft. The mechanical seal is then clamped directly to the bare shaft but with the sleeve 'O' Ring sealing on the stubshaft. This gives the following benefits over a standard seal.

- Large stuffing box clearances provide greater heat dissipation to optimize seal operating environment.
- Seal is mounted directly on to the equipment shaft to eliminate potential tolerance stack ups.

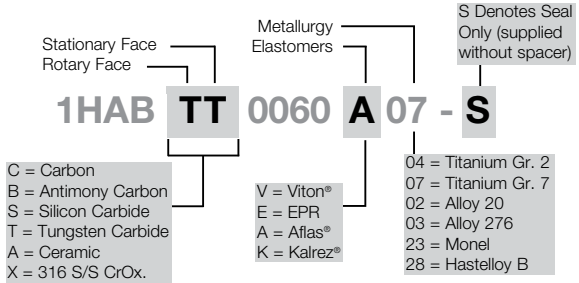
Exotic Alloy CURC™ Seal Ordering Information

Bearing Unit	Bare Shaft	GA Drg. No.	Stock Code
1	30mm	6463385	1HABTT0030A07*
2	40mm	6463385	1HABTT0040A07*
3	50mm	6463385	1HABTT0050A07*
4	60mm	6463385	1HABTT0060A07*
5	80mm	6463385	1HABTT0080A07*
6	90mm	6463385	1HABTT0090A07*

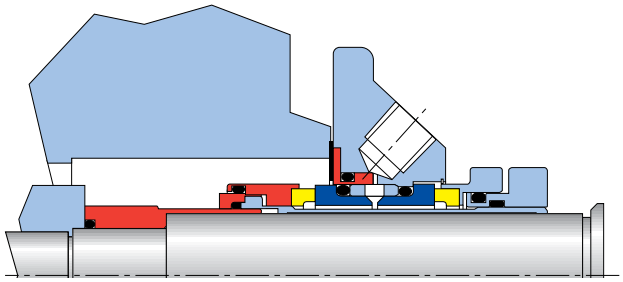
*Note: the codes shown in the table are for a Seal supplied with a stubshaft & elastomer as standard. To order a seal only add a -S suffix to the stock code as shown in the example below. When only the seal is ordered a stubshaft elastomer is supplied as standard.

Seal stock codes show TC v TC seal faces, Aflas® elastomers and Ti7 wetted parts, adjust stock code as necessary using the example below.

EG. 60mm CURC™ TC/TC Aflas® Ti7



Ahlstrom APP / APT Pumps Exotic Double Seals



Exotic Alloy CDSA™ to suit Ahlstrom APP/APT Pumps

AESSEAL® have designed a range of Double cartridge mechanical seals specifically to suit Ahlstrom APP/APT Pumps with exotic alloy wetted parts.

The design shown replaces the OEM exotic sleeve with a special exotic stubshaft. The mechanical seal is then clamped directly to the bare shaft but with the sleeve 'O' Ring sealing on the stubshaft. This gives the following benefits over a standard seal.

- Large stuffing box clearances provide greater heat dissipation to optimize seal operating environment.
- Seal is mounted directly on to the equipment shaft to eliminate potential tolerance stack ups.

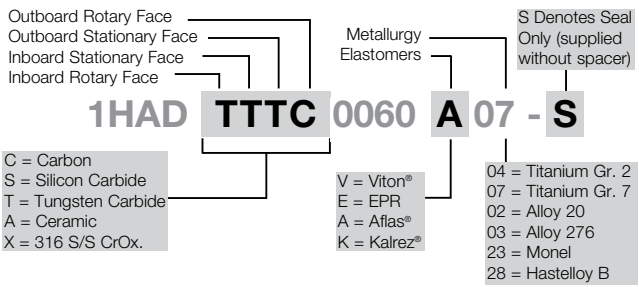
Exotic Alloy CDSA™ Seal Ordering Information

Bearing Unit	Bare Shaft	GA Drg. No.	Stock Code
1	30mm	6463384	1HADTTTC0030A07*
2	40mm	6463384	1HADTTTC0040A07*
3	50mm	6463384	1HADTTTC0050A07*
4	60mm	6463384	1HADTTTC0060A07*
5	80mm	6463384	1HADTTTC0080A07*
6	90mm	6463384	1HADTTTC0090A07*

*Note: the codes shown in the table are for a Seal supplied with a stubshaft & elastomer as standard. To order a seal only add a -S suffix to the stock code as shown in the example below. When only the seal is ordered a stubshaft elastomer is supplied as standard.

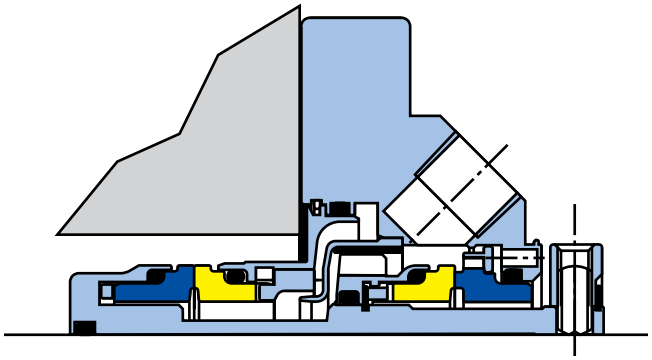
Seal stock codes show TC/TC//TC/C seal faces Aflas® elastomers and Ti7 wetted parts, adjust stock code as necessary using the example below.

EG. 60mm CDSA™ TC/TC//TC/CARBON Aflas® Ti7



04 - Seals to Suit Centrifugal Pumps

Ahlstrom APT 42-6 Pump



60mm DMSF™ seal to suit AHLSTROM APT-42-6 pump.

AESSEAL® Reference: Z5101

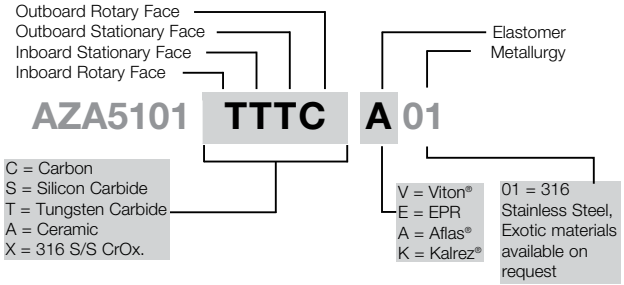
AESSEAL® Drawing Number: 6466030

For further information see Case History 1238K.

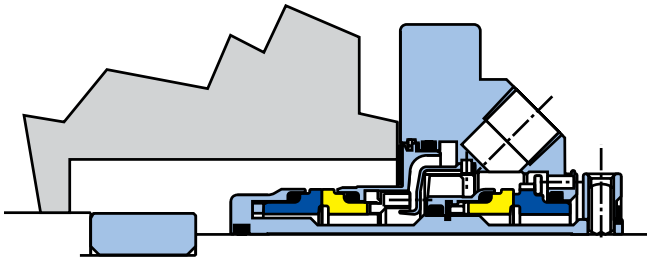
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Ahlstrom APT 42-6 pumps.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Large internal clearances for maximum cooling
- Patented pumping scroll and deflector arrangement optimize barrier fluid circulation under inboard seal faces.
- Double balanced seal faces tolerate large process pressure fluctuations.



Ahlstrom APP / APT Pumps



50mm DMSF™ seal to suit AHLSTROM APP/APT pumps.

AESSEAL® Reference: Z5119

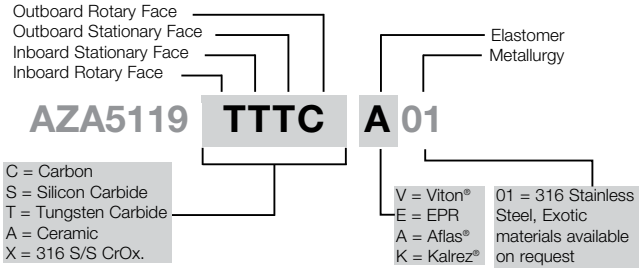
AESSEAL® Drawing Number: 6466141

For further information see Case Histories 1224J, 1722K, 1757K, 1758K, 1759K.

AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Ahlstrom APP/APT pumps.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Large internal clearances for maximum cooling
- Patented pumping scroll and deflector arrangement optimize barrier fluid circulation under inboard seal faces.
- Double balanced seal faces tolerate large process pressure fluctuations.
- Mounted to equipment shaft to eliminate tolerance stack-ups and maximize stuffing box clearances.



04 - Seals to Suit Centrifugal Pumps

Ahlstrom 12 DTB 14L Split Case Fan Pump

2.375" CURC™ c/w FMG & Stepped sleeve to suit Ahlstrom 12 DTB 14L Pump

AESSEAL® Reference: Z4717

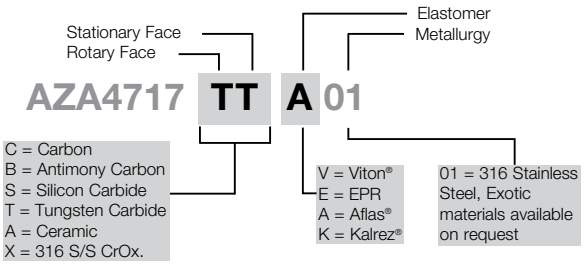
AESSEAL® Drawing Number: 6463468

For further information see Case History 731G

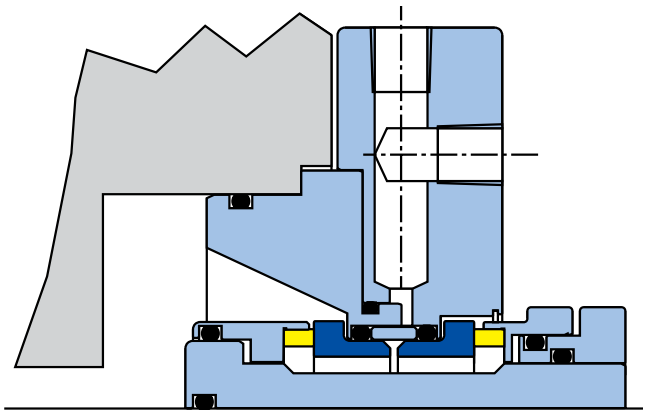
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Ahlstrom 12 DTB 14L pumps.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- MTBF in excess of 2 1/2 years.
- Cartridge design for ease of installation.



Ahlstrom MPP1500 Stock Pump



70mm CDSA™ seal to suit Ahlstrom MPP1500 stock pump.

AESSEAL® Reference: Z3841

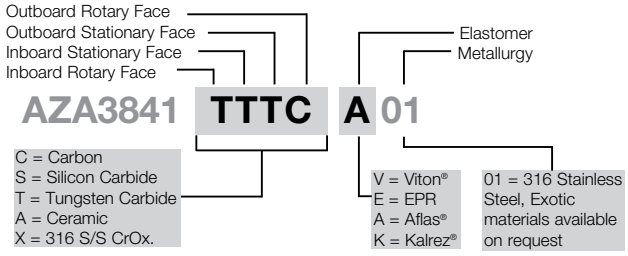
AESSEAL® Drawing Number: 6459765

For further information see Case History 945H.

AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Ahlstrom MPP1500 stock pumps.

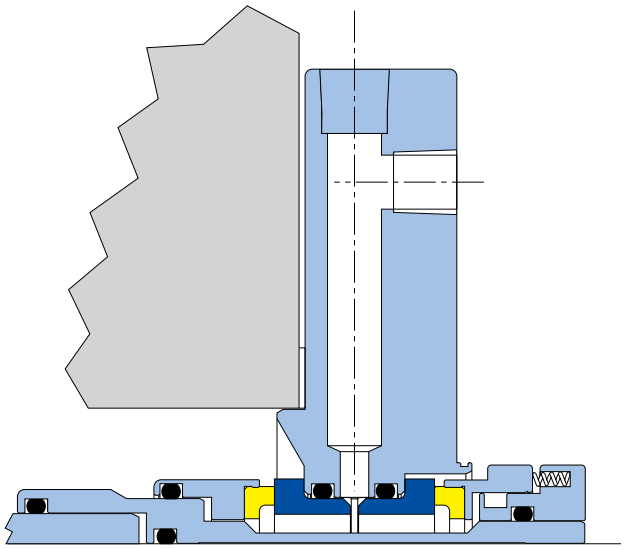
The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Large internal clearances
- Cartridge design for ease of installation.



04 - Seals to Suit Centrifugal Pumps

Allis Chalmers F8N1



4.500" (4.750 parts) CDSA™ seal to suit Allis Chalmers F8N1 & PWO 14x14-23.

AESSEAL® Reference: Z7002

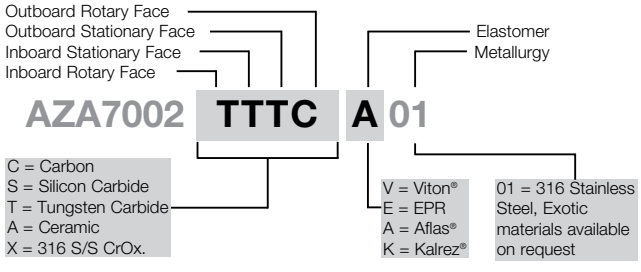
AESSEAL® Drawing Number: 7102386

For further information see Case Histories 1263J, 1264J.

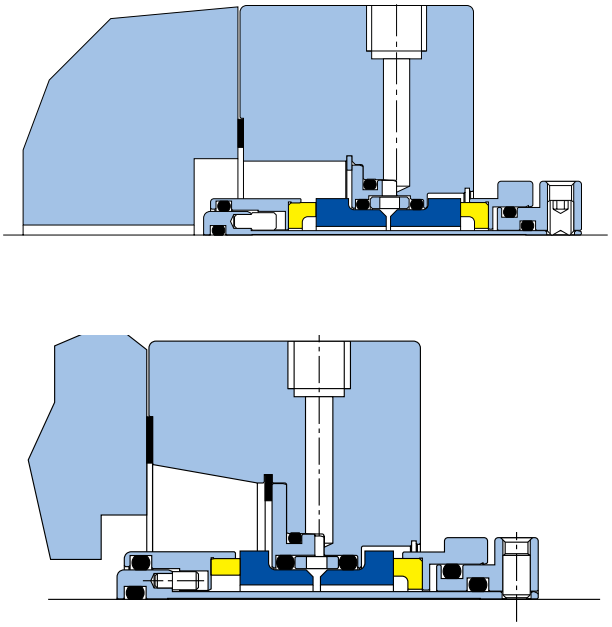
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Allis Chalmers F8N1 & PWO 14x14-23 pumps.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Protected bare shaft design.
- Mounted to equipment shaft to eliminate tolerance stack-ups and maximize internal clearances.
- Cartridge design for ease of installation.



Escher Wyss E1K / E2K



CDSA™ seals to suit ESCHER WYSS pumps.

For further information see Case Histories 1396K & 1446K

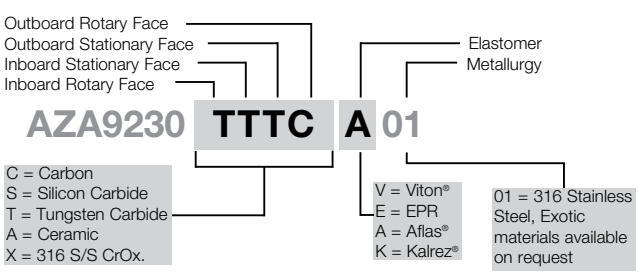
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Escher Wyss E1K / E2K pumps.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.

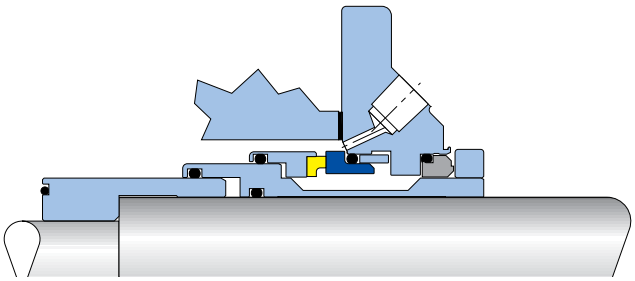
Z Reference Details

Model	Shaft	Z Ref	Drawing Number
E1K	55mm	Z9229	7123400
E2K	95mm	Z9230	7123404



04 - Seals to Suit Centrifugal Pumps

Goulds 3175 Pumps Single Seal Designs



CURC™ to suit Goulds 3175 Range of Pumps

AESSEAL® have designed a range of Single cartridge mechanical seals specifically to suit Goulds 3175 Pumps.

The cross section shown above is a special design which gives the following benefit over a standard seal.

- Seal is mounted directly on to the equipment shaft to eliminate potential tolerance stack ups

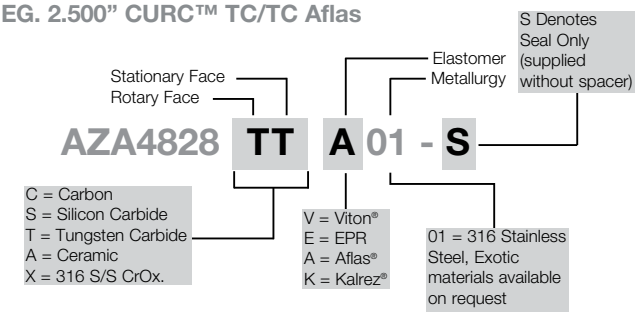
CURC™ Seal Ordering Information

Model	Sleeve size Before removal	Bare Shaft size	GA Drg. No.	Stock Code
3175 - S	3.000”	2.500”	6464561	AZA4828TTA01*
Stubshaft	-	2.500”	6464239	AZA4826
3175 - M	3.750”	3.312”	6464561	AZA4829TTA01*
Stubshaft	-	3.312”	6461621	AZA4330
3175 - L	4.750”	4.312”	6464561	AZA4830TTA01*
Stubshaft	-	4.312”	6461625	AZA4331
3175 - XL : details upon request / supplied to order				

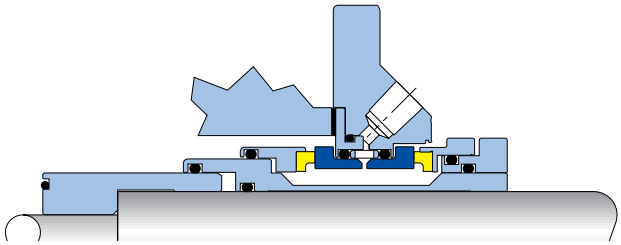
*Note: the codes shown in the table are for a Seal supplied with a stubshaft & elastomer as standard. To order a seal only add a -S suffix to the stock code as shown in the example below. When only the seal is ordered a stubshaft elastomer is supplied as standard.

Seal stock codes show TC v TC seal faces and Aflas® elastomers adjust stock code using the example below to meet your process requirements.

EG. 2.500” CURC™ TC/TC Aflas



Goulds 3175 Pumps Double Seal Designs



CDSA™ to suit Goulds 3175 Range of Pumps

AESSEAL® have designed a range of Single cartridge mechanical seals specifically to suit Goulds 3175 Pumps.

The cross section shown above is a special design which gives the following benefits over a standard seal.

- Large internal clearances provide maximum barrier fluid volume to optimize seal face operating environment.
- Seal is mounted directly on to the equipment shaft to eliminate potential tolerance stack ups.

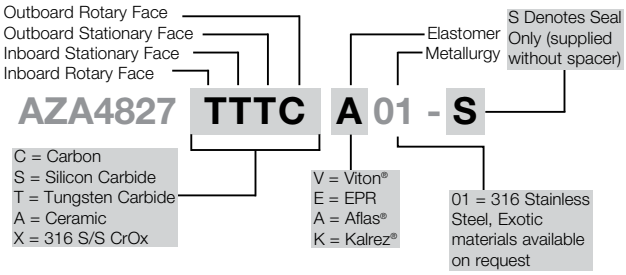
CDSA™ Seal Ordering Information

Model	Sleeve size Before removal	Bare Shaft size	GA Drg. No.	Stock Code
3175 - S	3.000”	2.500”	6464566	AZA4827TTTCA01*
Stubshaft	-	2.500”	6464239	AZA4826
3175 - M	3.750”	3.312”	6464566	AZA3871TTTCA01*
Stubshaft	-	3.312”	6461621	AZA4330
3175 - L	4.750”	4.312”	6464566	AZA4042TTTCA01*
Stubshaft	-	4.312”	6461625	AZA4331
3175 - XL : details upon request / supplied to order				

*Note: the codes shown in the table are for a Seal supplied with a stubshaft & elastomer as standard. To order a seal only add a -S suffix to the stock code as shown in the example below. When only the seal is ordered a stubshaft elastomer is supplied as standard.

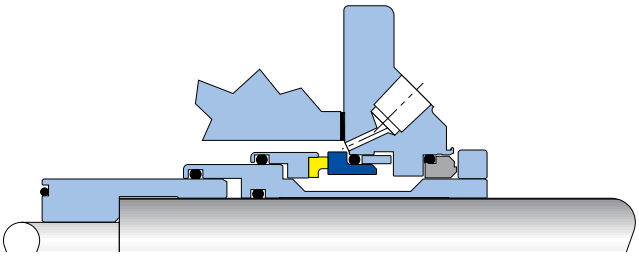
Seal stock codes show TC/TC//TC/C seal faces and Aflas® elastomers adjust stock code using the example below to meet your process requirements.

EG. 2.500” CDSA™ TC/TC//TC/CARBON Aflas



04 - Seals to Suit Centrifugal Pumps

Goulds 3196 XLT & XLT-X Special Single Designs



CURC™ to suit Goulds 3196 XLT & XLT-X

AESSEAL® have designed a range of Single cartridge mechanical seals specifically to suit Goulds 3196 XLT & XLT-X Pumps.

The cross section shown above is a special design which gives the following benefit over a standard seal.

- Seal is mounted directly on to the equipment shaft to eliminate potential tolerance stack ups

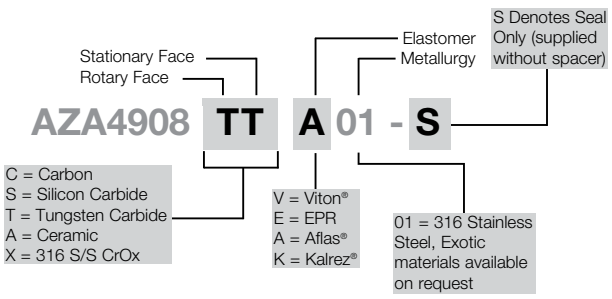
CURC™ Seal Ordering Information

Model	Sleeve size Before removal	Bare Shaft size	GA Drg. No.	Stock Code
3196 XLT / XLT-X	2.500”	2.000”	6464664	AZA4908TTA01*
Stubshaft	-	2.000”	6464614	AZA4907

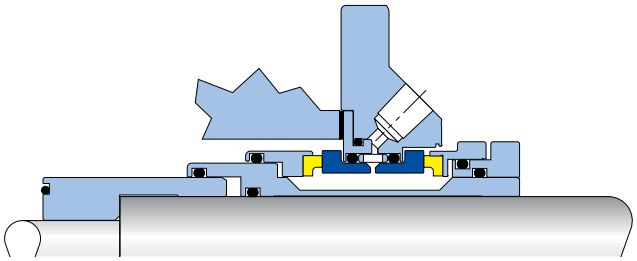
*Note: the codes shown in the table are for a Seal supplied with a stubshaft & elastomer as standard. To order a seal only add a -S suffix to the stock code as shown in the example below. When only the seal is ordered a stubshaft elastomer is supplied as standard.

This design is applicable to sleeved Goulds 3196 XLT / XLT-X pumps only - For solid shaft pump designs see standard CURC™ Literature. 3175 XL details upon request/supplied to order. Seal stock codes show TC v TC seal faces and Aflas® elastomers adjust stock code using the example below to meet your process requirements.

EG. CURC™ TC/TC Aflas



Goulds 3196 XLT & XLT-X Special Double Designs



CDSA™ to suit Goulds 3196 XLT & XLT-X

AESSEAL® have designed a range of Double cartridge mechanical seals specifically to suit Goulds 3196 XLT & XLT-X Pumps.

The cross section shown above is a special design which gives the following benefits over a standard seal.

- Large internal clearances provide maximum barrier fluid volume to optimize seal face operating environment.
- Seal is mounted directly on to the equipment shaft to eliminate potential tolerance stack ups

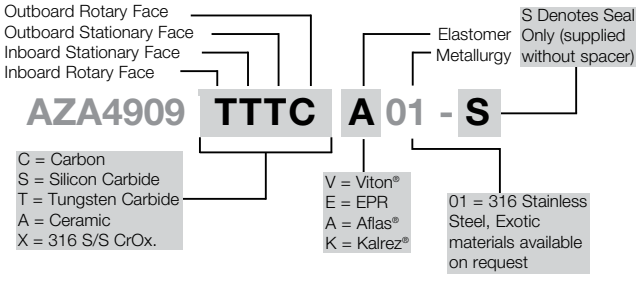
CDSA™ Seal Ordering Information

Model	Sleeve size Before removal	Bare Shaft size	GA Drg. No.	Stock Code
3196 XLT / XLT-X	2.500”	2.000”	6464665	AZA4909TTTCA01*
Stubshaft	-	2.000”	6464614	AZA4907

*Note: the codes shown in the table are for a Seal supplied with a stubshaft & elastomer as standard. To order a seal only add a -S suffix to the stock code as shown in the example below. When only the seal is ordered a stubshaft elastomer is supplied as standard.

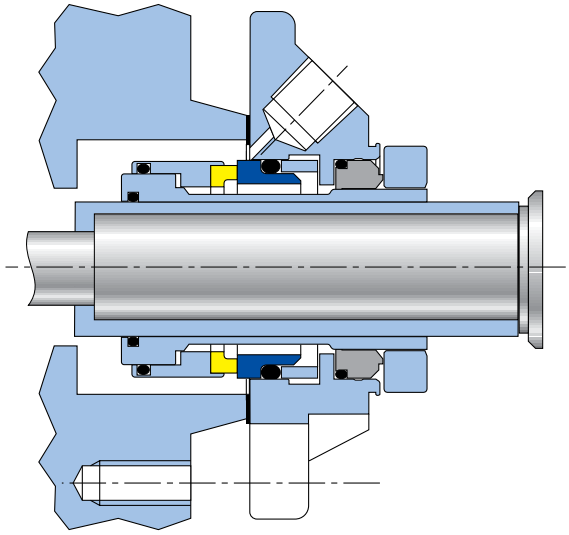
This design is applicable to sleeved Goulds 3196 XLT / XLT-X pumps only - For solid shaft pump designs see standard CDSA™ Literature or use Goulds sleeve part #B03743A with the standard CDSA™. 3175 XL details upon request/supplied to order. Seal stock codes show TC/TC//TC/CARBON seal faces and Aflas® elastomers adjust stock code using the example below to meet your process requirements.

EG. CDSA™ TC/TC//TC/CARBON Aflas



04 - Seals to Suit Centrifugal Pumps

Goulds 3196 Std. Box Bore Standard Single Designs



CURC™ to suit Goulds 3196 Standard Box Bore Pumps.

AESSEAL® have designed a range of Single cartridge mechanical seals specifically to suit Goulds 3196 Standard Box Bore Pumps.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

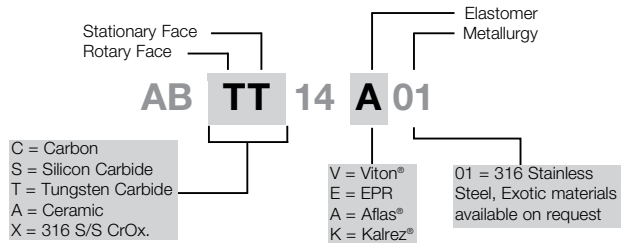
CURC™ Seal Ordering Information

Pump Model	Sleeve Size	GA Drg. No.	Stock Code
3196 - ST / STX	1.375”	-	ABTT11A01
3196 - MTX	1.750”	-	ABTT14A01
3196 - LTC / LTX	2.125”	-	ABTT17A01
3196 - XLT / XLT-X	2.500”	-	ABTT20A01
3196 - X17**	2.750”	-	ABTT22A01

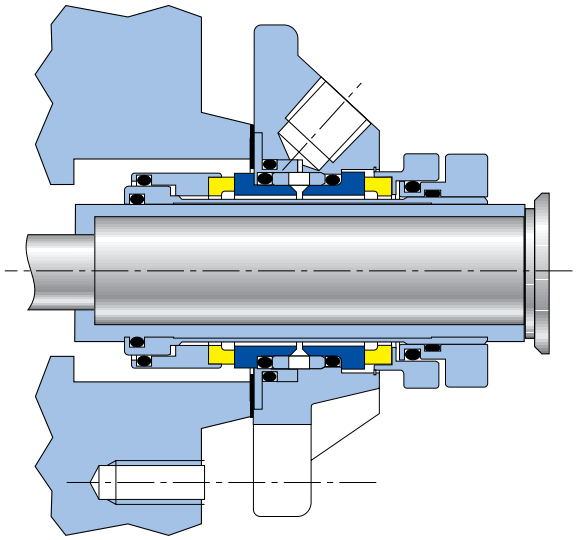
**Newer model pumps will have a 2.500” Sleeve

Note: Seal stock codes show TC/TC//TC/C seal faces and Aflas® elastomers. adjust stock code as necessary using the example below.

EG. 1.750” CURC™ TC/TC Aflas



Goulds 3196 Std. Box Bore Standard Double Designs



CDSA™ to suit Goulds 3196 Standard Box Bore Pumps.

AESSEAL® have designed a range of Double cartridge mechanical seals specifically to suit Goulds 3196 Standard Box Bore Pumps.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

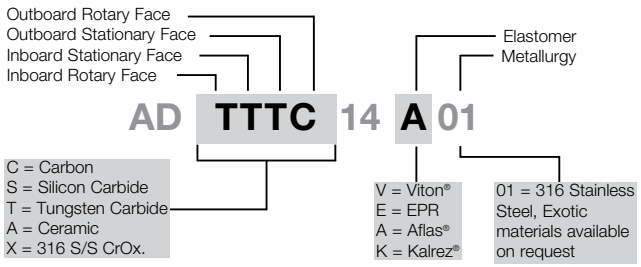
CDSA™ Seal Ordering Information

Pump Model	Sleeve Size	GA Drg. No.	Stock Code
3196 - ST / STX	1.375”	-	ADTTTC11A01
3196 - MTX	1.750”	-	ADTTTC14A01
3196 - LTC / LTX	2.125”	-	ADTTTC17A01
3196 - XLT / XLT-X	2.500”	-	ADTTTC20A01*
3196 - X17**	2.750”	-	ADTTTC22A01

* Requires Goulds Sleeve Part #B03742A
**Newer model pumps will have a 2.500” Sleeve

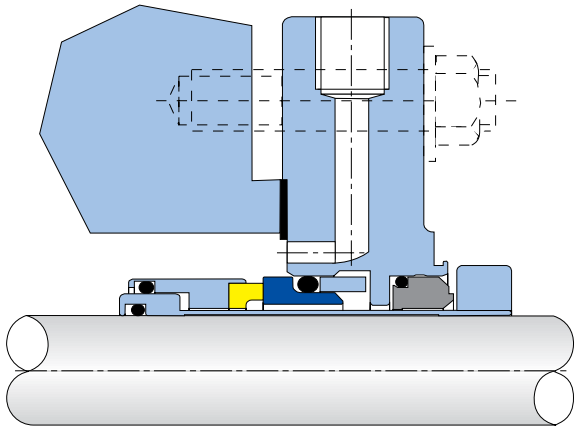
Note: Seal stock codes show TC/TC//TC/C seal faces and Aflas® elastomers. adjust stock code as necessary using the example below.

EG. 1.750” CDSA™ TC/TC//TC/CARBON Aflas



04 - Seals to Suit Centrifugal Pumps

Goulds 3196 Big/Taper Bore Standard Single Designs



CURC™ to suit Goulds 3196 Big / Taper Box Bore Pumps.

AESSEAL® have designed a range of Single cartridge mechanical seals specifically to suit Goulds 3196 Big / Taper Box Bore Pumps.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

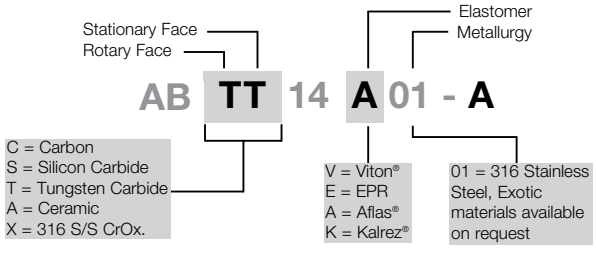
CURC™ Seal Ordering Information

Pump Model	Sleeve Size	GA Drg. No.	Stock Code
3196 - STX	1.375”	-	ABTT11A01-A
3196 - MTX	1.750”	-	ABTT14A01-A
3196 - LTX	2.125”	-	ABTT17A01-A
3196 - XLT-X	2.500”	-	ABTT20A01-A
3196 - X17*	2.750”	-	ABTT22A01-A

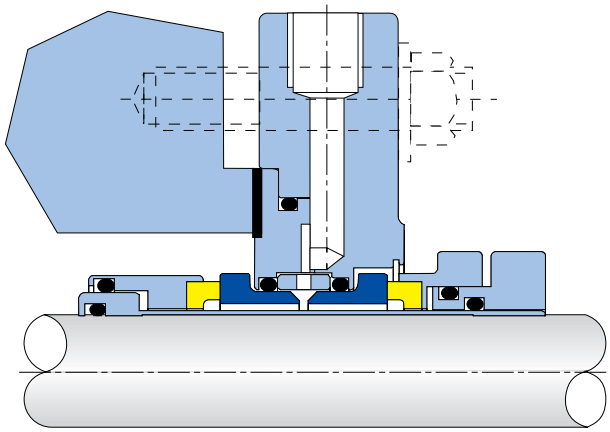
*From 2000 onwards Sleeve size is 2.500”

Note: Seal stock codes show TC/TC//TC/C seal faces and Aflas® elastomers. adjust stock code as necessary using the example below.

EG. 1.750” CURC™ TC/TC Aflas



Goulds 3196 Big/Taper Bore Standard Double Designs



CDSA™ to suit Goulds 3196 Big / Taper Box Bore Pumps.

AESSEAL® have designed a range of Double cartridge mechanical seals specifically to suit Goulds 3196 Big / Taper Box Bore Pumps.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

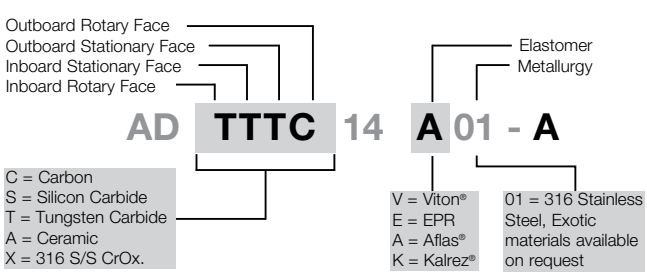
CDSA™ Seal Ordering Information

Pump Model	Sleeve Size	GA Drg. No.	Stock Code
3196 - STX	1.375”	-	ADTTTC11A01-A
3196 - MTX	1.750”	-	ADTTTC14A01-A
3196 - LTX	2.125”	-	ADTTTC17A01-A
3196 - XLT-X	2.500”	-	ADTTTC20A01-A
3196 - X17*	2.750”	-	ADTTTC22A01-A

*From 2000 onwards Sleeve size is 2.500”

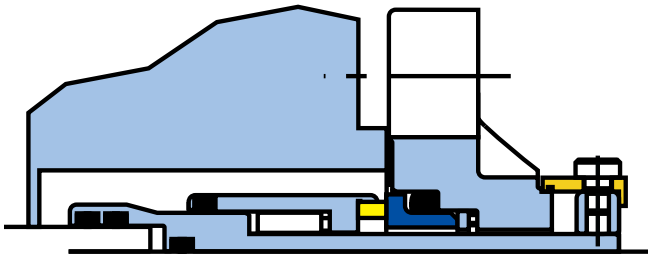
Note: Seal stock codes show TC/TC//TC/C seal faces and Aflas® elastomers. adjust stock code as necessary using the example below.

EG. 1.750” CDSA™ TC/TC//TC/CARBON Aflas



04 - Seals to Suit Centrifugal Pumps

Goulds 3175



CMAX™ type B seal arrangement to suit GOULDS 3175 pump used in a knotter application.

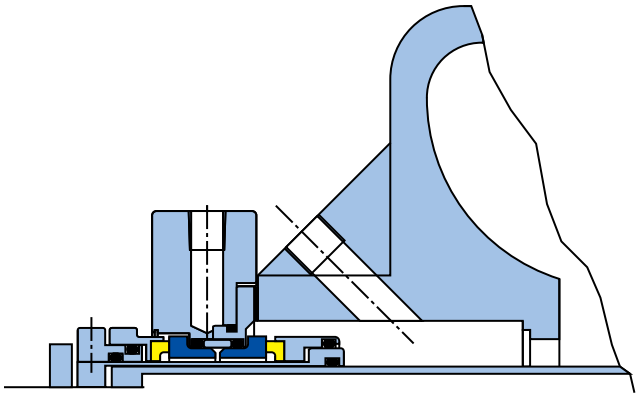
For further information see Case Histories 1834K & 1835K

AESSEAL® have designed a range of cartridge mechanical seals specifically to suit a 3175 Goulds pump.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Protected shaft design
- Accepts axial movement
- Seal is mounted directly on to the equipment shaft to eliminate potential tolerance stack ups.
- Cartridge design for ease of installation.

Goulds 3410L



2.750" CDSA™ Double seal c/w FMG to suit Goulds 3410L pumps.

AESSEAL® Reference: Z4925

AESSEAL® Drawing Number: 6464700

For further information see Case History 927H.

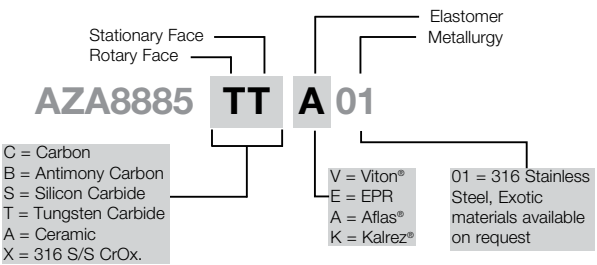
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Goulds 3410L pumps.

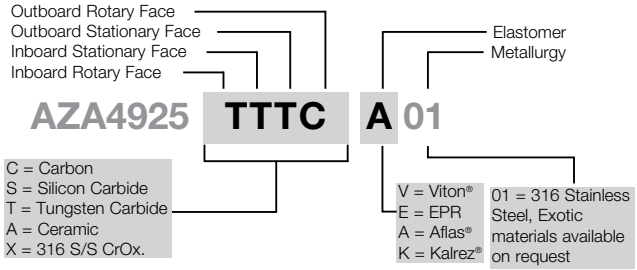
The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Cartridge design for ease of installation.

Z Reference Details

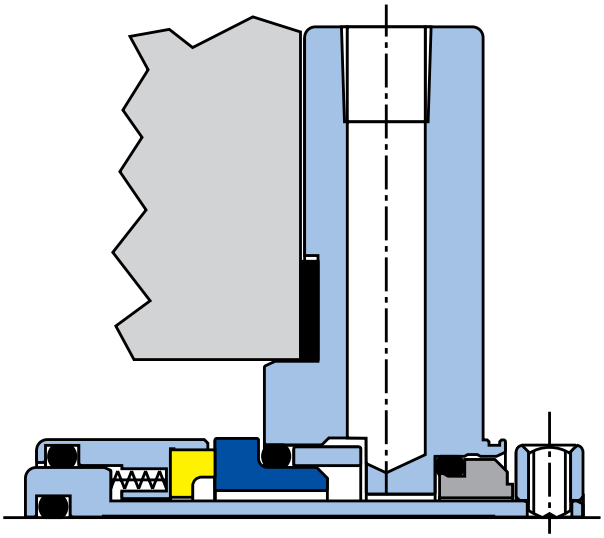
Model	Shaft	Z Ref	Drawing Number
3175-M	3.312"	8885	7119024
3175-L	4.312"	8928	7119542





04 - Seals to Suit Centrifugal Pumps

Mather & Platt Split Case Pump



100mm CURC™ to suit a Mather & Platt Split Case Pump

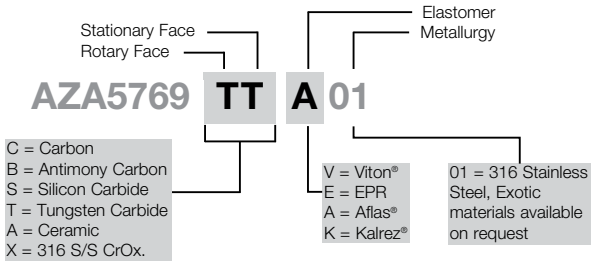
AESSEAL® Reference: Z5769

AESSEAL® Drawing Number: 6469739

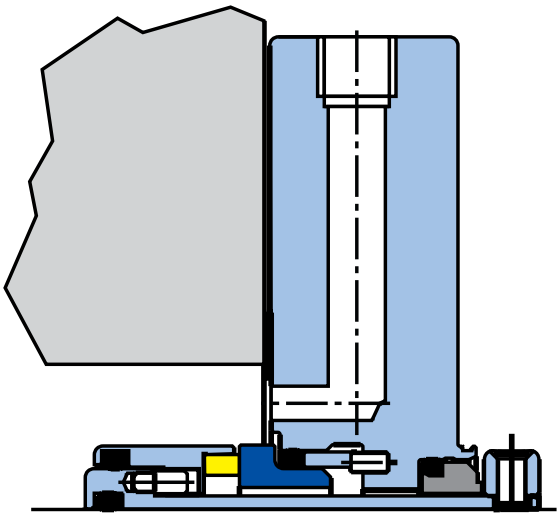
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Mather & Platt Split Case Pumps.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Cartridge design for ease of installation.



Nagle Pump



3.937" CURC™ seal arrangement to suit Nagle pump.

AESSEAL® Reference: Z8045

AESSEAL® Drawing Number: 7112007

For further information see Case History 1385K

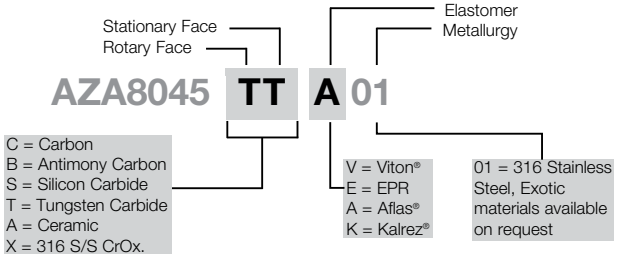
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Nagle pumps.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Cartridge design for ease of installation.

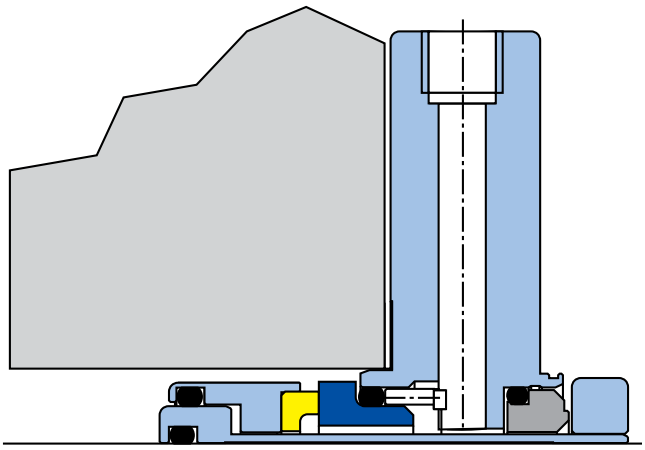
Z Reference Details

Model	Shaft	Z Ref	Drawing Number
-	3.000"	Z7775	7110574
-	3.937"	Z8045	7112007
FVH Fr. 190-F40	4.375"	Z7880	7111088



04 - Seals to Suit Centrifugal Pumps

NAGLE Horizontal End Suction Pump



3.000” CURC™ to suit a NAGLE Horizontal End Suction Pump

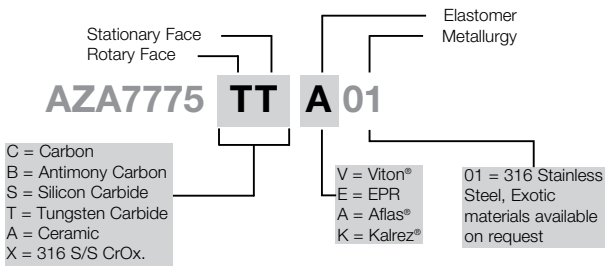
AESSEAL® Reference: Z7775

AESSEAL® Drawing Number: 7110574

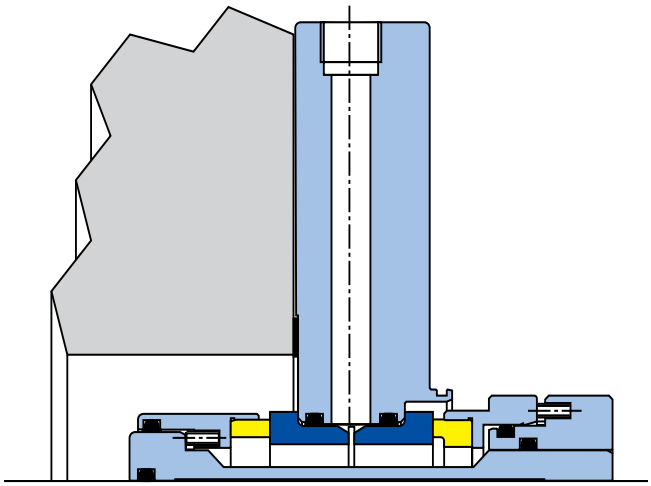
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit NAGLE Horizontal End Suction Pumps.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.



NAGLE NRU Pump



130mm CDSA™ to suit a NAGLE NRU Pump

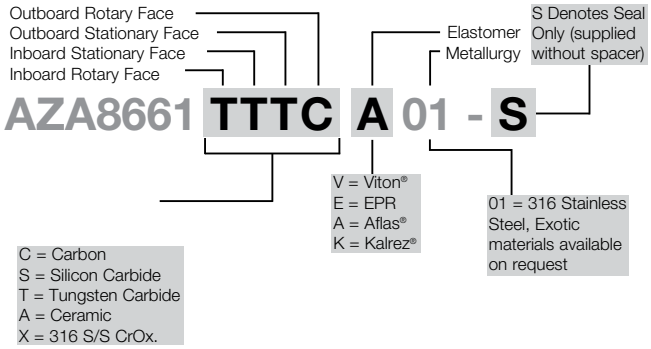
AESSEAL® Reference: Z8661

AESSEAL® Drawing Number: 7116265

AESSEAL® have designed a range of cartridge mechanical seals specifically to suit NAGLE NRU Pumps.

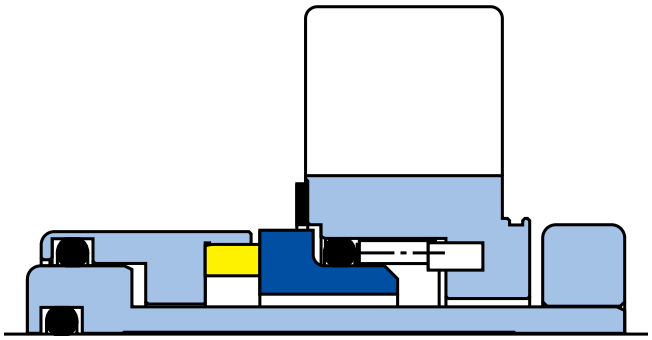
The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.



04 - Seals to Suit Centrifugal Pumps

NAGLE 8” MDL. FVH Fr.190-F40 Vertical Pump



4.375” CURC™ to suit a NAGLE 8” MDL. FVH Fr.190-F40 Vertical Pump

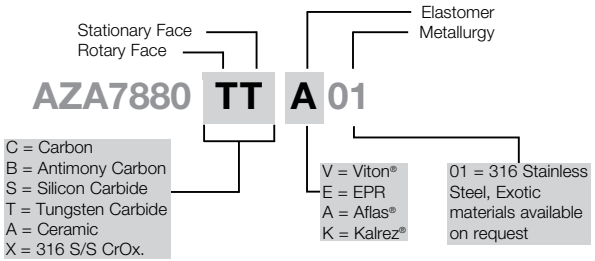
AESSEAL® Reference: Z7880

AESSEAL® Drawing Number: 7111088

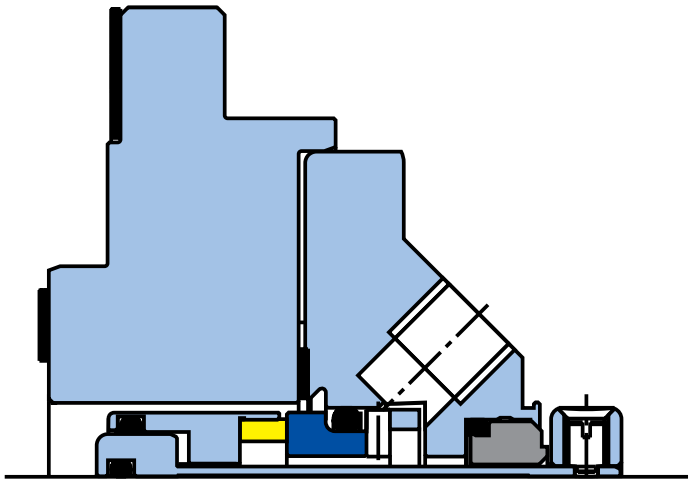
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit NAGLE 8” MDL. FVH Fr.190-F40 Vertical Pumps.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.



T,E,D Egger Pump



48mm CURC™ seal to suit a T,E,D Egger Pump

AESSEAL® Reference: Z9307

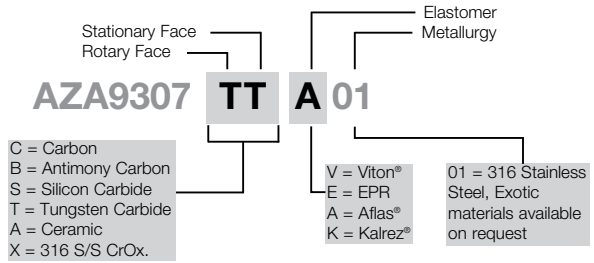
AESSEAL® Drawing Number: 7124500

For further information see Case History 1569K

AESSEAL® have designed a range of cartridge mechanical seals specifically to suit a T,E,D Egger Pump.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.



05 - Seals to Suit Progressing Cavity Pumps

PCP seals are used extensively in the Coatings Kitchens area of Paper mills where AESSEAL® have extensive sealing experience.

AESSEAL plc have designed 'flared' and 'big bore' seal housings in full co-operation with leading PC pump manufacturers, and as acknowledged by recognized institutions. These designs maximize radial and axial clearances, encourage solids transfer away from the seal faces, reduce heat build up and EXTEND SEAL LIFE.

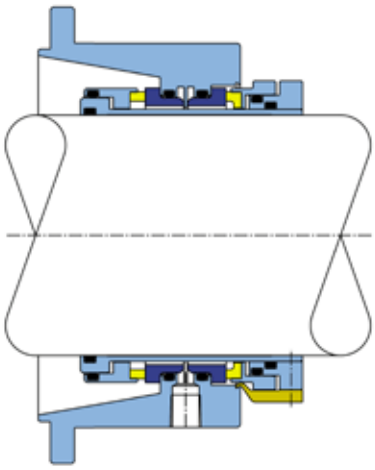
The examples shown on these pages are a small example of the range of PCP seals available from AESSEAL®.

AESSEAL® has a huge range of sealing solutions for ALL major PCP pump manufacturers. This is contained in a dedicated guide to Sealing PCP Pump applications.

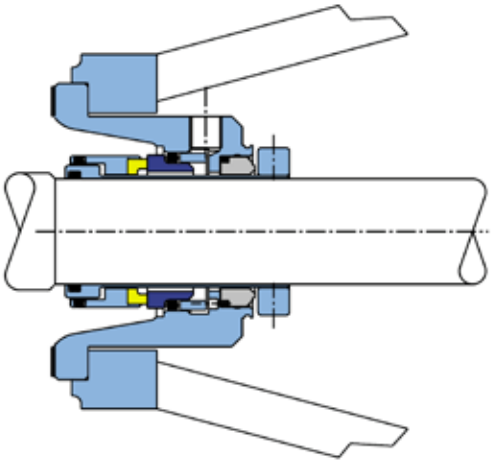
Most designs are offered with the following features:

- Cartridge design for ease of installation.
- Often produced from dedicated castings to reduce cost.
- Maximum volume around seal faces to extend seal life.

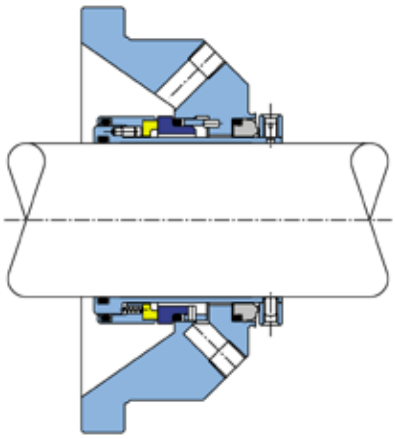
Seepex



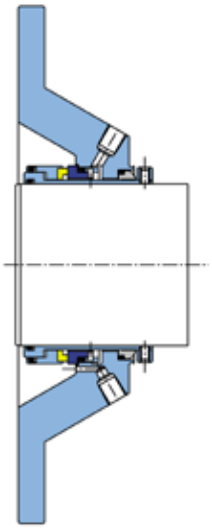
Mono B Range



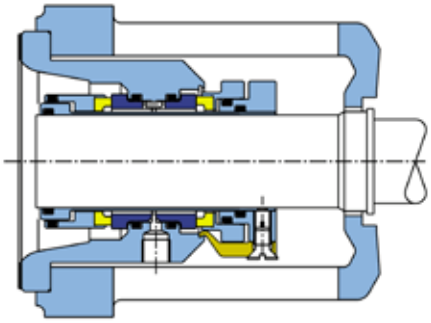
Mono M Range



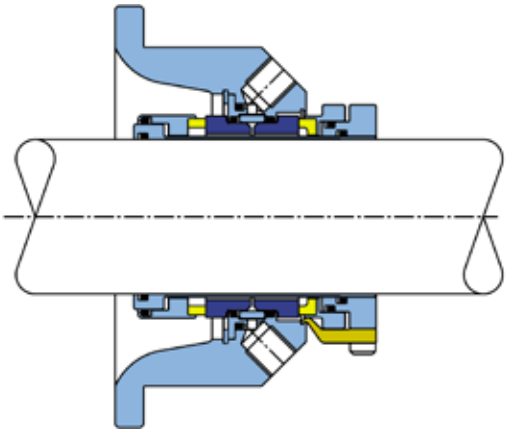
Mono C Range



Mono Merlin Range

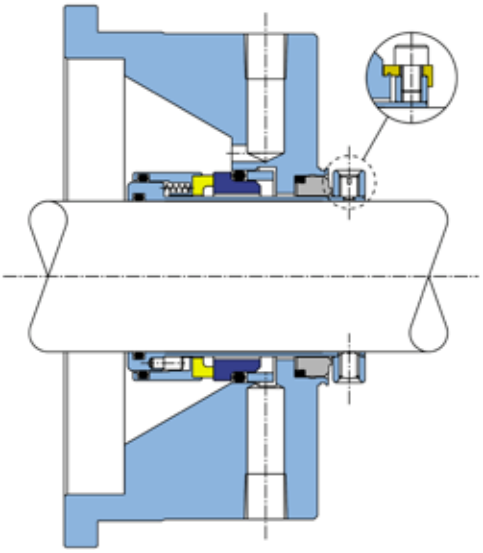


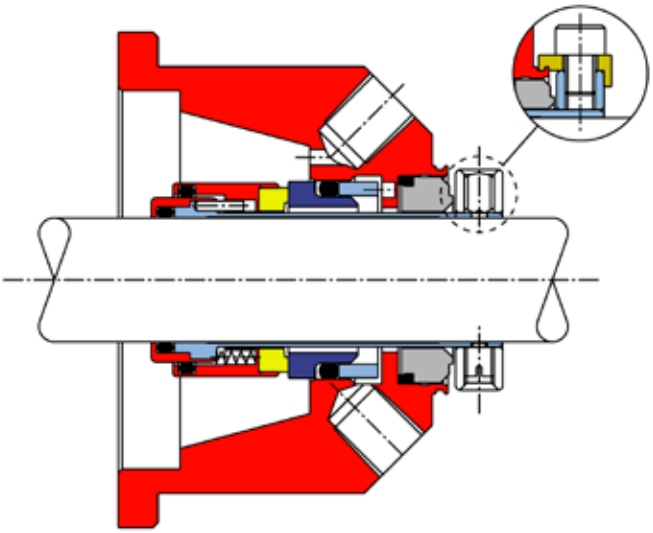
Mono E Range

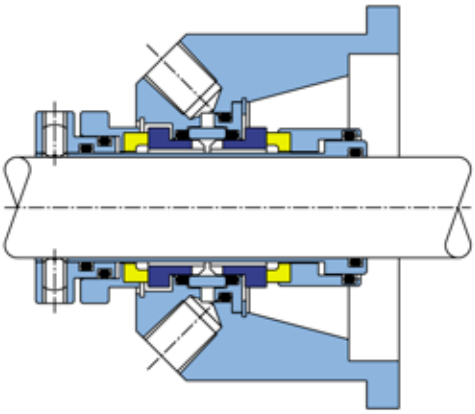


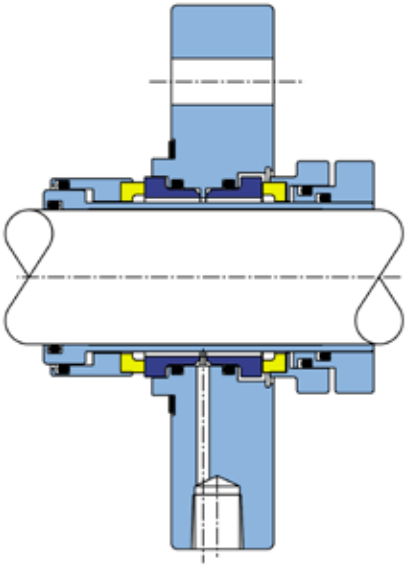
05 - Seals to Suit Progressing Cavity Pumps

Robbins & Myers / Moyno

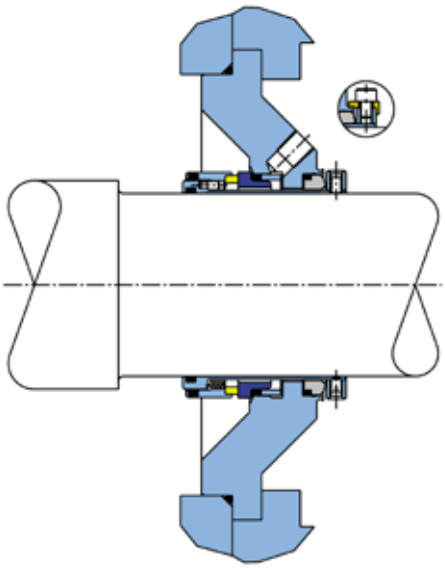


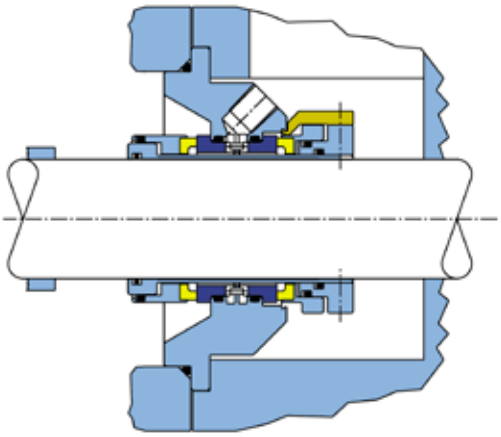






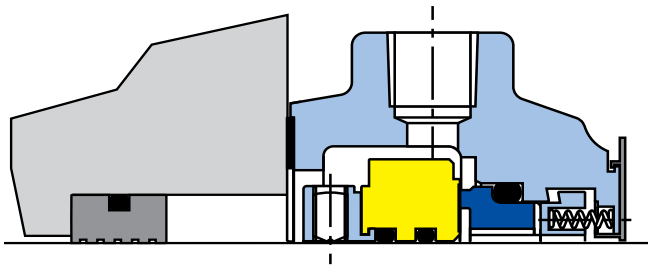
Netzsch





06 - Seal to suit Pulpers / Pulping area Equipment

Andritz Top Winder Feeder Model 486-12



5.500 RDS™ to suit Andritz Top Winder Feeder

AESSEAL® Reference: Z4492

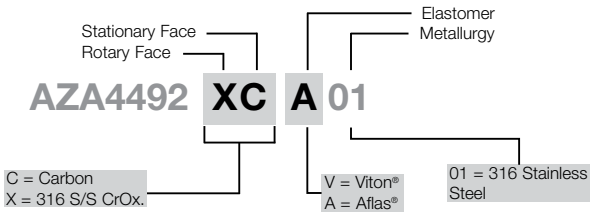
AESSEAL® Drawing Number: 6462277

For further information see Case Histories 894H

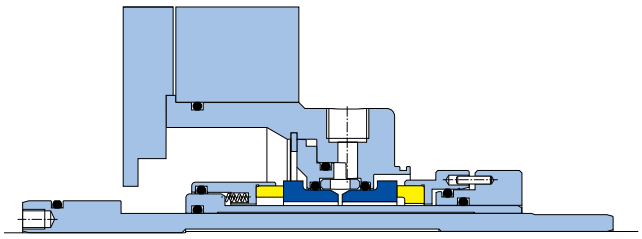
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Andritz Top Winder Feeder, including the Radially Divided Seal shown above.

The cross section shown above shows a Standard RDS™ Split seal fitted to the equipment with a special restriction bush fitted to the end of the stuffing box to improve the environment at the seal faces.

- Modular Design using standard components.
- Cartridge design for ease of installation.



BALE Pulper



5.500" CDSA™ to suit a BALE Pulper

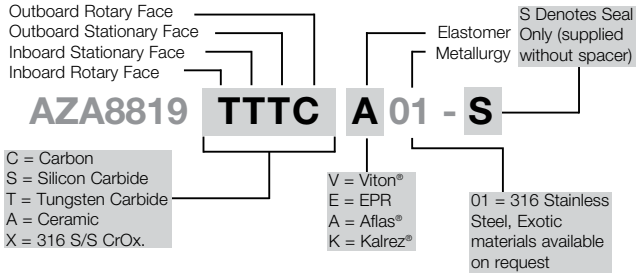
AESSEAL® Reference: Z8819

AESSEAL® Drawing Number: 7118371

AESSEAL® have designed a range of cartridge mechanical seals specifically to suit BALE Pulpers.

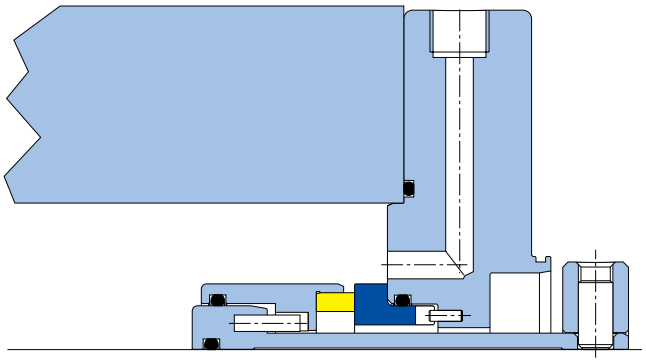
The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Cartridge design for ease of installation.



06 - Seal to suit Pulpers / Pulping area Equipment

50 RCM Pulper



200mm CSM™ to suit a 50 RCM Pulper

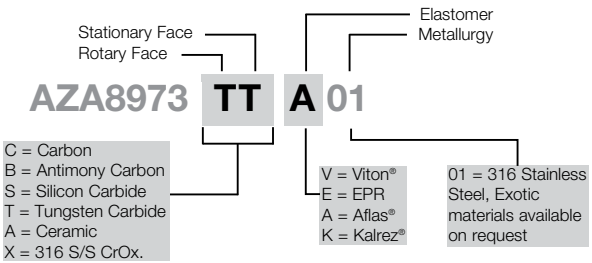
AESSEAL® Reference: Z8973

AESSEAL® Drawing Number: 7120270

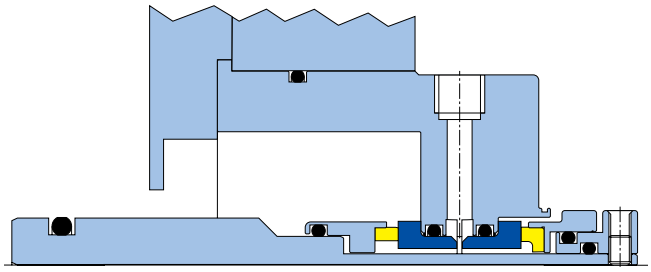
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit 50 RCM Pulpers.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Cartridge design for ease of installation.



VALMET Tampella Pulper



4.878" CDSA™ to suit a VALMET Tampella Pulper

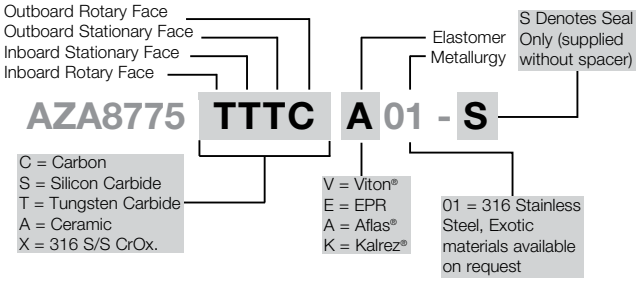
AESSEAL® Reference: Z8775

AESSEAL® Drawing Number: 7117779

AESSEAL® have designed a range of cartridge mechanical seals specifically to suit VALMET Tampella Pulpers.

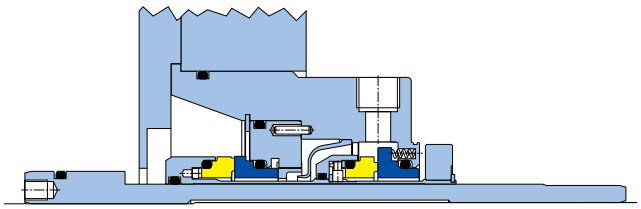
The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Sleeve designed to suit the Equipment.



06 - Seal to suit Pulpers / Pulping area Equipment

VALMET HD4250 Pulper



5.500” CDMSC™ to suit a VALMET HD4250 Pulper

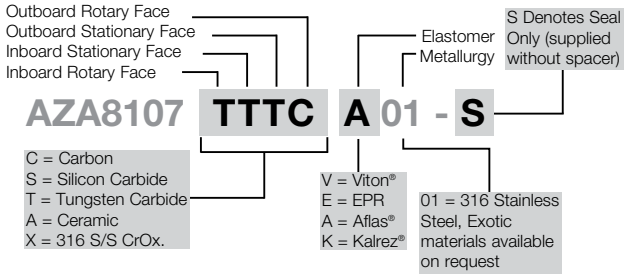
AESSEAL® Reference: Z8107

AESSEAL® Drawing Number: 7112436

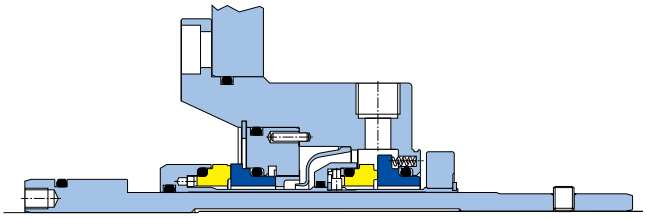
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit VALMET HD4250 Pulpers.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.



VALMET SD-HD33 Pulper



5.500” CDMSC™ to suit a VALMET SD-HD33 Pulper

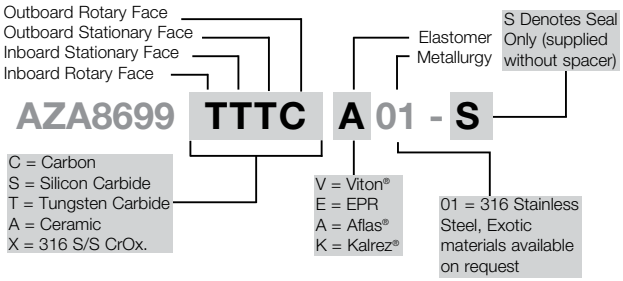
AESSEAL® Reference: Z8699

AESSEAL® Drawing Number: 7116529

AESSEAL® have designed a range of cartridge mechanical seals specifically to suit VALMET SD-HD33 Pulpers.

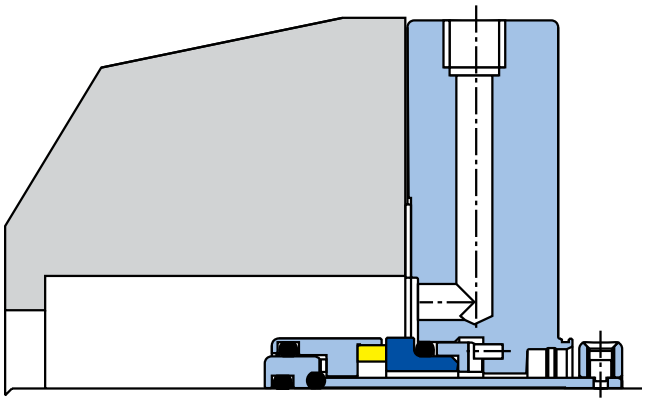
The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.



07 - Seals to Suit Agitators

Beloit Agitator



100mm CSM™ to suit a Beloit Agitator

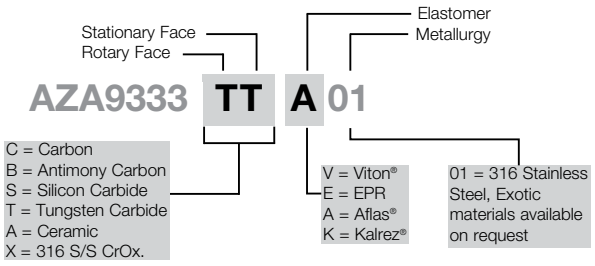
AESSEAL® Reference: Z9333

AESSEAL® Drawing Number: 7124893

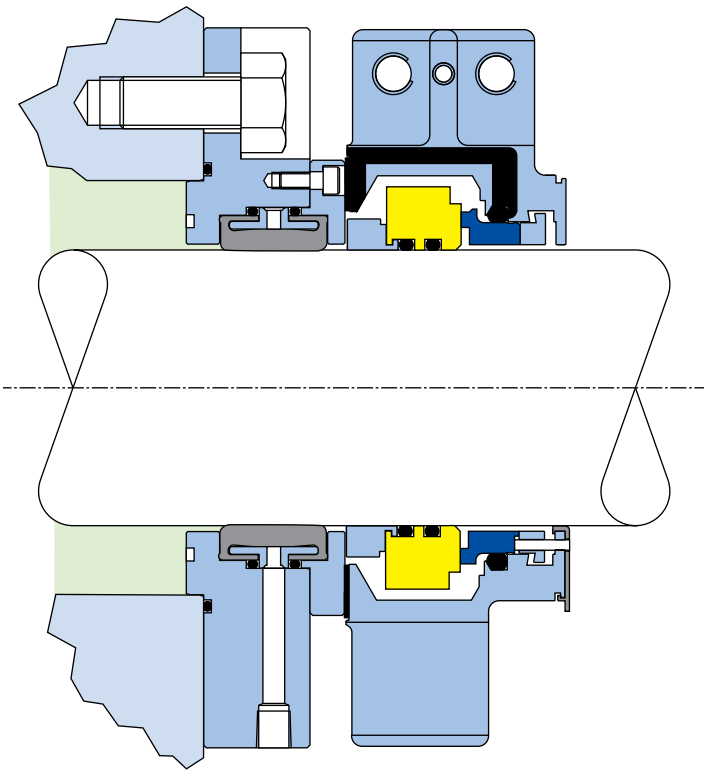
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Beloit Agitators.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.



Lightnin Agitator



2.500” RDS™ complete with ISOS™ Adapter plate to suit a Lightnin Agitator

AESSEAL® RDS™ Reference: 1X20A01

AESSEAL® ISOS™ Reference: Z7954

AESSEAL® Drawing Number: 7111519

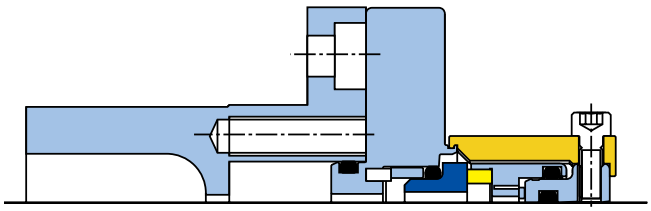
AESSEAL® have designed an innovative sealing solution to suit Lightnin Agitators.

The arrangement shown above shows an adapter plate complete with an integral inflatable shut off seal.

- Modular Design using standard components.
- Seal replacement possible without emptying Agitator Vessel.

07 - Seals to Suit Agitators

VOITH Buttenruhrwek Type 850M



80mm IASC™ to suit a VOITH Buttenruhrwek Type 850M

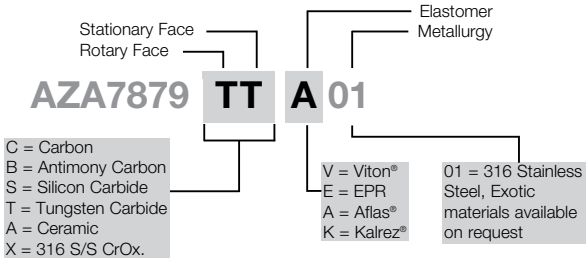
AESSEAL® Reference: Z:7879

AESSEAL® Drawing Number: 7111086

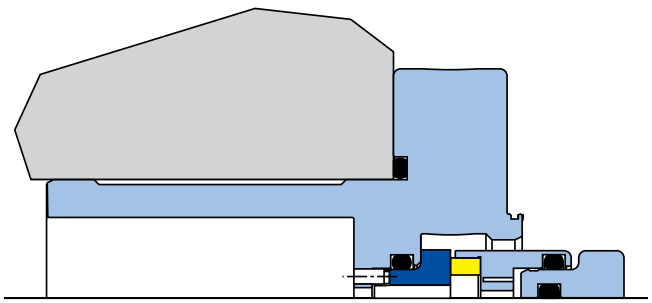
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit VOITH Buttenruhrwek Type 850M

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.



VOITH M850 Agitator



80mm IASC™ to suit a VOITH M850 Agitator

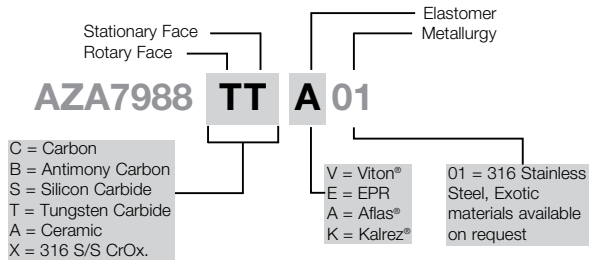
AESSEAL® Reference: Z7988

AESSEAL® Drawing Number: 7111698

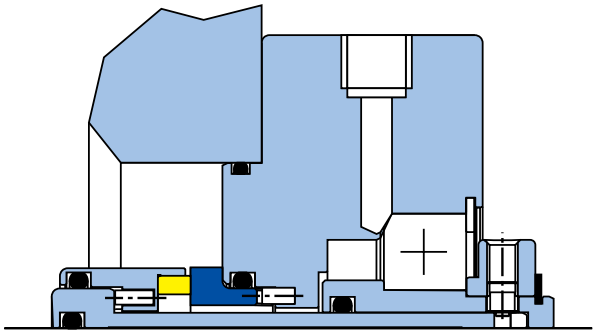
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit VOITH M850 Agitators.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.



VOITH 1000M Horizontal Agitator



105mm CSWIB™ Type C to suit a VOITH 1000M Horizontal Agitator

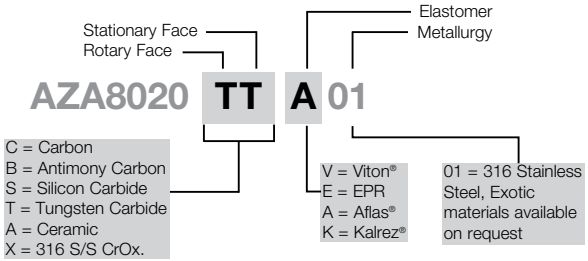
AESSEAL® Reference: Z8020

AESSEAL® Drawing Number: 7111875

AESSEAL® have designed a range of cartridge mechanical seals specifically to suit VOITH 1000M Horizontal Agitator.

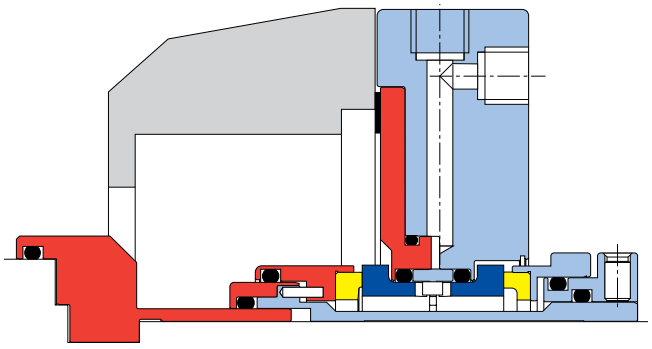
The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Cartridge design for ease of installation.



08 - Seals to Suit Mixers

Ahlstrom Ahlmix



70mm CDM™ exotic seal to suit a 40P2-14-GR Ahlstrom Ahlmix.

AESSEAL® Reference: Z9237

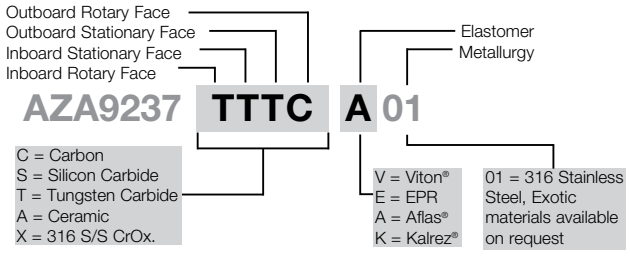
AESSEAL® Drawing Number: 7123524

For further information see Case History 1733K

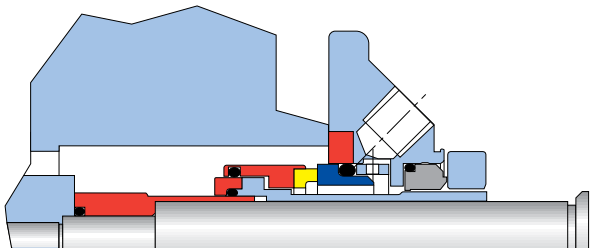
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Ahlstrom Ahlmix.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Exotic Alloy wetted components.
- Protected bare shaft design.



Ahlstrom Ahlmix 1991 & earlier Exotic Single Seals



Exotic Alloy CURC™ to suit Ahlstrom Ahlmix.

AESSEAL® have designed a range of Single cartridge mechanical seals specifically to suit Ahlstrom Ahlmix with exotic alloy wetted parts.

The design shown replaces the OEM exotic sleeve with a special exotic stubshaft. The mechanical seal is then clamped directly to the bare shaft but with the sleeve 'O' Ring sealing on the stubshaft. This gives the following benefits over a standard seal.

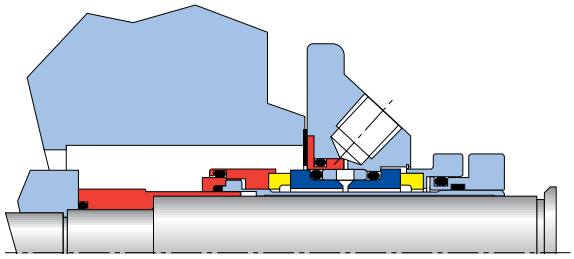
- Large stuffing box clearances provide greater heat dissipation to optimize seal operating environment.
- Seal is mounted directly on to the equipment shaft to eliminate potential tolerance stack ups.

Exotic Alloy CURC™ Seal Information

Ahlmix Model	Bare Shaft	GA Drg. No.	Stock Code
AM-10 / AM-15	50mm	-	Contact AESSEAL*
AM-20	70mm	-	Contact AESSEAL*

08 - Seals to Suit Mixers

Ahlstrom Ahlmix 1991 & earlier Exotic Double Seals



Exotic Alloy CDSA™ to suit Ahlstrom Ahlmix

AESSEAL® have designed a range of Double cartridge mechanical seals specifically to suit Ahlstrom Ahlmix with exotic alloy wetted parts.

The design shown replaces the OEM exotic sleeve with a special exotic stubshaft. The mechanical seal is then clamped directly to the bare shaft but with the sleeve 'O' Ring sealing on the stubshaft. This gives the following benefits over a standard seal.

- Large stuffing box clearances provide greater heat dissipation to optimize seal operating environment.
- Seal is mounted directly on to the equipment shaft to eliminate potential tolerance stack ups.

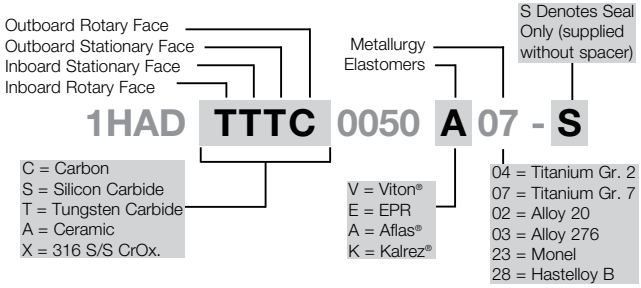
Exotic Alloy CDSA™ Seal Ordering Information

Ahlmix Model	Bare Shaft	GA Drg. No.	Stock Code
AM-10 / AM-15	50mm	6464742	1HADTTTC0050A07*
AM-20	70mm	6464742	1HADTTTC0070A07*

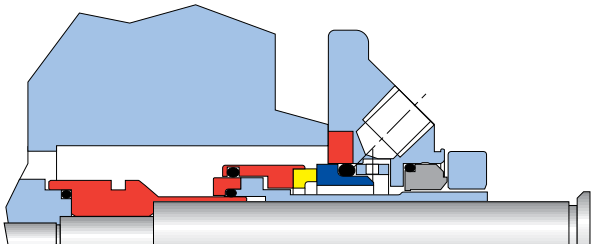
*Note: the codes shown in the table are for a Seal supplied with a stubshaft & elastomer as standard. To order a seal only add a -S suffix to the stock code as shown in the example below. When only the seal is ordered a stubshaft elastomer is supplied as standard.

Note: Seal stock codes show TC/TC//TC/C seal faces Aflas® elastomers and Ti7 wetted parts, adjust stock code as necessary using the example below.

EG. 50mm CDSA™ TC/TC//TC/CARBON Aflas® Ti7



Ahlstrom Ahlmix 1992 & later Exotic Single Seals



Exotic Alloy CURC™ to suit Ahlstrom Ahlstrom Ahlmix.

AESSEAL® have designed a range of Single cartridge mechanical seals specifically to suit Ahlstrom Ahlmix with exotic alloy wetted parts.

The design shown replaces the OEM exotic sleeve with a special exotic stubshaft. The mechanical seal is then clamped directly to the bare shaft but with the sleeve 'O' Ring sealing on the stubshaft. This gives the following benefits over a standard seal.

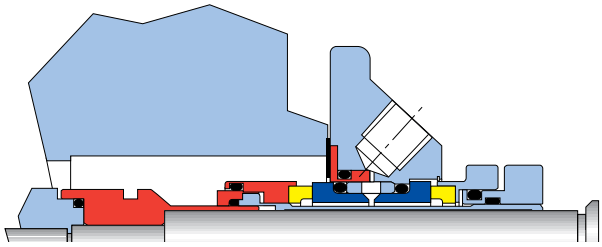
- Large stuffing box clearances provide greater heat dissipation to optimize seal operating environment.
- Seal is mounted directly on to the equipment shaft to eliminate potential tolerance stack ups.

Exotic Alloy CURC™ Seal Information

Ahlmix Model	Bare Shaft	GA Drg. No.	Stock Code
AM-10 / AM-15	50mm	-	Contact AESSEAL*
AM-20.15	60mm	-	Contact AESSEAL*
AM-20 / AM-25.20	70mm	-	Contact AESSEAL*
AM-30	90mm	-	Contact AESSEAL*

08 - Seals to Suit Mixers

Ahlstrom Ahlmix 1992 & later Exotic Double Seals



Exotic Alloy CDSA™ to suit Ahlstrom Ahlmix.

AESSEAL® have designed a range of Double cartridge mechanical seals specifically to suit Ahlstrom Ahlmix with exotic alloy wetted parts.

The design shown replaces the OEM exotic sleeve with a special exotic stubshaft. The mechanical seal is then clamped directly to the bare shaft but with the sleeve 'O' Ring sealing on the stubshaft. This gives the following benefits over a standard seal.

- Large stuffing box clearances provide greater heat dissipation to optimize seal operating environment.
- Seal is mounted directly on to the equipment shaft to eliminate potential tolerance stack ups.

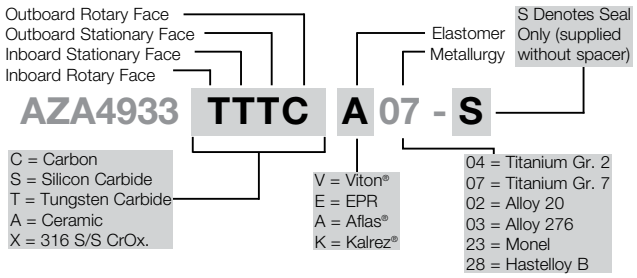
Exotic Alloy CDSA™ Seal Ordering Information

Ahlmix Model	Bare Shaft	GA Drg. No.	Stock Code
AM-10 / AM-15	50mm	6464743	AZA4932TTTCA07*
AM-20.15	60mm	6464743	AZA4933TTTCA07*
AM-20 / AM-25.20	70mm	6464743	AZA4934TTTCA07*
AM-30	90mm	6464743	AZA4935TTTCA07*

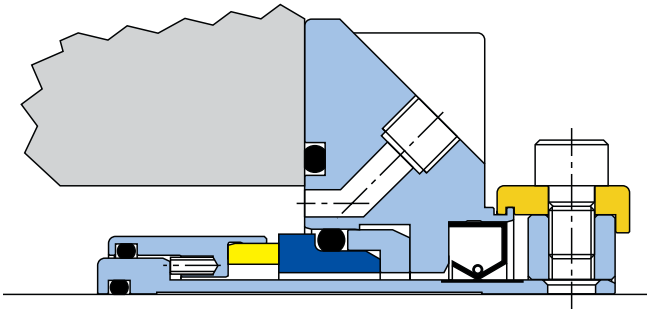
*Note: the codes shown in the table are for a Seal supplied with a stubshaft & elastomer as standard. To order a seal only add a -S suffix to the stock code as shown in the example below. When only the seal is ordered a stubshaft elastomer is supplied as standard.

Note: Seal stock codes show TC/TC//TC/C seal faces Aflas® elastomers and Ti7 wetted parts, adjust stock code as necessary using the example below.

EG. 60mm CDSA™ TC/TC//TC/CARBON Aflas® Ti7



Chemineer Mixer



6.000" CSMO™ seal arrangement suits 5HSNX Chemineer mixer.

AESSEAL® Reference: Z9204

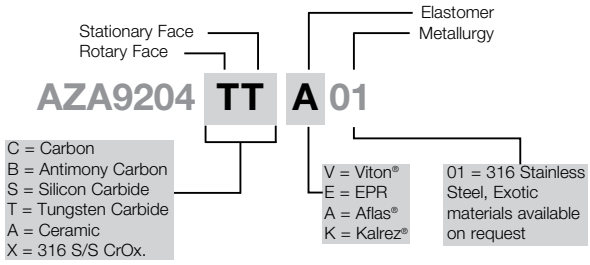
AESSEAL® Drawing Number: 7123122

For further information see Case History 1413K

AESSEAL® have designed a range of cartridge mechanical seals specifically to suit 5HSNX Chemineer mixers.

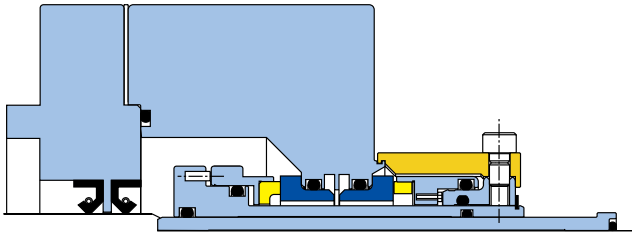
The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.



08 - Seals to Suit Mixers

Ahlstrom Salomix SLV-80



63mm IADC™ seal arrangement to suit a SLV-80 11T Ahlstrom Salomix Mixer.

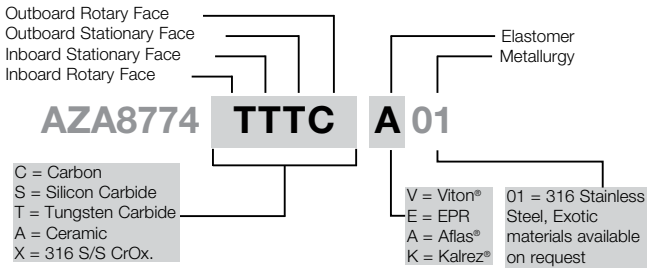
AESSEAL® Reference: Z8774

AESSEAL® Drawing Number: 7117719

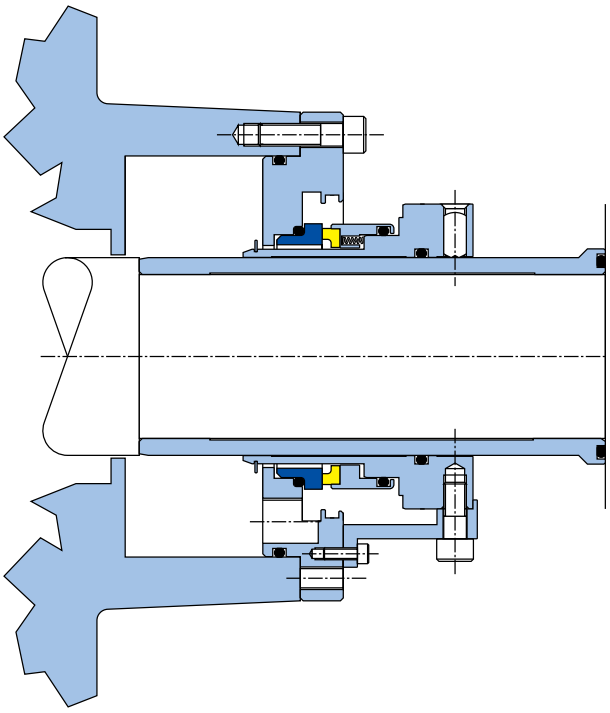
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit SLV-80 11T Ahlstrom Salomix Mixers.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.



Ahlstrom Salomix SL Range Standard Single Seals



Single Cartridge mechanical seal to suit the Ahlstrom Salomix SL Range of Mixers.

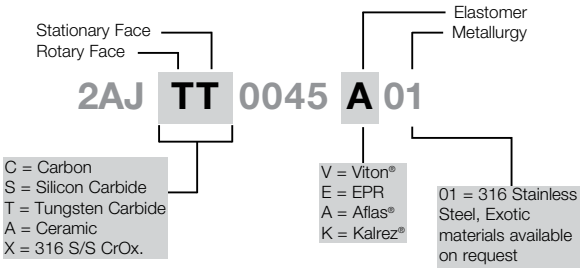
AESSEAL® have designed a range of Single cartridge mechanical seals specifically to suit the Ahlstrom Salomix SL Range of Mixers.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular gland to single & double Seal.

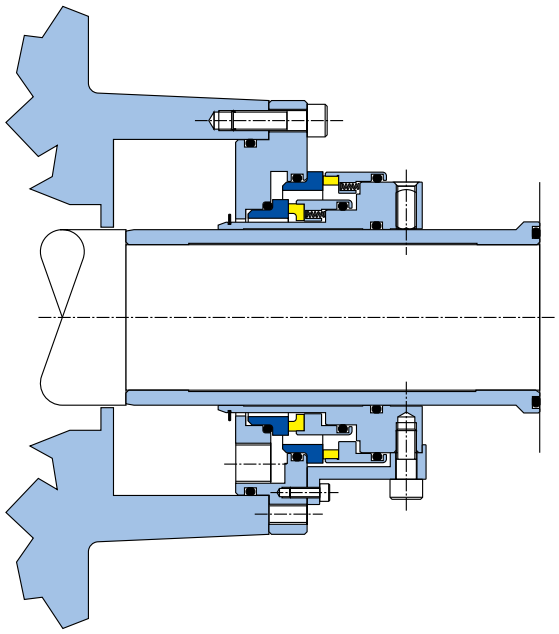
Ahlstrom Salomix single seal information

Salomix Model	Bare Shaft	GA Drg. No.	Stock Code
SL-80	45mm	-	2AJTT0045A01
SL-100	58mm	-	2AJTT0070A01
SL-125	77mm	-	2AJTT0100A01
SL-160	77mm	-	2AJTT0100A01



08 - Seals to Suit Mixers

Ahlstrom Salomix SL Range Standard Double Seals



Single Double mechanical seal to suit the Ahlstrom Salomix SL Range of Mixers.

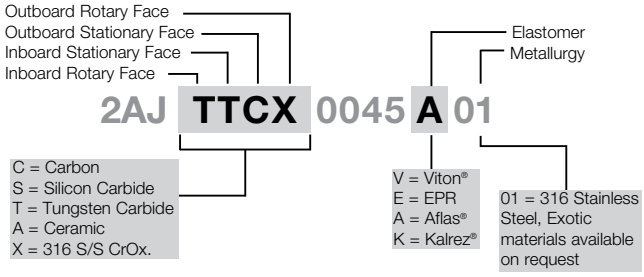
AESSEAL® have designed a range of Double cartridge mechanical seals specifically to suit the Ahlstrom Salomix SL Range of Mixers.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular gland to single & double Seal.

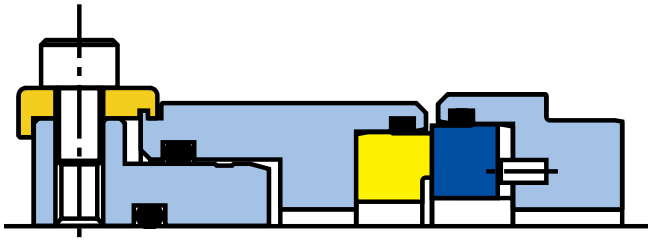
Ahlstrom Salomix Double seal information

Salomix Model	Bare Shaft	GA Drg. No.	Stock Code
SL-80	45mm	6467180	2AJTTCX0045A01
SL-100	58mm	6466884	2AJTTCX0070A01
SL-125	77mm	6467316	2AJTTCX0100A01
SL-160	77mm	6467316	2AJTTCX0100A01



09 - Seals to Suit Filters

Kvaerner Pressure Disk Filter



339mm SAI™ and Special stationary to suit a Kvaerner pressure disk filter

AESSEAL® SAI™ Reference: Z3472

AESSEAL® Stationary Reference: Z3484

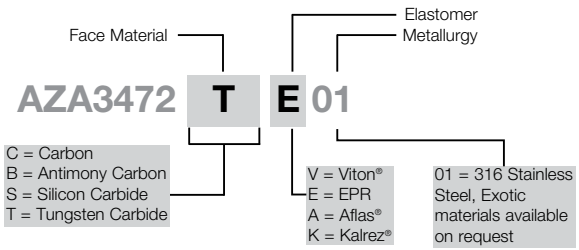
AESSEAL® Drawing Number: 6457887

For further information see Case History 487G

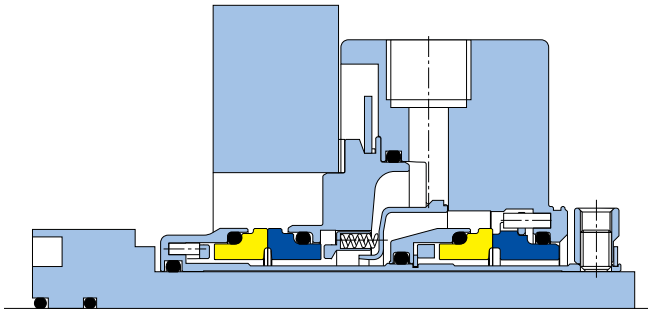
AESSEAL® have designed a range of single component mechanical seals specifically to suit Kvaerner pressure disk filters.

The cross section shown above has been chosen to illustrate a typical example of the seal design available for this type of equipment.

- 400% increase in seal life
- Designed for ease of installation
- Massive cost savings



Kamyer – Kvaerner Pulping Centrifilter CF200



2.750” DMSC™ to suit a Kamyer – Kvaerner Pulping Centrifilter CF200

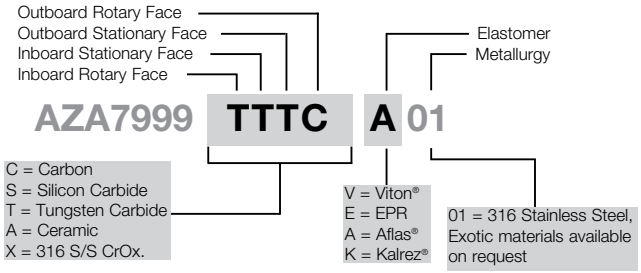
AESSEAL® Reference: Z7999

AESSEAL® Drawing Number: 7111768

AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Kamyer – Kvaerner Pulping Centrifilter CF200.

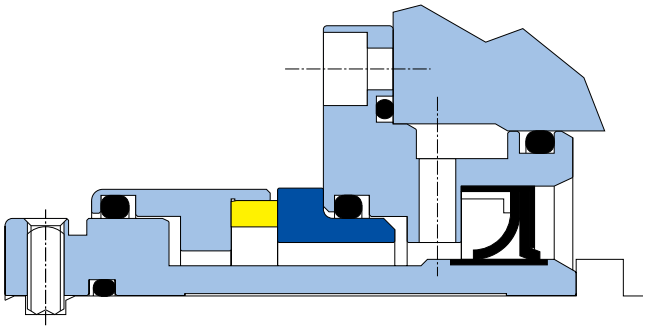
The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.



10 - Seals to Suit the Paper Machine

Valmet Pressurized Headbox Seal



55mm CRCO-H™ seal arrangement suits a Valmet Pressurized Headbox.

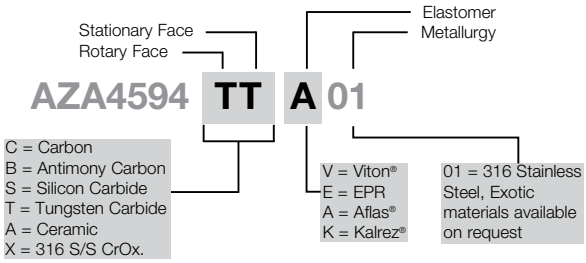
AESSEAL® Reference: Z4594

AESSEAL® Drawing Number: 6462822

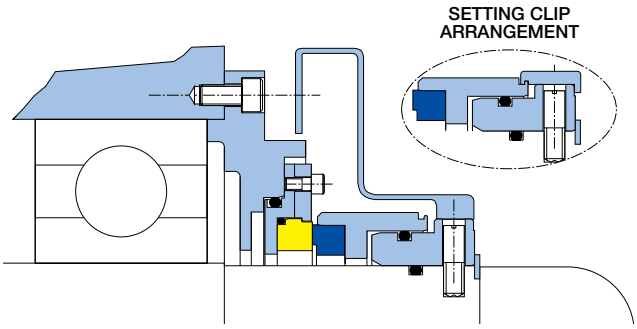
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Valmet Pressurized Headboxes, an example of which is shown above.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.



Deflection Rolls



Offered to suit large diameter shafts, typically around 260mm (10.25”), the seal design provides the benefits of a hydraulically balanced, multi-spring design with Antimony carbon against solid Tungsten Carbide seal faces.

AESSEAL® Deflection Roll Seal Design Features

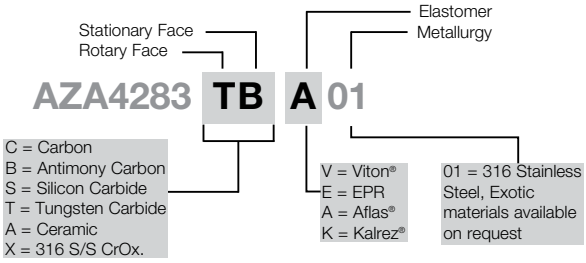
- All metallic components are manufactured from 316 stainless steel.
- Resiliently mounted rotary face.
- Clipped stationary design facilitates seal installation.
- Antimony impregnated Carbon against Solid Tungsten Carbide.
- External incidental leakage “catcher” plate - Optional.

Typical manufacturers of deflection rolls include ;

KUSTERS

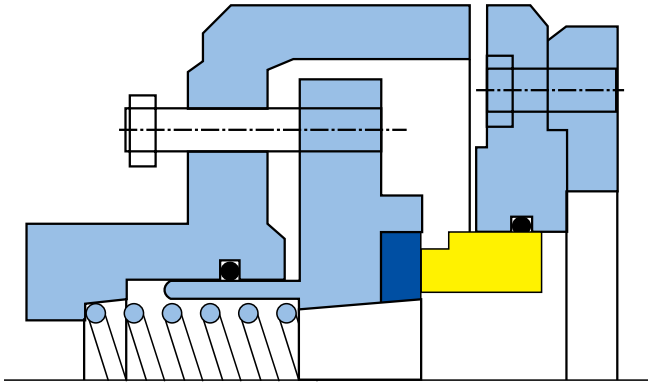
VALMET	Sym Rolls, Sym Z Rolls, and ZS-TELA,
BELOIT	CC Rolls
ESCHER WEISS	Nepco Rolls

For further information on Kusters installation details see case history 733.



10 - Seals to Suit the Paper Machine

Steam Nozzles



SNOZ™ Steam Nozzle Seal to suit Paper Machine drying Cylinders.

AESSEAL® Drawing Number: 7110168

AESSEAL® Stock Code: 3SJ01/01

See case history 732 for further details.

Steam Nozzles are used on the drying cylinders in the paper machine.

Steam is injected in through the stationary member of the steam nozzle seal, and the rotary joint prevents steam leakage to the atmosphere.

The AESSEAL® steam nozzle seal unit supplied is termed SNOZ™ and inventoried in the stationary cast gland and Stationary face only.

The Carbon rotary face is generally sourced on site, due to site usage, however AESSEAL® can supply such seal faces if required.

Equipment Characteristics

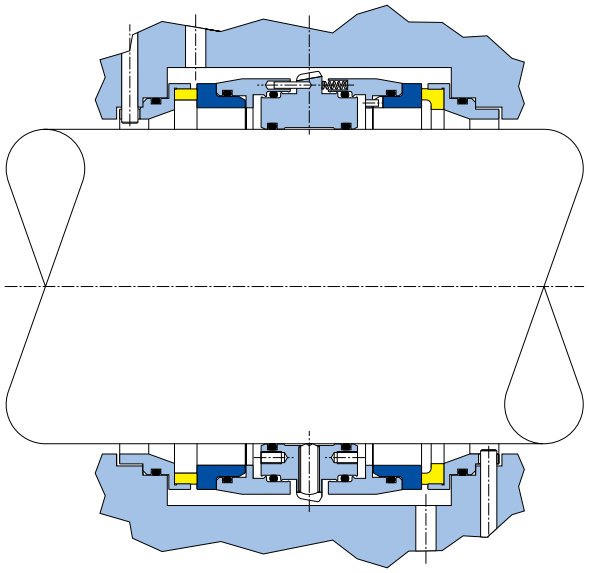
Typically this equipment has large shaft run-out and eccentricity, with angular misalignment.

Equipment Manufacturers

In particular, Mondi / Sappi mills generally use these, and they can be found on most Beloit or Beloit Warmsey equipment.

11 - Seals to Suit Other Equipment

Lamort Gyroclean Light Rejects Rotary Cleaner



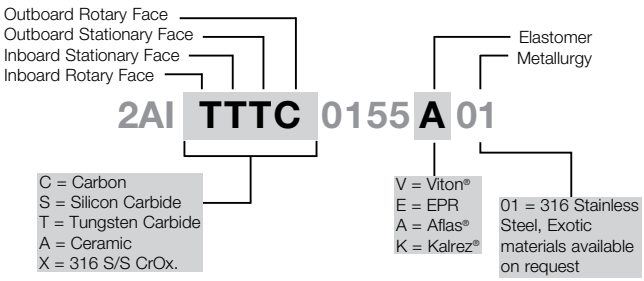
155mm GCS™ Seal to suit Lamort Gyroclean light rejects rotary cleaner

AESSEAL® Drawing Number: 6466678

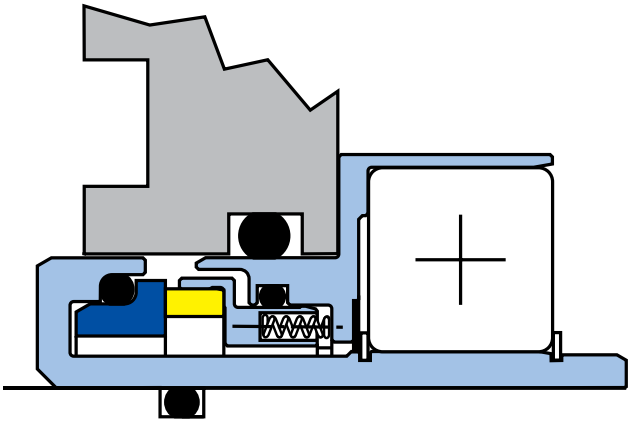
AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Lamort Gyroclean light rejects rotary cleaners.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Inventoried in double and single seal designs.
- Integral pumping scroll



Robbins & Myers RM6000 Macerator Seal



42mm RM6000 Seal

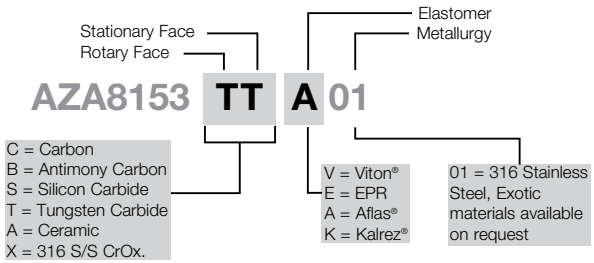
AESSEAL® Reference: Z8153

AESSEAL® Drawing Number: 7112729

AESSEAL® have designed a range of cartridge mechanical seals specifically to suit Robbins & Myers RM2000 Macerators.

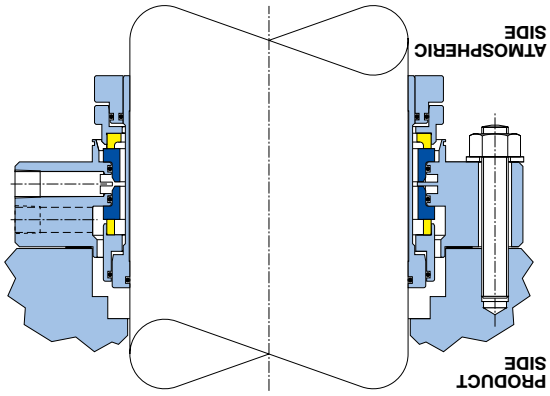
The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- Robust Cartridge design



11 - Seals to Suit Other Equipment

Oxygen Reactors - Fluffer Seal



7.875" CDM™ "Fluffer" Double Cartridge Seal to Suit an Oxygen Reactor.

AESSEAL® Reference: Z4536

AESSEAL® Drawing Number: 6460948

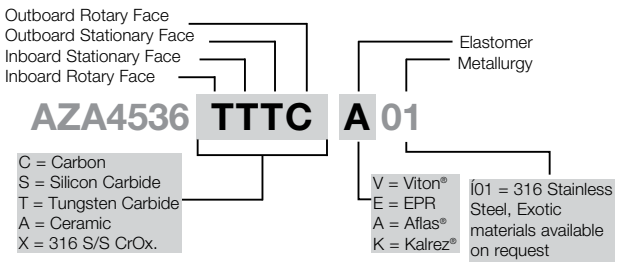
For further details see Case History 704

Fluffer Seal Design / Recommendations

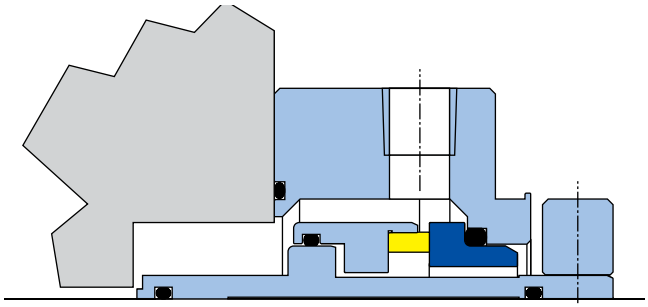
Due to the nature of the product, AESSEAL® recommend double seals for sealing the oxygen reactors. A mill water flush is recommended as stock consistency is in the region of 28%, and is generally abrasive, hence the need for hard inboard seal faces.

- Modular Design using standard components.
- Flush, Quench and Drain Environmental control Ports to optimize seal face environment.

Seal Selection Guideline - CONSULT AESSEAL®.



Warren EC 135 Screw Pump - Single Design



6.250 CURC™ Seal to suit Warren EC 135 Screw Pump

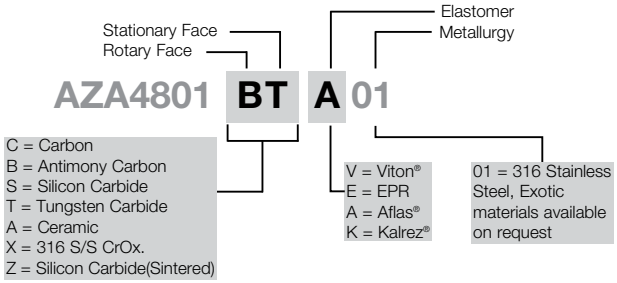
AESSEAL® Reference: Z4801

AESSEAL® Drawing Number: 6463903

AESSEAL® have designed a range of Single cartridge mechanical seals specifically to suit Warren EC 135 Screw Pumps with a hopper auger force feed.

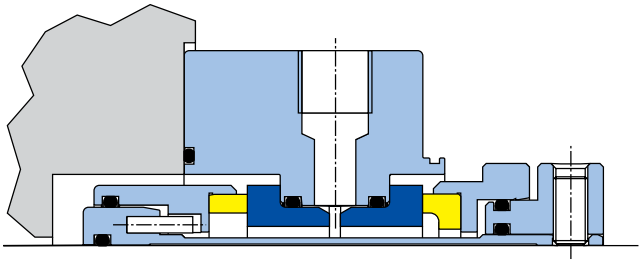
The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- 20% Consistency Paper Stock
- 18 Month+ Seal life
- For further information see Case History 1963K



11 - Seals to Suit Other Equipment

Warren EC 135 Screw Pump - Double Design



6.250" CDM™ Seal to suit Warren EC 135 Screw Pump

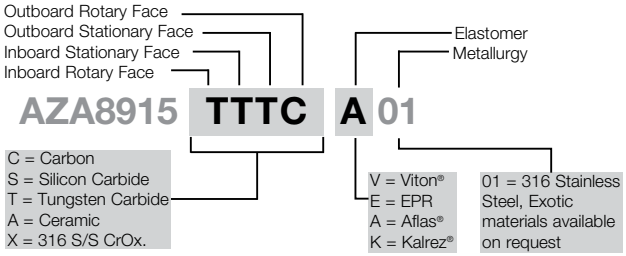
AESSEAL® Reference: Z8915

AESSEAL® Drawing Number: 7119226

AESSEAL® have designed a range of Double cartridge mechanical seals specifically to suit Warren EC 135 Screw Pumps.

The cross section shown above has been chosen to illustrate a typical example of the wide variety of designs available for this type of equipment.

- Modular Design using standard components.
- 20% Consistency Paper Stock
- For further information see Case History 1964K



12 - AESSEAL® standardization options for the Pulp and Paper Industry

Description	Mill Type	Area of Plant	S = Single D = Double	Standardization Option	Elastomer	Vessel	API Plan No.
Circulation Water (Ambient temp.)	All	ALL	(S) Convertor II™	CR/CH.OX	45		
Black Liquor (Concentrated)	All	Power	(D) CDSA™	TC/TC//TC/CR	Aflas® - Inboard Viton® - Outboard	SW2™	53/54
Defoamer	All	Power (Cooling Tower) and Waste Water	(S) CURC™	CR/SiC	Aflas®		
Hot Condensate	All	Power	(S) SCUSI™ or CURC™	CR/SiC	Aflas®		11 or 22
Demineralized Water	All	Power	(S) Convertor II™	CR/CH.OX	Aflas®		11 or 22
Batch Digester Pump - Strong Black Liquor	All	Pulp Mill	(D) DMSF™ (D) DBDS™	TC/TC//TC/CR	Aflas® - Inboard Viton® - Outboard	SW2™	53/54
Batch Digester Pump - Weak Black Liquor	All	Pulp Mill	(D) DMSF™ (D) DBDS™	TC/TC//TC/CR	Aflas® - Inboard Viton® - Outboard	SW2™	53/54
Calcined Clay Pump	All	Pulp Mill	(D) CDSA™	TC/TC//TC/CR Ferralium	Aflas® - Inboard Viton® - Outboard	SW2™	53/54
Calcium Stearate Pump	Kraft	Pulp Mill	(D) CDSA™	TC/TC//TC/CR	Aflas® - Inboard Viton® - Outboard	SW2™	53/54
Cationic Starch Pump (Ambient Temperature)	Kraft	Pulp Mill (used as a binder)	(S) CURC™	TC/TC	Aflas®		
Clay Filler Pump	Kraft	Pulp Mill (Interface)	(D) CDSA™	TC/TC//TC/CR	Aflas® - Inboard Viton® - Outboard	SW2™	53/54
Concentrated Black Liquor Pump	All	Pulp Mill	(D) CDSA™	TC/TC//TC/CR	Aflas® - Inboard Viton® - Outboard	SW2™	53/54
De-Inking Chemicals Pump	Recycling	Pulp Mill (Hydropulper)	(D) CDSA™	TC/TC//TC/CR	Aflas® - Inboard Viton® - Outboard	SW2™	53/54
Deflakers	All	Pulp Mill	(S) SAI™ & STAT	TC/TC	Aflas®		
Delaminated Clay Pump	All	Pulp Mill	(D) CDSA™	TC/TC//TC/CR	Aflas® - Inboard Viton® - Outboard	SW2™	53/54
Digester Flash Tank Condensate Pump	All	Pulp Mill	(S) SCUSI™ or CURC™	CR/SiC	Aflas®		11/22
Heater Circulation Pump	All	Pulp Mill (Digestion)	(D) CDSA™	TC/TC//TC/CR	Aflas® - Inboard Viton® - Outboard	SW2™	53/54

12 - AESSEAL® standardization options for the Pulp and Paper Industry

Description	Mill Type	Area of Plant	S = Single D = Double	Standardization Option	Elastomer	Vessel	API Plan No.
High Pressure Feed Pump (Digester Transfer)	All	Pulp Mill	(D) DBDS™ or (D) DMSF™	TC/TC//TC/CR	Aflas® - Inboard Viton® - Outboard SP1™	53/54	
CONTINUOUS DIGESTION PUMPS IN FEEDER PART OF PULP AREA. FEEDERS AFTER DIGESTER (BARRIER PRESSURE 170 TO 185 PSIG IN DIGESTION VESSEL, TEMPERATURE AROUND 300° F.)							
High Temperature Digester Circulation Pump	All	Pulp Mill	(D) CDSA™	TC/TC//TC/CR	Aflas® - Inboard Viton® - Outboard	SW2™	53/54
Hot Dispersion Pump	All	Pulp Mill	(D) CDSA™	TC/TC//TC/CR	Aflas® - Inboard Viton® - Outboard	SP1™	53/54
Hydropulpers	All	Pulp Mill	(S) SAI™ & STAT (S) RDS™	TC/TC CR/CH.OX	Aflas®		32
Kneader / Re-pulper	All	Pulp Mill	(S) SAI™ & STAT	TC/TC	Aflas®		
Knotters	All	Pulp Mill	(D) IADC™-K	TC/TC//TC/CR	Aflas®	SW2™	53/54
Low Pressure Circulation Pump	All	Pulp Mill (Digestion)	(D) CDSA™	TC/TC//TC/CR	Aflas® - Inboard Viton® - Outboard	SW2™	53/54
Pressure Screen	All	Pulp Mill	(D) CDSA™	TC/TC//TC/CR	Aflas®	SW2™	53/54
Raw Turp Recovery Pump	All	Pulp Mill	(S) CURC™	CR/SiC	Aflas®		
Secondary Fiber Pulp Pump (>3%)	All	Pulp Mill	(D) CDSA™	TC/TC//TC/CR	Aflas® - Inboard Viton® - Outboard	SW2™	53/54
Soft & Hard Wood Broke Pump	All	Pulp Mill					
Starch (Raw Slurry) Pump (140°-190°F / 60°-80°C)	All	Pulp Mill (used as a binder)	(D) CDSA™	TC/TC//TC/CR	Aflas® - Inboard Viton® - Outboard	SW2™	53/54
Stock Chest Agitators	All	Pulp Mill	(S) CSM™	TC/TC	Aflas®		
Vibratory Knotters	All	Pulp Mill	(S) CURC™	TC/TC	Aflas®		
Wash Circulation to Heater Pump	All	Pulp Mill	S) CURC™	TC/TC	Aflas®		32
Wash Water Feed Pump	All	Pulp Mill (Digestion)	S) CURC™	TC/TC	Aflas®		32
Weak Black Liquor Pump	All	Pulp Mill (Recovery)	S) CURC™	TC/TC	Aflas®		
White Liquor Feed Pump	All	Pulp Mill (Digestion)	S) CURC™	TC/TC	Aflas®		32
White Liquor Transfer Pump	All	Pulp Mill (Recovery)	(S) CURC™	TC/TC	Aflas®		11

12 - AESSEAL® standardization options for the Pulp and Paper Industry

Description	Mill Type	Area of Plant	S = Single D = Double	Standardization Option	Elastomer	Vessel	API Plan No.
Wood Pulp Breaker	All	Pulp Mill	(S) SAI™ & STAT	TC/TC	Aflas®		
Ansilox Pump	Kraft	Pulp Mill Chemical Area	(D) CDSA™	SiC/SiC//SiC/CR Ferralium	Aflas® - Inboard Viton® - Outboard	SW2™	53/54
(ADDED TO STOCK - HAS SIMILAR CHARACTERISTICS TO TITANIUM DIOXIDE)							
Calcium Carbonate Solution Pump	Fine Paper	Pulp Mill Chemical Area (used as a pigment)	(D) CDSA™	TC/TC//TC/CR	Aflas® - Inboard Viton® - Outboard	SW2™	53/54
Clay Slurry Pump	All	Pulp Mill Chemical Area	(D) CDSA™	TC/TC//TC/CR	Aflas® - Inboard Viton® - Outboard	SW2™	53/54
Green Liquor Agitator	All	Pulp Mill Chemical Area	(D) CDM™	TC/TC//TC/CR	Aflas®	SW2™	53/54
Hydrochloric Acid Pump	All	Pulp Mill Chemical Area	(D) CDSA™	CR/SiC//SiC/CR Alloy 276	Aflas® - Inboard Viton® - Outboard	SW2™	53/54
VITON® CAN BE AFFECTED BY HIGH CONCENTRATIONS (ETCHING)							
Liquor & Lime Pump	All	Pulp Mill Chemical Area	(D) CDSA™	TC/TC//TC/CR	Aflas® - Inboard Viton® - Outboard	SW2™	53/54
CONTROLS PH OF LIQUOR - INTRODUCED WHERE BLACK LIQUOR IS BEING SENT TO THE RECOVERY AREA							
White Liquor Agitator	All	Pulp Mill Chemical Area	(D) CDM™	TC/TC//TC/CR	Aflas®	SW2™	53/54
Paper Stock Pump	All	Fiber Plant	(S) CURC™	TC/TC	Aflas®		32
Brown Liquor (weak Black Liquor) Pump	All	Fiber Plant	(S) CURC™	TC/TC	Aflas®		
Calcium Hypochlorite Pump	Fine Paper	Bleaching & Washing	(D) CDSA™	SiC/SiC//SiC/CR	Aflas® - Inboard Viton® - Outboard	SW2™	53/54
Chlorine Dioxide Pump	All	Bleaching & Washing	(D) CDSA™	SiC/SiC//SiC/CR Titanium	Kalrez® - Inboard Viton® - Outboard	SW2™	53/54
Hardwood Kraft Pump	Kraft	Bleaching & Washing	(D) CDSA™	SiC/SiC//SiC/CR Titanium	Kalrez® - Inboard Viton® - Outboard	SW2™	53/54
Hydrogen Peroxide Pump	Kraft	Bleaching & Washing	(S) SCUSI™ or CURC™	SiC/SiC	Aflas®		
Sodium Hydroxide (caustic) Pump	All	Bleaching & Washing	(D) CDSA™	TC/TC//TC/CR	Aflas® - Inboard Viton® - Outboard	SW2™	53/54
Sodium Hypochlorite Pump	All	Bleaching & Washing	(D) CDSA™	SiC/SiC//SiC/CR	Aflas® - Inboard Viton® - Outboard	SW2™	53/54
Softwood Kraft Pump	Kraft	Bleaching & Washing	(D) CDSA™	SiC/SiC//SiC/CR Titanium	Kalrez® - Inboard Viton® - Outboard	SW2™	53/54

12 - AESSEAL® standardization options for the Pulp and Paper Industry

Description	Mill Type	Area of Plant	S = Single D = Double	Standardization Option	Elastomer	Vessel	API Plan No.
Stock Chest Agitators	All	Bleaching & Washing	(S) CSM™ (S) RDS™	TC/TC CR/CH.OX	Aflas®		32
Sulfuric Acid Pump	All	Bleaching & Washing	CHECK CHEMICAL COMPATIBILITY DATABASE. THE CORRECT METAL, ELASTOMER AND FACES VARY WIDELY, DEPENDING ON CONCENTRATION AND TEMPERATURE.				
White Water Pump	All	Bleaching & Washing	(S) CURC™	TC/TC	Aflas®		
Feed Transfer Pump (Digestion Stage)	All	Stock Preparation	(D) DBDS™ or DMSF™	TC/TC//TC/CR	Aflas® - Inboard Viton® - Outboard	SW2™	53/54
Green Liquor Agitator	All	Chemical Recovery	(D) CDM™	TC/TC//TC/CR	Aflas®	SW2™	53/54
White Liquor Agitator	All	Chemical Recovery	(D) CDM™	TC/TC//TC/CR	Aflas®	SW2™	53/54
Alum Pump	Kraft	Finished Products (Coating)	(D) CDSA™	SiC/SiC//SiC/CR Alloy 20	Kalrez® - Inboard Viton® - Outboard	SW2™	53/54
OFTEN USE SINGLE AND NO FLUSH AND ACCEPT EARLY FAILURE. NO WATER CAN BE ADDED TO THE PROCESS							
Calcium Stearate Pump	Kraft	Finished Products	(D) CDSA™	TC/TC//TC/CR	Aflas® - Inboard Viton® - Outboard	SW2™	53/54
Casein Pump	All	Finished Products (Soluble in weak Acids and Alkalis) Used for Paper Coating	(S) CURC™	TC/TC	Aflas®		
Clay Filler Pump	Kraft	Finished Products (Pulp Mill Interface)	(D) CDSA™	TC/TC//TC/CR	Aflas® - Inboard Viton® - Outboard	SW2™	53/54
Coating / Coating Colour Pump	All (mostly fine paper)	Finished Products (Coating Area)	(D) CDSA™	TC/TC//TC/CR	Aflas® - Inboard Viton® - Outboard	SP2™	53/54
Cooked Protein Pump	All	Finished Products	(D) CDSA™	TC/TC//TC/CR	Aflas® - Inboard Viton® - Outboard	SP2™	53/54
Delaminated Clay Pump	All	Finished Products	(D) CDSA™	TC/TC//TC/CR	Aflas® - Inboard Viton® - Outboard	SP2™	53/54
Dispersant Pump	Kraft	Finished Products	(D) CDSA™	TC/TC//TC/CR	Aflas® - Inboard Viton® - Outboard	SP2™	53/54
Latex Pump	All	Finished Products	SPECIAL FACE GEOMETRY REQUIRED		Aflas® - Inboard Viton® - Outboard	SP2™	53/54
Plastic Pigment Pump	Fine Paper	Finished Products; Used to achieve high gloss paper coating eg. Xerox paper	(D) CDSA™	TC/TC//TC/CR	Aflas® - Inboard Viton® - Outboard		53/54

12 - AESSEAL® standardization options for the Pulp and Paper Industry

Description	Mill Type	Area of Plant	S = Single D = Double	Standardization Option	Elastomer	Vessel	API Plan No.
Protein Pump	All	Finished Products	(S) CURC™	CR/SiC	Aflas®		
Retention Aid Pump	All	Finished Products; Used to improve retention of Fines and Fillers	(D) CDSA™	TC/TC//TC/CR	Aflas® - Inboard Viton® - Outboard	SP2™	53/54
Titanium Dioxide Pump	All	Finished Products	(D) CDSA™	TC/TC//TC/CR	Aflas® - Inboard Viton® - Outboard	SP2™	53/54
ALSO FOUND IN ASSOCIATED CHEMICAL PLANT							
Stock Chest Agitators	All	Paper Machine	(S) CSM™ (S) RDS™	TC/TC CR/CH.OX	Aflas®		32
Trash Screens	All	Paper Machine	(S) IASC™	TC/TC	Aflas®		
Refiners	All	Paper Machine	(S) CMAX™	TC/TC	Aflas®		
Paper Stock (Fan Pumps)	All	Paper Machine	(S) CURC™	TC/TC	Aflas®		
White Water Pumps	All	Paper Machine (Return to Re-process)	(S) CURC™	TC/TC	Aflas®		
Paper Stock (broke stock) Pumps	All	Paper Machine	(S) CURC™	TC/TC	Aflas®		
High Temperature Condensate Pumps	All	Paper Machine	(D) CDSA™	CR/SiC//SiC/CR	Aflas®	SW3™	53/54
Bearing Oil	All	Paper Machine	(S) SAI™ & STAT	TC/ANT.CR	Aflas®		
Steam Nozzles	All	Paper Machine	(S) SNOZ™	TC/CR	Aflas®		
Recycled Fiber Pump	All	Waste paper processing	(D) CDSA™	TC/TC//TC/CR	Aflas® - Inboard Viton® - Outboard	SW2™	53/54
Recycled Fiber (Latex) Pump	All	Waste paper processing	(D) CDSA™	TC/TC//TC/CR	Aflas® - Inboard Viton® - Outboard	SW2™	53/54
Defoamer	All	Waste water processing	(S) CURC™	CR/SiC	Aflas®		

13 - Standard AESSEAL® Designs used for the Pulp & Paper Industry

AESSEAL® have introduced a range of mechanical seals specifically designed for the arduous environments encountered in the Pulp & Paper Industry.

The Mechanical Seal range encompasses sealing solutions for the equipment typically found in the industry, and includes designs for Stock Process Pumps, Refiners, Screens, Mixers, and Knotters, to name but a few.

These product ranges have been developed only after extensive performance & field evaluation tests, conducted over several years duration.

Innovative, Patented and Patent Pending products have been introduced for specific targeted areas within the Pulp & Paper industry. These include Exotic Alloy technology for the Chemical and Bleaching mills, Axial movement seals for refining equipment, and products with the ability to withstand cyclic product pressures as encountered in hot dispersal equipment.

AESSEAL® aims to provide such a high level of SERVICE that our customers may never seek an alternative source of supply. Basically AESSEAL® will SET NEW INDUSTRY SERVICE LEVELS for the Pulp & Paper industry.

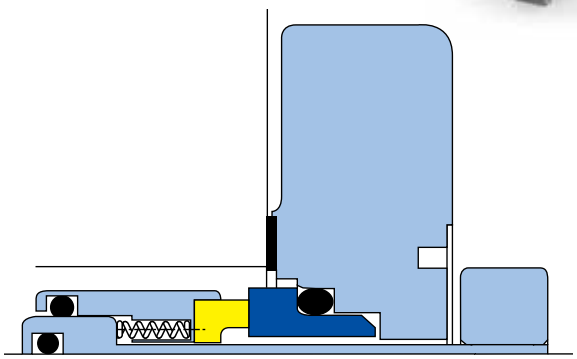
Each product is competitively designed to not only enhance the availability through modularization, but also improve installation and disassembly techniques, which can be encountered on some generic items of equipment such as pressure screens.

AESSEAL® are a major force within the sealing Industry, and have been recognized as such by numerous convergence agreements, one of which is with a major player in the Pulp & Paper industry.

The products highlighted in the following section provide an indication of the scope of AESSEAL® products which meet the needs of the Pulp & Paper Industry.

(S) Convertor II™

Cartridge Seal Designed to Replace Packing



This cartridge seal is designed to replace two part component seals and conventional packing arrangements.

- Compact gland for use on applications with limited space

OPERATING PARAMETERS:

Maximum Pressure: 20barg (300psig).

Maximum Temperature: Elastomer and Seal face dependant.

Maximum Shaft Speed: 3,600rpm (20m/s / 4,000fpm)

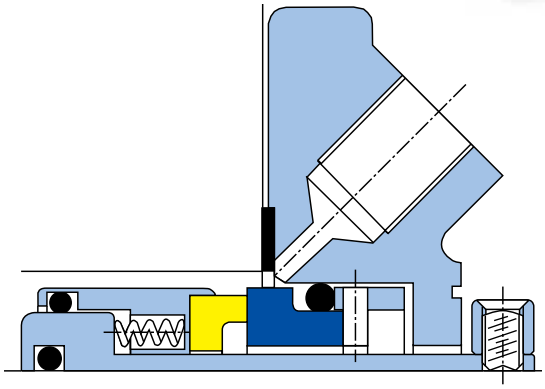
CONSULT THE AESSEAL® TECHNICAL DEPARTMENT IF THE APPLICATION EXCEEDS 60% OF ALL THE OPERATING LIMITS

USE DOUBLE MECHANICAL SEALS WITH HAZARDOUS PRODUCTS. ALWAYS TAKE SAFETY PRECAUTIONS.
• GUARD YOUR EQUIPMENT • WEAR SAFETY CLOTHING

13 - Standard AESSEAL® Designs used for the Pulp & Paper Industry

(S) SCUSI™

Short Cartridge Mechanical Seal



A short externally mounted cartridge seal, with flush and self aligning faces.

- Available with flush port as standard for cooling/venting to maximize seal life
- Self aligning stationary face ensures perpendicular alignment of face to shaft axis, maximizing seal life
- Stationary face drive with contacting pins eliminates damage in stop/start applications and viscous fluids
- Flush port to increase seal life in arduous situations

OPERATING PARAMETERS:

Maximum Pressure: 20barg (300psig).

Maximum Temperature: Elastomer and Seal face dependant.

Maximum Shaft Speed: 3,600rpm (20m/s / 4,000fpm)

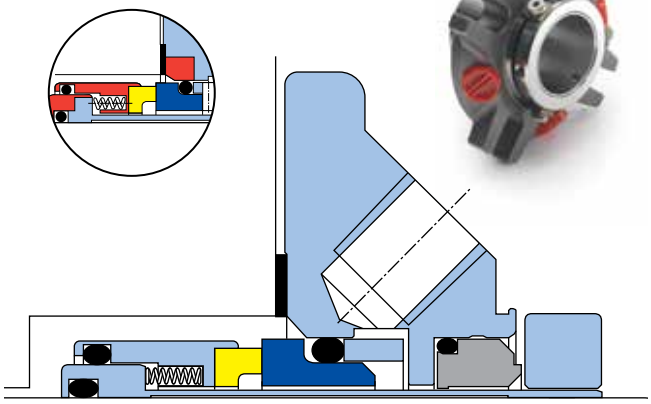
CONSULT THE AESSEAL® TECHNICAL DEPARTMENT IF THE APPLICATION EXCEEDS 60% OF ALL THE OPERATING LIMITS

USE DOUBLE MECHANICAL SEALS WITH HAZARDOUS PRODUCTS. ALWAYS TAKE SAFETY PRECAUTIONS.
• GUARD YOUR EQUIPMENT • WEAR SAFETY CLOTHING

WARNING

(S) CURC™

Cartridge Single Seal with Flush, Quench & Drain ports



The Bi-Metal CURC™ (inset, above) uses exotic alloy wetted components and is available in a range of alternative alloys.

The CURC™ is the primary single cartridge seal installed by AESSEAL® in thousands of Pulp & Paper Applications.

- Self aligning stationary face ensures perpendicular alignment of face to shaft axis, maximizing seal life
- Stationary face drive with contacting pins eliminates damage in stop/start applications and viscous fluids
- Quench, drain and flush ports for cooling/heating options to maximize seal life
- Bi-Metal CURC™ option - maintains the features of the standard CURC™ but includes exotic alloy wetted components for use with corrosive chemicals

OPERATING PARAMETERS:

Maximum Pressure: 20barg (300psig).

Maximum Temperature: Elastomer and Seal face dependant.

Maximum Shaft Speed: 3,600rpm (20m/s / 4,000fpm)

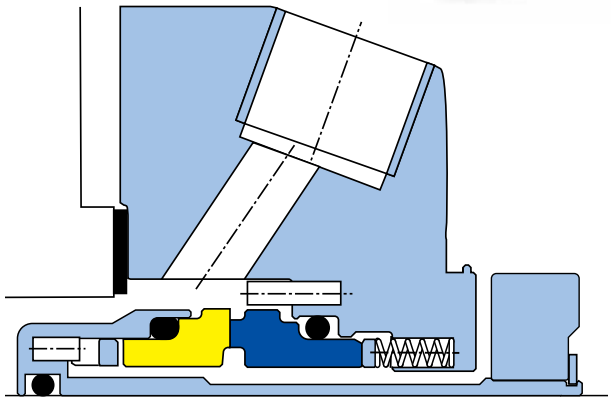
CONSULT THE AESSEAL® TECHNICAL DEPARTMENT IF THE APPLICATION EXCEEDS 60% OF ALL THE OPERATING LIMITS

USE DOUBLE MECHANICAL SEALS WITH HAZARDOUS PRODUCTS. ALWAYS TAKE SAFETY PRECAUTIONS.
• GUARD YOUR EQUIPMENT • WEAR SAFETY CLOTHING

WARNING

13 - Standard AESSEAL® Designs used for the Pulp & Paper Industry

(S) 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 in these type of applications
- Seal face drive by large contact area preventing damage to faces in stop/start applications and viscous fluids
- Large 3/8” ports maximize cooling and extend seal life

OPERATING PARAMETERS:

Maximum Pressure: 25barg (375psig).

Maximum Temperature: Elastomer and Seal face dependant.

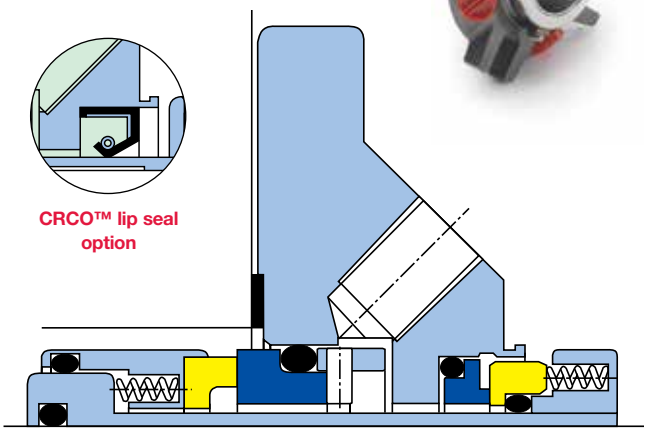
Maximum Shaft Speed: 3,600rpm (20m/s / 4,000fpm)

CONSULT THE AESSEAL® TECHNICAL DEPARTMENT IF THE APPLICATION EXCEEDS 60% OF ALL THE OPERATING LIMITS

USE DOUBLE MECHANICAL SEALS WITH HAZARDOUS PRODUCTS. ALWAYS TAKE SAFETY PRECAUTIONS.
• GUARD YOUR EQUIPMENT • WEAR SAFETY CLOTHING

WARNING

(S) CURE™
Cartridge Single Seal for Low Pressure Barrier Fluid Applications



Compact design with quench fluid contained by low pressure seal.

- Quench, drain and flush ports for cooling/heating options to maximize seal life
- Stationary face drive with contacting pins eliminates damage in stop/start applications and viscous fluids
- Quench prevents solidification of materials on seal faces, or for cooling/heating to maximize seal life in arduous applications
- Lip seal option for oil barrier fluids and slow shaft speeds available as CRCO™

OPERATING PARAMETERS:

Maximum Pressure: 20barg (300psig).

Maximum Temperature: Elastomer and Seal face dependant.

Maximum Shaft Speed: 3,600rpm (20m/s / 4,000fpm)

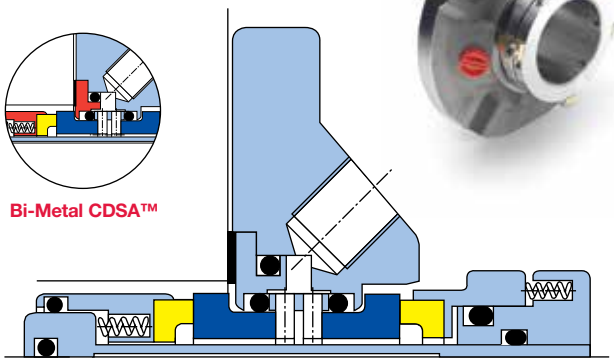
CONSULT THE AESSEAL® TECHNICAL DEPARTMENT IF THE APPLICATION EXCEEDS 60% OF ALL THE OPERATING LIMITS

USE DOUBLE MECHANICAL SEALS WITH HAZARDOUS PRODUCTS. ALWAYS TAKE SAFETY PRECAUTIONS.
• GUARD YOUR EQUIPMENT • WEAR SAFETY CLOTHING

WARNING

13 - Standard AESSEAL® Designs used for the Pulp & Paper Industry

(D) CDSA™
Cartridge Mounted Double Seal



The Bi-Metal CDSA™ (inset, above) uses exotic alloy wetted components and is available in a range of alternative alloys.

The CDSA™ is the primary double cartridge seal installed by AESSEAL® in thousands of Pulp & Paper Applications.

- Independent seal face design enhances safety containment of process fluid in the event of damage to any individual sealing element
- Flexible design can be used 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.
- Stationary face drive with contacting pins eliminates damage in stop/start applications and viscous fluids
- Fits on pumps with thin radial cross section spaces
- The Bi-Metal CDSA™ option maintains the features of the standard CDSA™ but includes exotic alloy wetted components for use with corrosive chemicals

OPERATING PARAMETERS:

Maximum Pressure: 20barg (300psig).

Maximum Temperature: Elastomer and Seal face dependant.

Maximum Shaft Speed: 3,600rpm (20m/s / 4,000fpm)

On processes where leakage of the primary product being sealed cannot be tolerated, the barrier fluid pressure should normally be set at 1 barg (15 psig) above the product pressure

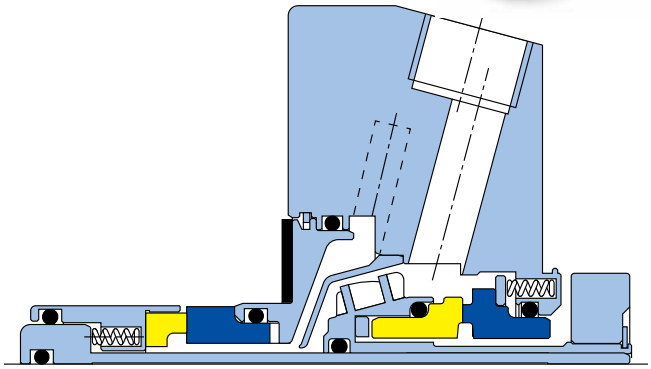
Based upon 25°C (77°F) operating temperature, the maximum differential pressure of the barrier fluid, to atmosphere, is 17 barg (250 psig).

CONSULT THE AESSEAL® TECHNICAL DEPARTMENT IF THE APPLICATION EXCEEDS 60% OF ALL THE OPERATING LIMITS

USE DOUBLE MECHANICAL SEALS WITH HAZARDOUS PRODUCTS. ALWAYS TAKE SAFETY PRECAUTIONS.
• GUARD YOUR EQUIPMENT • WEAR SAFETY CLOTHING

WARNING

(D) CDFI™
Cartridge Double Flow Induction/Convection



- Independent seal face design enhances safety containment of process fluid in the event of damage to any individual sealing element
- Fits on pumps with thin radial cross section spaces
- Integral deflector guides cooling barrier fluid to the most essential areas and extends seal life
- Incorporates bi-directional pumping scroll to maximize cooling and increase seal life

OPERATING PARAMETERS:

Maximum Pressure: 20barg (300psig).

Maximum Temperature: Elastomer and Seal face dependant.

Maximum Shaft Speed: 3,600rpm (20m/s / 4,000fpm)

On processes where leakage of the primary product being sealed cannot be tolerated, the barrier fluid pressure should normally be set at 1 barg (15 psig) above the product pressure

Based upon 25°C (77°F) operating temperature, the maximum differential pressure of the barrier fluid, to atmosphere, is 17 barg (250 psig).

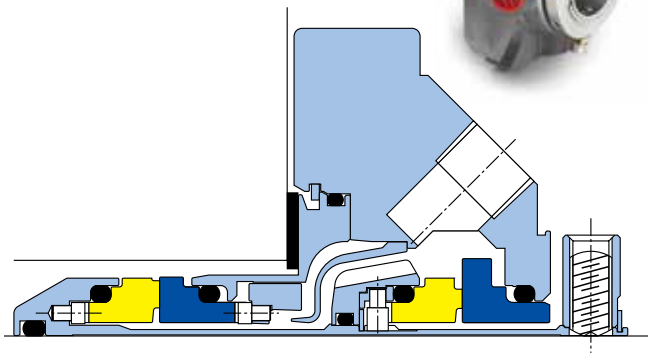
CONSULT THE AESSEAL® TECHNICAL DEPARTMENT IF THE APPLICATION EXCEEDS 60% OF ALL THE OPERATING LIMITS

USE DOUBLE MECHANICAL SEALS WITH HAZARDOUS PRODUCTS. ALWAYS TAKE SAFETY PRECAUTIONS.
• GUARD YOUR EQUIPMENT • WEAR SAFETY CLOTHING

WARNING

13 - Standard AESSEAL® Designs used for the Pulp & Paper Industry

(D) DMSF™
Double Monolithic Stationary Flow (Patented Design)



A double cartridge stationary seal with an integral pumping ring and monolithic seal faces. Essential for Batch digester applications and is the STANDARD double seal in at least one Major Pulp & Paper Mill.

- Seal face drive by large contact area prevents damage to faces in stop/start applications and viscous fluids
- Hydraulically double balanced and can withstand pressure fluctuations
- Incorporates bi-directional pumping scroll to maximize cooling and increase seal life
- 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
- Monolithic seal faces provide maximum face stability in high pressure and high temperature applications improving seal longevity

OPERATING PARAMETERS:

Maximum Pressure: 25barg (375psig).

Maximum Temperature: Elastomer and Seal face dependant.

Maximum Shaft Speed: 3,600rpm (20m/s / 4,000fpm)

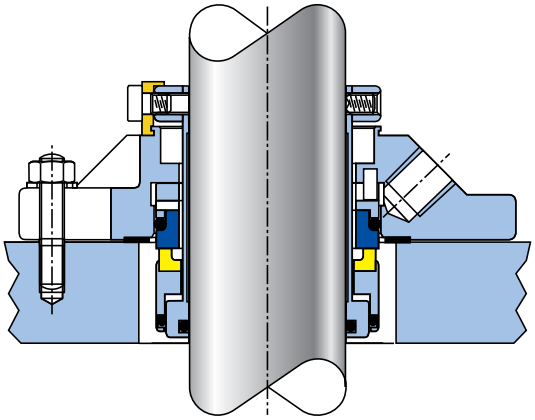
On processes where leakage of the primary product being sealed cannot be tolerated, the barrier fluid pressure should normally be set at 1 barg (15 psig) above the product pressure

Based upon 25°C (77°F) operating temperature, the maximum differential pressure of the barrier fluid, to atmosphere, is 25 barg (375 psig).

CONSULT THE AESSEAL® TECHNICAL DEPARTMENT IF THE APPLICATION EXCEEDS 60% OF ALL THE OPERATING LIMITS

USE DOUBLE MECHANICAL SEALS WITH HAZARDOUS PRODUCTS. ALWAYS TAKE SAFETY PRECAUTIONS.
• GUARD YOUR EQUIPMENT • WEAR SAFETY CLOTHING

(S) CSM™
Cartridge Single for Mixers



- Can accept greater radial movement than pump seals
- Can be used on mixers with long overhang shafts
- Designed to run in vapour applications
- Suitable for top entry agitator service
- Exotic alloy wetted parts available for use with corrosive chemicals
- Smooth non-clogging profile (springs out of the product)

OPERATING PARAMETERS:

Maximum Pressure:20barg (300psig).

Maximum Temperature: Elastomer and Seal face dependant.

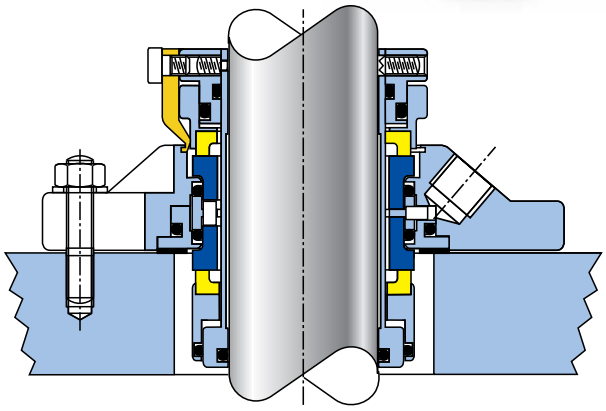
Maximum Shaft Speed:3,600rpm (20m/s / 4,000fpm)

CONSULT THE AESSEAL® TECHNICAL DEPARTMENT IF THE APPLICATION EXCEEDS 60% OF ALL THE OPERATING LIMITS

USE DOUBLE MECHANICAL SEALS WITH HAZARDOUS PRODUCTS. ALWAYS TAKE SAFETY PRECAUTIONS.
• GUARD YOUR EQUIPMENT • WEAR SAFETY CLOTHING

13 - Standard AESSEAL® Designs used for the Pulp & Paper Industry

(D) CDM™ Cartridge Double for Mixers



- Can accept greater radial movement than pump seals
- Can be used on mixers with long overhang shafts
- Designed to run in vapour applications
- Suitable for top entry agitator service
- Exotic alloy wetted parts available for use with corrosive chemicals
- Smooth non-clogging profile (springs out of the product)

OPERATING PARAMETERS:

Maximum Pressure: 20barg (300psig).

Maximum Temperature: Elastomer and Seal face dependant.

Maximum Shaft Speed: 3,600rpm (20m/s / 4,000fpm)

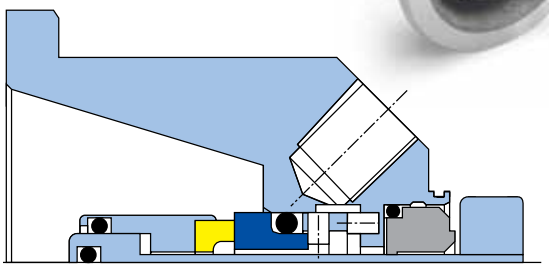
On processes where leakage of the primary product being sealed cannot be tolerated, the barrier fluid pressure should normally be set at 1 barg (15 psig) above the product pressure

Based upon 25°C (77°F) operating temperature, the maximum differential pressure of the barrier fluid, to atmosphere, is 17 barg (250 psig).

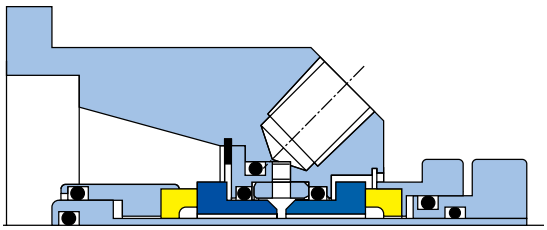
CONSULT THE AESSEAL® TECHNICAL DEPARTMENT IF THE APPLICATION EXCEEDS 60% OF ALL THE OPERATING LIMITS

USE DOUBLE MECHANICAL SEALS WITH HAZARDOUS PRODUCTS. ALWAYS TAKE SAFETY PRECAUTIONS.
• GUARD YOUR EQUIPMENT • WEAR SAFETY CLOTHING

(S) (D) PCPS™ Range Progressing Cavity Pump Seals



(S) CURC™ Seal design in PCPS™ type Gland.



(D) CDSA™ Seal design in PCPS™ type Gland.

Over 1500 PCP designs available to suit all major manufacturers across the globe, such as Mono, Robbins & Myers, Netzsch, PCM, Seepex or Orbit and many more".

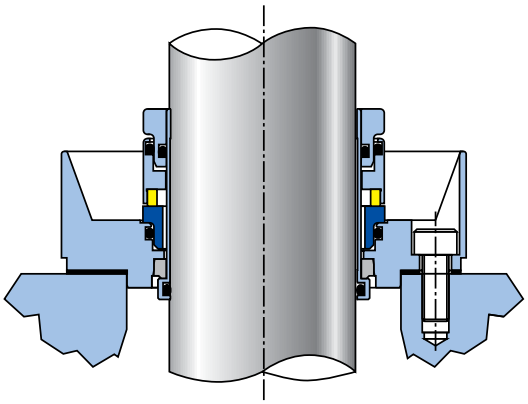
- Available as single or double seal option
- No pump modification necessary, reducing cost of conversion. Seal replaces existing stuffing box seal chamber
- Modular design for improved availability and industry leading prices
- Big bore flared housing, maximizes cooling and lubrication and increases seal life. Prevents clogging when pumping slurries and liquids
- Non shaft fretting design to reduce cost in pump/equipment overhaul
- Operating parameters vary depending on design of seal, typically the same as equivalent cartridge seal

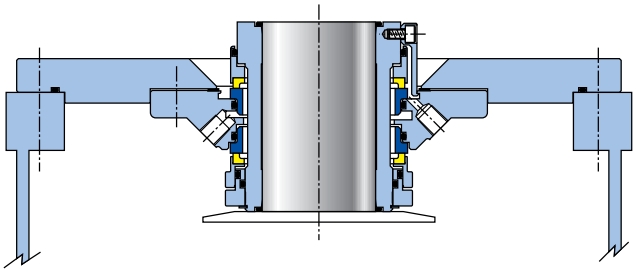
CONSULT THE AESSEAL® TECHNICAL DEPARTMENT IF THE APPLICATION EXCEEDS 60% OF ALL THE OPERATING LIMITS

USE DOUBLE MECHANICAL SEALS WITH HAZARDOUS PRODUCTS. ALWAYS TAKE SAFETY PRECAUTIONS.
• GUARD YOUR EQUIPMENT • WEAR SAFETY CLOTHING

13 - Standard AESSEAL® Designs used for the Pulp & Paper Industry

(S) IASC™ / (D) 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.

- Available as single or double seal option
- Modular design for improved availability and industry leading prices
- Non shaft fretting design to reduce cost in pump/equipment overhaul
- Operating parameters vary depending on design of seal, typically the same as equivalent cartridge seal designed to suit pumps or mixers

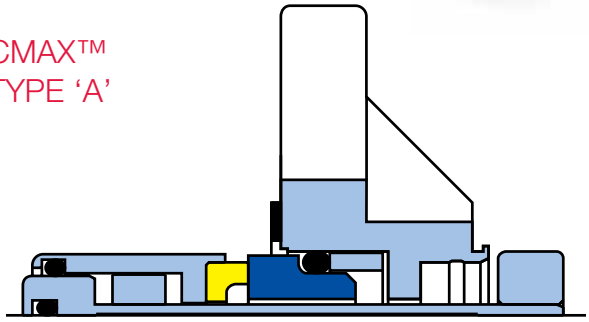
CONSULT THE AESSEAL® TECHNICAL DEPARTMENT IF THE APPLICATION EXCEEDS 60% OF ALL THE OPERATING LIMITS

USE DOUBLE MECHANICAL SEALS WITH HAZARDOUS PRODUCTS. ALWAYS TAKE SAFETY PRECAUTIONS.
• GUARD YOUR EQUIPMENT • WEAR SAFETY CLOTHING

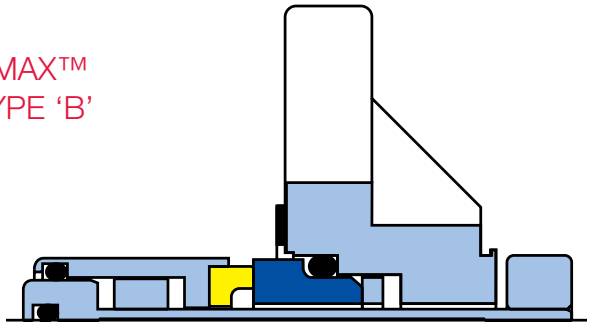
WARNING

(S) CMAX™ Cartridge Single Seal with Axial Movement

CMAX™ TYPE 'A'



CMAX™ TYPE 'B'



The Standard CMAX™ design has 316L Stainless Steel wetted parts and is available in a wide range of seal face and elastomer combinations to suit individual process requirements.

- Able to accept Axial Movement / Shaft Growth
- Used on some refiner duties & Knotter Pumps

OPERATING PARAMETERS:

Maximum Pressure: 20barg (300psig).

Maximum Temperat: Elastomer and Seal face dependant.

Maximum Shaft Speed: 3,600rpm (20m/s / 4,000fpm)

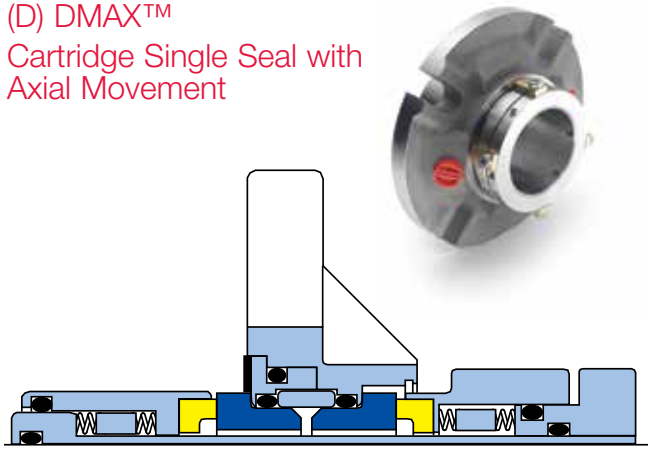
CONSULT THE AESSEAL® TECHNICAL DEPARTMENT IF THE APPLICATION EXCEEDS 60% OF ALL THE OPERATING LIMITS

USE DOUBLE MECHANICAL SEALS WITH HAZARDOUS PRODUCTS. ALWAYS TAKE SAFETY PRECAUTIONS.
• GUARD YOUR EQUIPMENT • WEAR SAFETY CLOTHING

WARNING

13 - Standard AESSEAL® Designs used for the Pulp & Paper Industry

(D) DMAX™
Cartridge Single Seal with Axial Movement



The Standard DMAX™ design has 316L Stainless Steel wetted parts and is available in a wide range of seal face and elastomer combinations to suit individual process requirements.

- Able to accept Axial Movement / Shaft Growth
- Used on some refiner duties

OPERATING PARAMETERS:

Maximum Pressure: 20barg (300psig).

Maximum Temperature: Elastomer and Seal face dependant.

Maximum Shaft Speed: 3,600rpm (20m/s / 4,000fpm)

On processes where leakage of the primary product being sealed cannot be tolerated, the barrier fluid pressure should normally be set at 1 barg (15 psig) above the product pressure

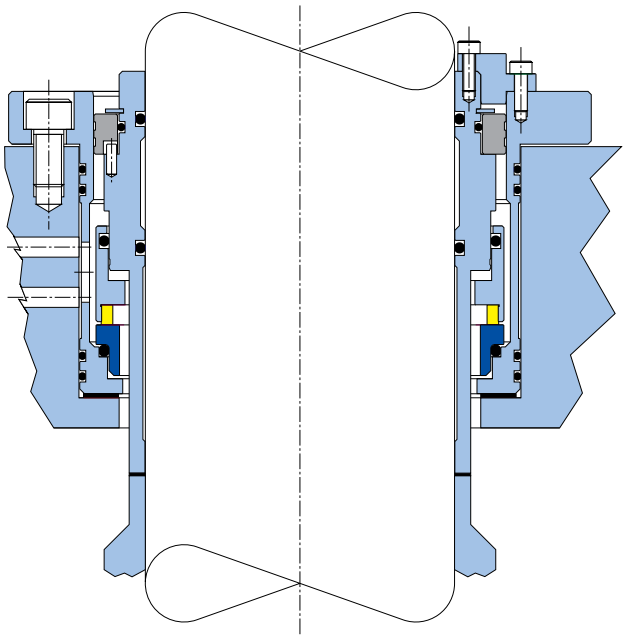
Based upon 25°C (77°F) operating temperature, the maximum differential pressure of the barrier fluid, to atmosphere, is 17 barg (250 psig).

CONSULT THE AESSEAL® TECHNICAL DEPARTMENT IF THE APPLICATION EXCEEDS 60% OF ALL THE OPERATING LIMITS

USE DOUBLE MECHANICAL SEALS WITH HAZARDOUS PRODUCTS. ALWAYS TAKE SAFETY PRECAUTIONS.
• GUARD YOUR EQUIPMENT • WEAR SAFETY CLOTHING

WARNING

(S) USFC™
Unit Seal With Flush Cavity



The Standard USFC™ design has 316L Stainless Steel wetted parts and is available in a wide range of seal face and elastomer combinations to suit individual process requirements.

- Designed For Screens
- Optimized Seal Face environment
- Standard modular Seal Faces

OPERATING PARAMETERS:

Maximum Pressure: 20barg (300psig).

Maximum Temperature: Elastomer and Seal face dependant.

Maximum Shaft Speed: 3,600rpm (20m/s / 4,000fpm)

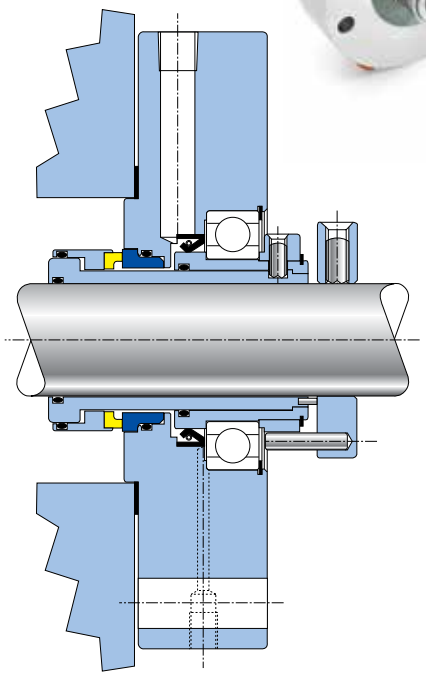
CONSULT THE AESSEAL® TECHNICAL DEPARTMENT IF THE APPLICATION EXCEEDS 60% OF ALL THE OPERATING LIMITS

USE DOUBLE MECHANICAL SEALS WITH HAZARDOUS PRODUCTS. ALWAYS TAKE SAFETY PRECAUTIONS.
• GUARD YOUR EQUIPMENT • WEAR SAFETY CLOTHING

WARNING

13 - Standard AESSEAL® Designs used for the Pulp & Paper Industry

(S) CSWIB-AX™
Cartridge Mounted Single Seal



The Standard CSWIB-AX™ design has 316L Stainless Steel wetted parts and is available in a wide range of seal face and elastomer combinations to suit individual process requirements.

These seals are offered with the following extra features:

- Designed For Refiners
- Cartridge Design
- Available with Exotic Alloy Wetted Components
- Gland Designed to suit individual equipment specifications
- Double seal versions available

OPERATING PARAMETERS:

Maximum Pressure: 20barg (300psig).

Maximum Temperature: Elastomer and Seal face dependant.

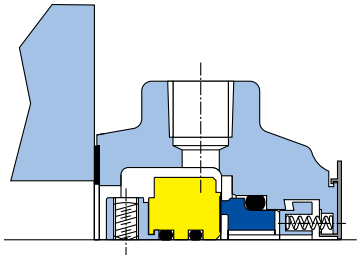
Maximum Shaft Speed: 1,800rpm (20m/s / 4,000fpm)

CONSULT THE AESSEAL® TECHNICAL DEPARTMENT IF THE APPLICATION EXCEEDS 60% OF ALL THE OPERATING LIMITS

USE DOUBLE MECHANICAL SEALS WITH HAZARDOUS PRODUCTS. ALWAYS TAKE SAFETY PRECAUTIONS.
• GUARD YOUR EQUIPMENT • WEAR SAFETY CLOTHING

WARNING

RDS™
Radially Divided Seal



The RDS™ eliminates the need to remove/strip equipment for seal replacement. This Radially Divided Seal has been designed to be the quickest to install two part seal currently available on the market place.

The standard RDS™ has 316L Stainless Steel wetted parts and is available with different seal face and elastomer combinations to suit individual process requirements.

This seal is offered with the following extra features:

- Hydraulically balanced for reduced seal face loading which maximizes seal life and allows for vacuum service capability
- External visible life indicator pin assists preventative maintenance
- Minimum parts to assemble
- Self aligning stationary face ensures perpendicular alignment of face to shaft axis, maximizing seal life
- Precision lapped (not cracked) rotary seal face provides industry leading separation technology and predictable sealing

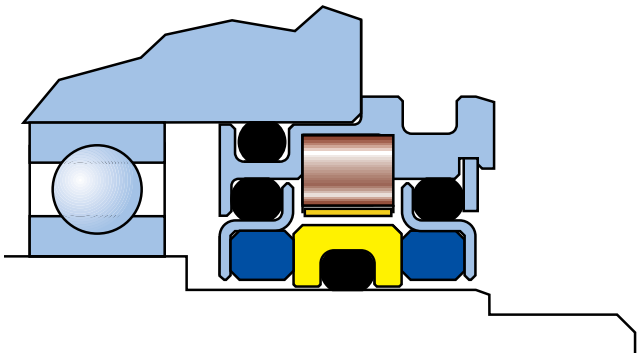
CALCULATED PV FACTORS

SHAFT SIZE	PRESSURE (barg/psig)	SPEED (rpm)	FACTOR (barg/m/s)	FACTOR (lbs/in2ft/min)
1.000 (25mm)	4 / 60	1450	7.7	22000
	10 / 150	1450	19.3	55000
	4 / 60	2850	15.1	43000
	10 /150	2850	37.9	108000
2.000 (50mm)	4 / 60	1450	15.4	44000
	10 / 150	1450	38.6	110000
	4 / 60	2850	30.2	86000
3.000 (75mm)	10 /150	2850	75.8	216000
	4 / 60	1450	23.1	66000
	10 /150	1450	57.9	165000
4.000 (100mm)	4 / 60	2850	45.3	129000
	4 / 60	1450	30.3	86000
	10 / 150	1450	77.2	220000
5.000 (125mm)	4 / 60	2850	60.4	172000
	4 / 60	1450	38.5	110000
	8 / 120	1450	77.2	220000
	4 / 60	2850	75.5	216000

WARNING
MAXIMUM P.V. RATING IS 80 BAR M/S (230,000 PSI FT/MIN)

13 - Standard AESSEAL® Designs used for the Pulp & Paper Industry

(D) MagTecta™ Double Mechanical Seal Bearing Protector

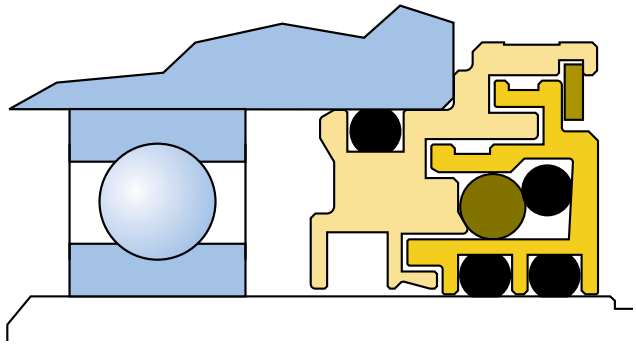


If rotating equipment bearings are inadequately protected, equipment damage, loss of fluid and ultimately catastrophic equipment failure may result. The contamination that causes bearings to fail is normally due to the use of low cost bearing seals such as lip seals and labyrinth bushes. The solution is to use the AESSEAL® MagTecta™ double mechanical seal, a product which is probably the most technologically advanced bearing protector in the world.

This seal is offered with the following extra features:

- Double faces, double protection
- Universal design
- Compact housing will fit the majority of lip seal cavities without the need for modification of equipment
- Rotary elastomer fits within existing lip seal cavity therefore our standard seal can be fitted on stepped shaft applications, reducing cost
- Reversible housing to suit two housing sizes on one shaft which reduces inventory and cost
- Suitable for use on Gear Boxes, Pumps, Rotary Valves, Conveyor Fans, Rolling Mills and many other types of rotating equipment

LabTecta®66Non Contacting Bearing Seal



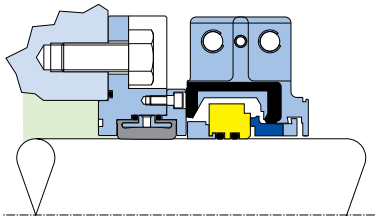
The LabTecta®66 is a non contacting, while rotating, bearing seal that is designed for use in Oil Splash, Dry Running and Grease applications, on pieces of horizontal equipment.

The LabTecta®66 can also be used in the vast majority of existing Oil Mist applications that comply with the now superseded API 610 7th Edition requirements and where a small quantity of Oil Mist escapes to atmosphere.

- Non contacting seal
- Ingress protection to IP55
- Easy to refurbish
- Safe - Non sparking
- Low cost
- No shaft wear
- Rotary elastomer fits within existing lip seal cavity therefore our standard seal can be fitted on stepped shaft applications, reducing cost
- Suitable for use on Gear Boxes, Pumps, Rotary Valves, Conveyor Fans, Rolling Mills and many other types of rotating equipment

13 - Standard AESSEAL® Designs used for the Pulp & Paper Industry

ISOS™
Inflatable Shut off seal



Most engineers will relate to the problems encountered when installing or removing a radially divided mechanical seal from rotating equipment.

However, the biggest single problem is that the whole system has to be drained or isolated so that liquids do not pour out when the seal is removed. This can sometimes take hours or even days depending on the application - all lost production time.

The AESSEAL® ISOS™, the Inflatable Shut Off Seal, solves this major problem.

This seal is offered with the following extra features:

- Eliminates the need for pump shut off valves when changing a seal and no pump re-priming is needed afterwards
- Fitted between the pump and seal it allows quicker and easier changing of the mechanical seal without having to drain equipment
- No re-priming of pumps needed after seal replacement
- Once inflated by a suitable and continuous supply it forms a pressurized seal for zero product leakage
- For use in conjunction with Radially Divided Seals

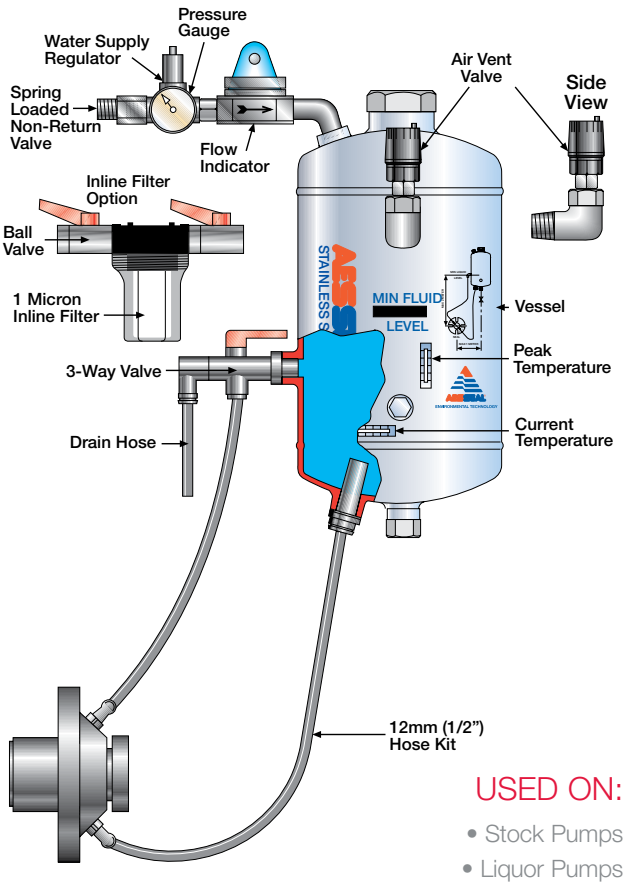
14 - Barrier Fluid Systems and Double Mechanical Seals

Seals and Systems for the Pulp & Paper Industry

- AESSEAL® have sold thousands of Water Management Systems, usually in combination with the CDSA™ Double Seal, in the Pulp and Paper Industry.
- Water Management Systems are maintenance friendly, requiring no external compressed air or gas pressurisation.
- Water Management Systems are largely self-regulating and self-operating and do not require any manual intervention for refilling.
- Although used throughout the Pulp and Paper Industry a primary application area is in heavy Black Liquor applications in the evaporation process.
- A typical 1.875" shaft black liquor pump, either packed in the traditional way or using a single flushed seal would typically introduce water into the process fluid at a rate of 1 US Gallon per minute.
- For a plant operating 24 hours a day for 350 days per year, this would amount to an annual total of 504,000 US Gallons [1.9 Million Litres] of flush water entering the process fluid. All of this would require reheating and then evaporating.
- The total annual cost of sealing, supplying water, heating water, re-evaporating the water etc., for one Black Liquor Pump is around $4,890 for a Packed Pump with Flush and $4,050 for a Pump sealed with a Single Mechanical Seal and Flush.
- A Sealing System can often provide a Return on Investment in a 6 to 12 month period – as well as being environmentally friendly and saving water.
- The total annual operating cost of a CDSA™ seal and SW2™ Water management system would be around $820 on the same basis as above. This would give a typical return on investment of around 200 days.

SW2™ Standard Water Management System

Typical CDSA™ seal shown with SW2™ Standard Water Management System



USED ON:

- Stock Pumps
- Liquor Pumps
- Mixers

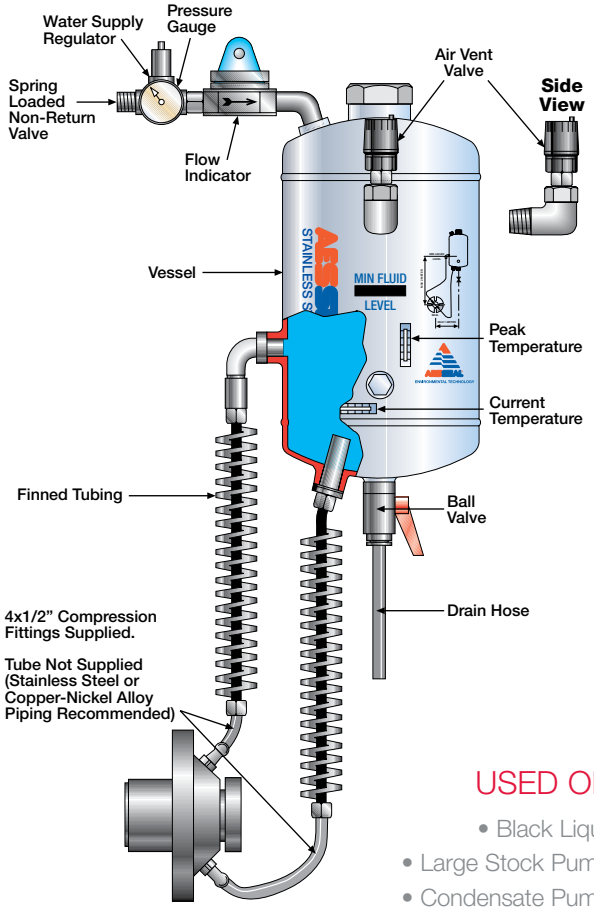
SW2™ Standard Water Management System (Order Code VSE/SW02)

- A general purpose system with the highly recommended additions of a water pressure regulator to prevent transient or fluctuating supply pressure affecting barrier system integrity, and a 3-way valve which allows periodic purging of the seal to prevent any build up of contamination.

14 - Barrier Fluid Systems and Double Mechanical Seals

SW3™ & SP3™ Seal Support Systems for Hot Applications

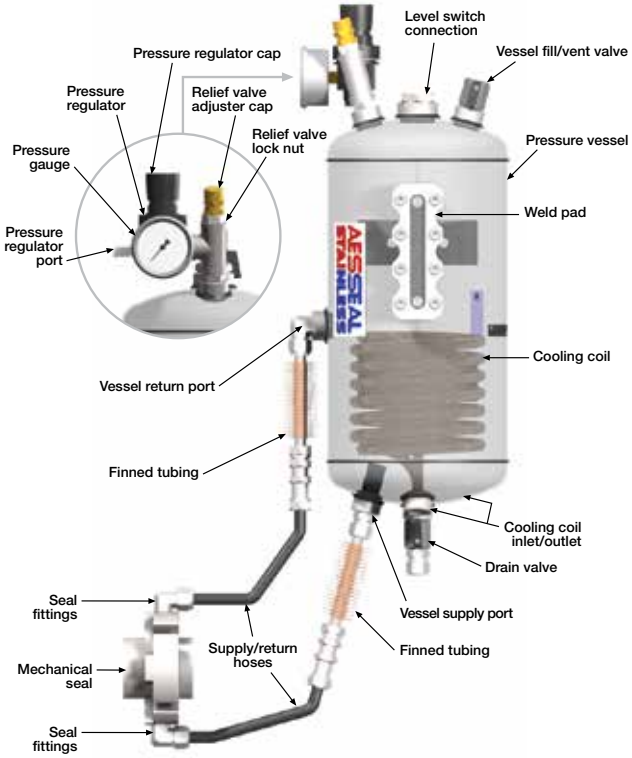
Typical CDSA™ seal shown with SW3™ Hot Water Management System



USED ON:

- Black Liquor
- Large Stock Pumps
- Condensate Pumps

SP3™ Inert Gas Pressurized System shown with optional integral cooling coil.



USED ON:

- Black Liquor
- Large Stock Pumps
- Condensate Pumps

SW3™ Hot Water Management System (Order Code VSE/SW03)

- Intended for hot applications where high cooling capacity is needed. 2 lengths of finned tubing boost the heat dissipation to 1 Kw (1.35 hp). Stainless steel or copper-nickel alloy pipework is recommended (not supplied). Additional cooling capacity can be added using the (optional) vessel with integral cooling coil as shown above right.

SP3™ Inert Gas Pressurized System (Order Code VSE/SP03)

- The SP3™ is a inert gas pressurised system with the addition of finned tubing to remove excess heat on hot applications. The image above shows the system fitted with an optional integral cooling coil which gives the system extra cooling capacity on high heat applications.

15 - Case History Information

Index of Applications - Seal Type

Bird Screen Seal

706

CAPI™

1618, 1664

CDM™

724g, 704h, 1263, 1727, 1733

CDSA™

120C, 121C, 122C, 123C, 201C, 223C, 291C, 480G, 481G, 482G, 483G, 711G, 713H, 714H, 718G, 719G, 728G, 730G, 882H, 886H, 927H, 944H, 945H, 957H, 958H, 960H, 972, 998, 1006, 1057, 1059, 1065, 1359, 1396, 1446, 1695, 1741, 1742, 1743, 1744, 1745, 1746, 1747, 1748, 1749,1943K, 1944K, 1945K, 1946K, 1947K, 1948K, 1953K, 1954K, 1955K, 1956K, 1957K, 1958K, 1959K, 1960K, 1964K

Convertor II™

485G, 707G, 709G, 710G, 712G, 715G

CSMO™

1413

CRCO™

140E, 142E, 143E, 222C, 225C, 253C, 254C, 255C, 256C, 257C, 258C, 259C, 260C, 261C, 262C, 264C, 265C, 266C, 267C, 268C, 269C, 270C, 271C, 272C, 921H

CURC™

027B, 060B, 094E, 088B, 130E, 141E, 195C, 226C, 237C, 238C, 239C, 300C, 340E, 341E, 342E, 343E, 344E, 353E, 400E, 701, 710G, 717G, 720G, 729G, 731G, 735G, 558H, 933H, 956H, 959H, 962H, 963H, 964H, 965H, 966H, 967H, 968H, 969H, 970H, 971H, 973H, 974H, 976H, 977H, 978H, 979H, 980H, 981H, 982H, 983H, 984H, 985H, 986H, 987H, 988H, 989H, 990H, 991H, 992H, 993H, 994H, 995H, 996H, 997H, 1000, 1002, 1003, 1004, 1005, 1036, 1039, 1040, 1041, 1042, 1043, 1044, 1045, 1046, 1047, 1048, 1049, 1050, 1051, 1052, 1053, 1054, 1055, 1056, 1058, 1060, 1061, 1062, 1063, 1751, 1267, 1278, 1291, 1334, 1952K, 1961K, 1962K, 1963K

CSWIB™

1251

DBDS™

721G, 725G, 726G, 727G

DMSF™

1224J, 1238K, 1722K, 1740K, 1750K, 1752K, 1753K, 1754K, 1755K, 1756K, 1757K, 1758K, 1759, 1760K, 1761K, 1762K, 1763K, 1764K, 1765K, 1766K, 1918K, 1937K

FI CDSA™

484G, 708G

IADC™

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Case No. 004B

In a Paper Recycling Plant, an AESSEAL® 91mm SAI™/USL™ seal was fitted to a Herman Finckh Screen, which is a rotating vertical screen.

This extracts the Sand and Grit Particles from the paper pulp and rotates at 1,500 rpm. The input pressure is 2.5 barg and the outlet pressure is 1.8 barg. Previously, the bearing cartridge in the middle of the assembly was sealed with packing. This got embedded with the sand and grit, and rapidly became ripped and leaked into the bearings. The unit had to be adjusted on a weekly basis, which involved an almost complete strip-down.

The Carbon/Chrome Oxide seal combination, with Viton® 'O' Rings was fitted in December 1987 and lasted 18 months.

See drawing number 6447977A for a general arrangement of the equipment modifications.

Case No. 027B

In a Paper Recycling Plant, AESSEAL® 70mm CURC™ seals, with Carbon/Chrome Oxide faces and Viton® 'O' Rings were fitted to Ahlstrom DE200/150/400 pumps. These pumps rotate at 1,440 rpm, and supply Paper Stock at 4% to the stock chests. The temperature is ambient and the pressure variable, depending on the stock chest. The previous seal arrangement was a metal bellows seal mounted onto a cartridge by another seal manufacturer. These seals gave very poor service life, from several weeks to three months before the bellows clogged and split, and they were extremely expensive.

AESSEAL® CURC™ seals had been running since January 1988, and lasted 12 months before the bearings failed.

The sleeve location was modified from clamped to grub screw arrangement.

Case No. 060B

In a Waste Processing Plant, AESSEAL® 23/8" CURC™ seals, with Solid Tungsten Carbide faces and Viton® 'O' Rings, were installed into Mono pumps. The pumps rotate at 970 rpm and pump a mixture of China Clay and Paper Fiber to presses to make a land-fill material. The product is at ambient temperature and a pressure of 50 psig. A Kevlar packing had been used on hard coated sleeves, resulting in constant leakage.

AESSEAL® CURC™ seals, with no modifications, were fitted in August 1987 and lasted approximately 18 months.

Case No. 088B

In a Paper Processing Plant, AESSEAL® 35/8" and 56mm CURC™ seals, with Carbon/Chrome Oxide faces and Viton® 'O' Rings, were installed in Escher Wyss Deflakers, size E2 and E1. These units rotate at 1,500 rpm and separate the fibers in the Paper Stock prior to it going to the presses. The product contains 20% Clay and is at 80ºC. It enters the deflakers at 20 psig and the outlet pressure is 11 psig. The previous sealing material was packing made from Graphite/ Asbestos which constantly leaked and caused a great deal of shaft sleeve wear. Lost process stock also had to be cleared from drains, which proved very expensive.

The AESSEAL® seals were fitted with a water flush and were installed into the units in March 1988. The 56mm CURC™ seal and the 35/8" CURC™ seal lasted about 18 months.

A new stuffing box was manufactured to hold the seal and replace the detachable one used to hold the packing.

Case No. 094E

In a Waste Paper Recycling Plant, AESSEAL® 2 1/2" CURC™ seals, with Carbon/Chrome Oxide faces and Viton® 'O' Rings, were installed into Voith Type L 15/20 pumps. These pumps transfer Paper Stock to the Dump Chest. They rotate at 1,482 rpm, the product temperature is 60ºC and the pressure 1.5 bar gauge. The stock contains paper pulp, steel pins, plastic bags and other assorted contaminants. The pumps were sealed using Graphite and Asbestos packing, which caused severe shaft wear and needed constant attention.

AESSEAL® CURC™ seals were installed in June 1988 but were later removed from this process.

The slots in the gland plate were deepened slightly to accommodate the pump gland bolt p.c.d.

Case No. 120C

In a Paper Mill, AESSEAL® 75mm CDSA™ fitted with Solid Tungsten Carbide faces and Viton® 'O' Rings were installed in Serlachious DC 200/450/M pumps. These pumps rotate at 1,450 rpm and transfer 2% to 4% paper stock from one chest to another. The product is at 30ºC and the system pressure is 70 psig. The pumps were previously packed with an Aramid Fiber packing which was not capable of containing the leakage and wore the sleeves badly. The product leakage entered the bearings, leading to premature failure and housekeeping problems.

The AESSEAL® CDSA™ seals, with water barrier fluid running to drain, were fitted in March 1989 and are still working well.

No modification to equipment was required.

Case No. 121C

In a Paper Mill, AESSEAL® 21/4" CDSA™ seals, fitted with Solid Tungsten Carbide faces and Viton® 'O' Rings, were installed in Black and Clawson 5" HM pumps. These pumps rotate at 1,100 rpm and transfer Paper Stock to the chest. The product is 35ºC to 40ºC and 70 psig. pressure.

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The pumps were previously packed with an Aramid Fiber packing which needed constant attention and still could not control the leakage, which entered the bearings, and caused housekeeping problems. The packing also damaged the shaft sleeves due to its abrasive nature.

The AESSEAL® CDSA™ seals, with water barrier fluid running to drain, were fitted in August 1989 and are still working well.

The gland bolt p.c.d. was reduced to accommodate the seal gland plate.

Case No. 122C

In a Paper Mill, AESSEAL® 2" CDSA™ seals, with Solid Tungsten Carbide faces and Viton® 'O' Rings, were installed into Black and Clawson 5" HM SS pumps. These pumps rotate at 1,800 rpm and transfer 4% to 6% Paper Stock to the chest. The product temperature is 35ºC and the pressure 70 psig. The pumps were previously packed with an Aramid Fiber packing which needed constant attention and still could not control the leakage, which entered the bearings and caused housekeeping problems. The packing also damaged the shaft sleeves due to its abrasive nature.

The AESSEAL® CDSA™ seals, with water barrier fluid running to drain, were fitted in August 1989 and are still working well.

The gland bolt p.c.d. was reduced to accommodate the seal gland plate.

Case No. 123C

In a Paper Mill, AESSEAL® CDSA™ seals, 60mm with Solid Tungsten Carbide faces and Viton® 'O' Rings, were installed into Ahlstrom APP 44/200 pumps. These pumps rotate at 1,480 rpm and transfer 4% Separated Stock containing traces of Sulfuric Acid to the stock chest. The product is at 30ºC to 40ºC and a pressure of 70 psig. The pumps were previously fitted with a P.T.F.E./Stainless Steel seal which would draw air on certain duties. This led to pressure surges on the line which could not be tolerated.

The AESSEAL® CDSA™ seals, with water barrier fluid running to drain, were installed in September 1989 and are still working well.

The CDSA™ has a special machined gland plate with an 'O' Ring fitted to the stuffing box face and large p.c.d. bolt slots to suit the pump.

Case No. 130E

In a Board Manufacturing Company, AESSEAL® CURC™, 50mm, with Solid Tungsten Carbide faces and Viton® 'O' Rings, was installed onto a Bell Paper-making Machine Vat Agitator Shaft. The shaft rotates at 80 rpm, and agitates the Silicon Cement in the vat prior to it being transferred to the rollers to go through the machine to make fire retardant boards. If the agitator shaft leaks, product is lost and the finished board becomes thin at one side and thick at the other. The product temperature is ambient and pressure is 4 ft/hd. Previously the shaft was sealed with packing or a rubber face seal; both failed within weeks.

The AESSEAL® CURC™ seal was installed in June 1988 and lasted four years before being replaced. 16 seals have now been installed.

No modification to equipment was required.

Case No. 140E

In a Paper Mill, an AESSEAL® CRCO™ seal, 90mm, with Solid Tungsten Carbide faces and Viton® 'O' Rings, was fitted to an Allis Chalmers 8 x 4 x 17 PWO pump. This pump rotates at 1,450 rpm, and supplies Paper Stock at 4% to the Stock Chests. The product is at 40ºC and 2 barg pressure. The previous seal was an expensive bellows seal which was not cartridge mounted and this led to installation problems and premature failure.

The fitting of the AESSEAL® CRCO™, with water flush into the stuffing box and oil via a pot at 4 ft/hd as a barrier fluid, has cured the problems due to it being cartridge mounted. This seal was installed in June 1989 and is working well.

No modification was required.

Case No. 141E

In a Paper Mill, an AESSEAL® CURC™ seal, 100mm, with Solid Tungsten Carbide faces and Viton® 'O' Rings, was fitted to a Black and Clawson NY 3659 agitator in the base of the Stock Chest. This unit keeps the paper stock in suspension. The product is 4% paper stock at 50ºC and 15 ft/hd pressure. The unit was previously packed with an Aramid Fiber packing, and even at its slow rotational speed of 120 rpm, the packing badly wore the shaft and could not control the leakage.

The AESSEAL® CURC™ seal was installed in October 1989 and is working well. 10 off seals have now been installed in this application.

No modifications were required.

Case No. 142E

In a Paper Mill, AESSEAL® CRCO™ seals, 2 3/4", with Solid Tungsten Carbide faces and Viton® 'O' Rings, were installed into Allis Chalmers 8 x 6 x 17 PWO pumps handling Black Liquor. The pumps rotate at 1,450 rpm and the product temperature is 40ºC at 2 barg pressure. The pumps were

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previously packed with Aramid Fiber packing which leaked badly. This gave the planned Maintenance Team a monthly removal, strip down, rebuild and re-pack job which worked out very expensive.

The AESSEAL® CRCO™ seal, with oil barrier fluid fed from a pot at 4 ft/hd was installed in May 1989 and lasted nineteen months before being replaced.

The sleeve was removed and the seal fitted directly to the shaft. An adaptor plate was made to locate the seal to the stuffing box face.

Case No. 143E

In a Paper Mill, AESSEAL® CRCO™ seals, 23/4", with Solid Tungsten Carbide faces and Viton® 'O' Rings, were fitted to Allis Chalmer 8 x 6 x 17 PWO pumps, rotating at 1,450 rpm. The pumps supply Brown Paper Stock to the Stock Chests. The product is at 55ºC and 3 barg pressure. Previously the pumps were packed with an Aramid Fiber packing which needed changing every 1 - 2 months, and the pump required refurbishing every 5-6 months due to damage caused by the leakage and the packing.

The AESSEAL® CRCO™ seals, with oil barrier fluid fed from a pot at 4 ft/hd were installed in September 1989 and lasted eighteen months before being replaced. The sleeve was removed and the seal fitted directly to the shaft. An adaptor plate was made to locate the seal to the stuffing box face.

Case No. 195C

In a Paper Mill, AESSEAL® 50mm CURC™ seals with Solid Tungsten Carbide faces and Viton® 'O' rings, were installed in Harland 58908/401 Horizontal Split Case pumps. The pumps rotate at 1,470 rpm collecting and returning Back Water via a Heat exchanger to the Stock Chest. The product is at 20ºC and 2 barg pressure and contains a small amount of paper stock along with the water. The pumps were previously packed using an Aramid Fiber packing. The pumps needed covering to prevent spray, even after packing.

AESSEAL® CURC™ seals were installed in January 1990 and are working satisfactorily. The seal gland plate was produced as per our Z454 special.

Case No. 196C

In a Paper Mill, AESSEAL® 70mm SCUSI™ seals, with Solid Tungsten Carbide faces and EPR 'O' rings, were installed to Ahlstrom APP 42/150 pumps. The pumps rotate at 1,470 rpm and circulate Paper Stock at 5% between chests to allow the addition of additives. The stock is at 30º C and 3.5 barg pressure. The pumps were previously packed using an Aramid Fiber packing. This gave poor service life and badly wore the shaft sleeves.

AESSEAL® SCUSI™ seals were installed in February 1990 with a water flush and are still working satisfactorily.

No modifications were required.

Case No. 197C

In a Paper Mill, AESSEAL® 70mm SCUSI™ seals with Solid Tungsten Carbide faces and EPR 'O' rings, were installed into Ahlstrom APP42/150 pumps. These pumps rotate at 1,450 rpm and supply Paper Stock at 3.5% to 4.0% to the machine. The stock is at 3 barg and 30ºC.

This was a new installation.

The seals were fitted in April 1990 with a clean water flush.

They are still working well.

Case No. 201C

In a Paper Mill, an AESSEAL® 1" CDSA™ with Solid Tungsten Carbide faces and FEP 'O' rings was installed in a Cochrane pump. The pump rotates at 1,450 rpm and collects Condensate from the side of the Corrugator where steam is used to dry the paper. The Condensate is then returned to the boiler feed system. The product is at 180ºC and 150 psig, and is clean. The pump was previously packed and required constant attention.

The AESSEAL® was installed in May 1988 and was taken out of service due to leakage in September 1990. It has since been refurbished and re-installed.

The stuffing box bore was machined to maximum clearance for the seal, and the face of the box was skimmed to give a good gasket area.

A water barrier fluid is used running to drain.

Case No. 221C

In a Paper Mill, an AESSEAL® 60mm Cartridge seal with Solid Tungsten Carbide faces and Viton® 'O' rings was installed in a Black and Clawson Omega Screen. The screen rotates at 980 rpm and removes clumps of undigested paper and other foreign matter from the Paper Stock. The Paper Stock is at 30ºC and below 10 psig pressure. The screen was fitted with a single spring type seal which proved difficult to install due to the screw clamp arrangement for tightening the stationary onto the rotating element on the machine. Many breakages were experienced.

The AESSEAL® installed was a machined gland CURC™ where the seal elements are mounted into the unit in a reverse direction.

This IASC™ was installed in August 1990 and is working well.

Due to the seal design, a new plain shaft and seal 'pedestal' as per the AESSEAL® drawing were required.

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Case No. 222C

In a Paper Mill, AESSEAL® 70mm CRCO™ seals, with Solid Tungsten Carbide faces and Viton® 'O' rings were installed to Scan Pumps -NB 125/100-22 pumps. These pumps rotate at 1,450 rpm and supply water to a ring main around the plant. This is used to cool rollers, flush seals etc. The water is at ambient temperature and 50 ft/hd pressure. The pumps were previously fitted with single spring seals which gave poor service life.

The AESSEAL® CRCO™ seals, with water barrier fluid at 7 psig, were installed in November 1989 and are still working satisfactorily.

The Scan Pump was refitted with an adaptor plate and pump packing sleeve which replaced the seal sleeve which had a thinner cross section.

Case No. 223C

In a Paper Mill, AESSEAL® 80mm CDSA™ seals with Solid Tungsten Carbide faces and Viton® 'O' rings were installed to Double Ended Scan Pumps - Z22 450/400 - 40 pumps. These pumps rotate at 1,450 rpm and are designated Top Fan pumps, supplying Paper Stock to the machine headbox. The top fan pump supplies the high quality stock to the machine for the top coat on cardboard whilst the bottom fan pumps supply the coarser grades. The paper stock is 2%, at 40ºC and 3.5 barg pressure.

The pumps were previously sealed using multi-spring seals. These gave poor service life and were converted to AESSEAL® CDSA™ seals, with a water barrier fluid, in January 1990, and are still working satisfactorily.

No modifications were required.

Case No. 224C

In a Paper Mill, AESSEAL® 95mm SAI™/USL™ seals with Solid Tungsten Carbide faces and Viton® 'O' rings were installed into Ahlstrom Karhula Bird Centriscreens. The screens rotate at 1,477 rpm and screen the stock from the top fan pumps prior to it reaching the machine. The stock is at 2% and 50ºC and a pressure of 15 psig.

The screens were previously sealed using Lip Seals which gave very poor service life due to the abrasive nature of the product, and which allowed the stock into the bearing assembly.

The AESSEAL® SAI™/USL™ seals were installed in October 1990 and are working satisfactorily.

The USL™ body is 'O' ring mounted and has a pin anti-rotation device.

Case No. 225C

In a Paper Mill, AESSEAL® 50mm CRCO™ seals with Solid Tungsten Carbide faces and Viton® 'O' rings were installed in Scan Pump - NB 65/40-26 pumps. These pumps rotate at 2,900 rpm and are classed as White Water Shower Pumps. They supply a high pressure water service to feed sprays in the machine which clean the rollers and the wire. The water is at ambient temperature and 90m/hd pressure. The pumps were previously fitted with single spring seals which gave a poor service life.

The AESSEAL® CRCO™ seals, with water barrier fluid, were installed in January 1990 and are working satisfactorily.

The Scan Pump was refitted with an adaptor plate and pump packing sleeve which replaced the seal sleeve which had a thinner cross section.

Case No. 226C

In a Paper Mill, AESSEAL® 45mm CURC™ seals with Solid Tungsten Carbide faces and Viton® 'O' rings were installed to Scan Pump - HB/100 pumps. The pumps rotate at 1,450 rpm. After backwater has been squeezed from the paper by the rollers, the pumps transfer it from the machine back to the stock chest. The product contains a small amount of stock fiber and is at 30ºC and 2.5 barg pressure. The pumps were previously fitted with single spring seals which gave very poor service life.

The AESSEAL® CURC™ seals, which were installed by Scan, were fitted in September 1990 and are working satisfactorily.

No modifications were required.

Case No. 237C

In a Paper Mill, an AESSEAL® 45mm CURC™ seal with Carbon/Chrome Oxide faces and Viton® 'O' rings was installed in a Scan pump. The pump rotates at 1,450 rpm and transfers Backwater to the Stock Chest. The product is at ambient temperature and 20 ft/hd. The pump was previously packed using GFO fiber packing and had to be re-packed every two days.

The AESSEAL® was installed in July 1988 and is still working leak-free.

The bolt p.c.d. on the pump was too small for the gland and the slots were therefore deepened by milling.

Case No. 238C

In a Paper Mill, AESSEAL® 50mm CURC™ seals with Solid Tungsten Carbide faces and Viton® 'O' rings were installed to

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Scan 150 x 200 x 26 pumps. The pumps rotate at 1,450 rpm and supply Finished Paper Stock to the Machine Headbox. The paper stock is at 30ºC and 20 ft/hd pressure.

The pumps were previously packed using GFO fiber packing material and needed constant attention to keep these important pumps in service.

The AESSEAL® CURC™ seals were installed in July 1988 and are still in service.

The bolt p.c.d. was too small for the seal and the slots were deepened by milling.

Case No. 239C

In a Paper Mill, AESSEAL® 70mm CURC™ seals with Solid Tungsten Carbide faces and Viton® 'O' rings were installed to Lamort TWS250 pumps as part of a new project. The pumps rotate at 1,473 rpm and circulate partial stock through a Drum Filter plant. The stock is at ambient temperature and 1.5 barg pressure.

The AESSEAL® CURC™ seals were installed in December 1990 and are still working leak-free.

Case No. 253C

In a Paper Mill, AESSEAL® 70mm CRCO™ seals with Carbon/Chrome Oxide faces and Viton® 'O' rings were installed to Allweiler ES100/400 pumps. The pumps rotate at 1,450 rpm and transfer 6% Paper Stock to a Chest at 40ºC and 1.5 barg pressure. The pumps were previously packed using a Kevlar material which caused shaft sleeve wear, and needed constant attention. The leakage caused serious housekeeping problems.

The AESSEAL® CRCO™ seals were installed in November 1990 and are still working leak-free.

An oil barrier fluid at atmospheric pressure is in operation.

No modifications were required.

Case No. 254C

In a Paper Mill, AESSEAL® 70mm CRCO™ seals with Carbon/Chrome Oxide faces and Viton® 'O' rings were installed to Ahlstrom DC 125/400 pumps. The pumps rotate at 1,450 rpm and circulate 4% Paper Pulp. The product is at 70º to 80ºC and 3 to 5 barg pressure. The pumps were previously packed using GFO Fiber packing which required constant attention.

The AESSEAL® CRCO™ seals were installed in March 1991 and have a grease barrier fluid. The seals are still working leak-free.

The seals are secured to the stuffing box face by a jacking plate and bolts, from the bearing frame end.

Case No. 255C

In a Paper Mill, AESSEAL® 48mm CRCO™ seals with Solid Tungsten Carbide faces and Viton® 'O' rings were fitted to Scan 180-200 pumps. The pumps rotate at 1,450 rpm and draw waste pulp and water from the bottom of a Pulper. The product is a very low percentage pulp, at 40ºC and 0.5 barg pressure. The pumps were previously sealed using Cartridge Mounted Single Spring seals which gave six months maximum life.

The AESSEAL® CRCO™ seals were installed in January 1991 and have an oil barrier fluid. The seals are working leak-free.

An adaptor plate was made to fit the seal to the pump.

Case No. 256C

In a Paper Mill, an AESSEAL® 65mm CRCO™ seal with Solid Tungsten Carbide faces and Viton® 'O' rings was installed to a Scan 225-250 pump. The pump rotates at 1,450 rpm and supplies warm water to the machine. The water is at 40ºC and 4 barg pressure. The pump was previously fitted with a Single Spring Cartridge seal which gave six months maximum life.

The AESSEAL® CRCO™ seal was installed in April 1991 and has no barrier fluid connected. The seal is working leak-free.

An adaptor plate was made to fit the seal to the pump.

Case No. 257C

In a Paper Mill, an AESSEAL® 65mm CRCO™ seal with Solid Tungsten Carbide faces and Viton® 'O' rings was installed in a Scan 280-315 pump. The pump returns Backwater from the machine to the Chest. The product is a low percentage Paper Stock at 20ºC and 2 barg pressure. The pump was previously sealed using a Single Spring Cartridge seal which gave six months maximum life.

The AESSEAL® seal was installed in December 1990 with no barrier fluid and is working leak-free.

An adaptor plate was fitted to the stuffing box face against which the seal was to be mounted.

Case No. 258C

In a Paper Mill, an AESSEAL® 65mm CRCO™ seal with Solid Tungsten Carbide faces and Viton® 'O' rings was installed to a Scan 225-250 pump. The pump rotates at 1,450 rpm and transfers 5% to 6% stock from the Dewatering operation. The stock is at ambient temperature and 2 barg pressure.

The pump was sealed using a Single Spring Cartridge seal which gave 3 to 4 months maximum seal life.

The AESSEAL® CRCO™ seal was installed in April 1991 with no barrier fluid and is still working leak-free.

An adaptor plate was fitted.

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Case No. 259C

In a Paper Mill, AESSEAL® 65mm CRCO™ seals with Solid Tungsten Carbide faces and Viton® 'O' rings were installed to Scan 180-200 pumps. The pumps rotate at 1,450 rpm and transfer 3% to 4% stock around the mill. The product is at 60ºC and 3 barg pressure. The pumps were previously sealed using Single Spring Cartridge seals which gave six months maximum life.

The AESSEAL® CRCO™ seals were installed in February 1991 and have no barrier fluid connection.

The seals are still working leak-free.

An adaptor plate was utilized.

Case No. 260C

In a Paper Mill, AESSEAL® 65mm CRCO™ seals with Solid Tungsten Carbide faces and Viton® 'O' rings were installed to Scan 225-250 pumps. The pumps rotate at 1,450 rpm and transfer low percentage stock to a Chest. The product is at 40ºC and 2 barg pressure. The pumps were previously sealed using Single Spring Cartridge seals which gave six months maximum life.

The AESSEAL® CRCO™ seals were installed in February 1991 and have no barrier fluid connected.

The seals are still working leak-free. An adaptor plate was utilized.

Case No. 261C

In a Paper Mill, AESSEAL® 65mm CRCO™ seals with Solid Tungsten Carbide faces and Viton® 'O' rings were installed to Scan 180-200 pumps. The pumps rotate at 1,450 rpm and transfer Backwater to the Chest. The product is at 40ºC and 4 barg pressure. The pumps were previously sealed using Single Spring Cartridge seals which gave six months average life.

AESSEAL® CRCO™ seals were installed in October 1990, having had the oil pots removed.

The seals are working leak-free.

An adaptor plate was utilized.

Case No. 262C

In a Paper Mill, AESSEAL® 75mm CRCO™ seals with Solid Tungsten Carbide faces and Viton® 'O' rings were installed to Scan BA 3200-200-40 pumps. The pumps rotate at 1,450 rpm and transfer 9% to 10% paper stock to the Blending Plant. The product is at 40ºC and 4 barg pressure. The previous seals installed were Single Spring Cartridge seals, which leaked from plant start-up.

The AESSEALs were installed in February 1991 and had no barrier fluid connected. The seals are working leak-free.

An adaptor plate was utilized.

Case No. 264C

In a Paper Mill, AESSEAL® 45mm CRCO™ seals with Carbon/Chrome Oxide faces and Viton® 'O' rings were installed to Sulzer Weiss ES80-315 pumps. The pumps rotate at 1,450 rpm and supply very low percentage stock and dirty water for re-cycling. The product is at 40ºC and 2 barg pressure. The pumps were previously packed using a Kevlar material. This needed constant attention and wore the shaft sleeve.

The AESSEAL® CRCO™ seals were installed in November 1990 with an oil barrier fluid and are still working leak-free.

No modifications were required.

Case No. 265C

In a Paper Mill, AESSEAL® 55mm CRCO™ seals with Carbon/Chrome Oxide faces and Viton® 'O' rings were installed to Sulzer Weiss ES50-315 pumps. The pumps rotate at 1,450 rpm and are used to transfer 3% Paper Stock. The product is at 40ºC and 3 barg pressure. The pumps were previously sealed using a Kevlar based packing which leaked constantly and wore the shaft sleeve.

The AESSEALs were installed on the 19th of November 1990 with an oil barrier fluid and are still working leak-free.

No modifications were required.

Case No. 266C

In a Paper Mill, AESSEAL® 45mm CRCO™ seals with Carbon/Chrome Oxide faces and Viton® 'O' rings were installed to Sulzer Weiss ES 80-315 pumps. The pumps rotate at 1,450 rpm and circulate 3.3% Paper Stock around the system. The product temperature is 40ºC and the pressure 3 barg. The pumps were previously packed using a Kevlar based packing which constantly leaked.

The AESSEAL® CRCO™ seals, with oil barrier fluid, were installed in November 1990 and are still working leak-free.

No modifications were required.

Case No. 267C

In a Paper Mill, AESSEAL® 55mm CRCO™ seals with Carbon/Chrome Oxide faces and Viton® 'O' rings were installed to Sulzer Weiss ES 150-400 pumps. The pumps rotate at 1,450 rpm and transfer Paper Stock at 5%. The product is at 40ºC and 3 bar pressure. The pumps were previously packed using

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a Kevlar material which constantly leaked and caused shaft sleeve wear.

The AESSEAL® CRCO™ seals, with an oil barrier fluid, were installed in November 1989, then refurbished and re-installed in November 1990, when they gave a further 12 months life..

No modifications were required.

Case No. 268C

In a Paper Mill, AESSEAL® 55mm CRCO™ seals with Carbon/Chrome Oxide faces and Viton® 'O' rings were installed in Sulzer Weiss ES 150-400 pumps. The pumps rotate at 1,450 rpm and transfer sorted pulp at 6%. The product is at 40ºC and 2.5 barg pressure. The pumps were previously packed using a Kevlar material which leaked constantly and caused sleeve wear.

The AESSEALs were installed in mid 1990 and are supplied with an oil barrier fluid. The seals are still operating leak-free. No modifications were required.

Case No. 269C

In a Paper Mill, AESSEAL® 55mm CRCO™ seals with Carbon/Chrome Oxide faces and Viton® 'O' rings were installed to Sulzer Weiss ES 100-400 pumps. The pumps rotate at 1,450 rpm and transfer Paper Pulp at 4%. The product temperature is 60ºC and the pressure 3 barg. The pumps were previously packed using a Kevlar material which leaked constantly.

The AESSEALs were first installed in 1990 gave a twelve months service life. An oil barrier fluid was used.No modifications were required.

Case No. 270C

In a Paper Mill, AESSEAL® 80mm CRCO™ seals with Carbon/Chrome Oxide faces and Viton® 'O' rings were installed to Sulzer Weiss ES 250-400 pumps. The pumps rotate at 1,450 rpm and transfer Paper Pulp at 1.3%. The product temperature is 40ºC and the pressure 1 barg. The pumps were previously packed using a Kevlar material and leaked constantly.

The AESSEAL® CRCO™ seals were installed in December 1987 and gave a three year seal life. The barrier fluid is oil. No modifications were required.

Case No. 271C

In a Paper Mill, AESSEAL® 90mm CRCO™ seals with Carbon/Chrome Oxide faces and Viton® 'O' rings were installed to Sulzer Weiss pumps. The pumps rotate at 1,450 rpm and are used to transfer Paper Stock at 5%. The product is at 50ºC and 2 barg pressure. The pumps were previously packed using a Kevlar material which leaked constantly.

The AESSEAL® CRCO™ seals with oil barrier fluid were installed in January 1991 and are still working satisfactorily. No modifications were required.

Case No. 272C

In a Paper Mill, AESSEAL® 45mm CRCO™ seals with Carbon/Chrome Oxide faces and Viton® 'O' rings were installed to Sulzer Weiss ES 80-250 pumps. The pumps rotate at 1,450 rpm and transfer Backwater from the machine back to the Chest. The product is at 50ºC and 1 barg pressure. The pumps were previously packed using a Kevlar material which leaked constantly.

The AESSEAL® CRCO™ seals were installed in September 1990 and are still working satisfactorily. The barrier fluid is oil. No modifications were required.

Case No. 273C

In a Paper Mill, AESSEAL® 5 1/2" SAI™ seals and 'O' ring mounted stationaries with Carbon/Chrome Oxide faces and Viton® 'O' rings were installed in an Ahlstrom Karhula Bird Centriscreen. The unit rotates at 16.7 revs/second and removes clumps of paper from the stock prior to it entering the machine. The product is at 40ºC and 60 m/hd pressure. Previously the screen was sealed using an expensive multi-sprung seal which gave a six month maximum seal life.

The AESSEAL® units were installed in January 1990 and are working leak-free.

Case No. 291C

In a Paper Mill, AESSEAL® 125mm CDSA™ seals with Solid Tungsten Carbide inboard faces and Viton® 'O' rings were installed to Voith Turbo Separators AJS31. The shafts rotate at 450 rpm and are used to clean recycled raw paper stock. The product is at 30ºC, 2 barg pressure and includes staples and bailing wire. The pumps were previously packed using a Kevlar material. This required re-packing every two weeks and caused extreme sleeve wear and product ingress to the bearings. The bearings required changing every three to six months.

The AESSEAL® CDSA™ seals, with water barrier fluid at 2.5 barg supplied by an AESSEAL® CS10 vessel, were installed in April 1991 and are still operating leak-free.

See Drawing Number 6449158 for seal design and installation.

Case No. 292C

In a Paper Mill, AESSEAL® 35mm SE/'T' Shape stationaries with Carbon/Lead Bronze faces and EPR 'O' rings were installed to SIHI Ryaland Ryax F32/16 pumps. The pumps are used to return Condensate from the rolls to the boiler feed line for re-use. The product is at its vapourisation temperature of 95ºC and 25" Hg vacuum. The pumps were previously

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packed and a constant leakage of steam into the bearings caused premature failure.

The AESSEALs were installed in March 1990 and gave six to twelve months service life.

A plate was manufactured to hold the 'T' Shape stationaries.

With products at vapourisation temperature AESSEAL® recommend the use of double seals.

Case No. 300C

In a Paper Mill, AESSEAL® 60mm CURC™ seals with Carbon/Chrome Oxide faces and Viton® 'O' rings were installed to Ahlstrom 200-150-250 pumps. The pumps rotate at 1,450 rpm and transfer Backwater from the machine to the chests. The product temperature is 60ºC and the pressure 50 ft/hd. The pumps were previously packed and surges in the system pressure caused large leakage problems.

The AESSEAL® CURC™ seals were installed in June 1989 and are working leak-free. No modifications were required.

Case No. 301C

In a Paper Mill, AESSEAL® 70mm SAI™/USL™ seals with Carbon/Chrome Oxide faces and Viton® 'O' rings were installed to Ahlstrom APP 44/200 pumps. The pumps rotate at 1,460 rpm and transfer Paper Stock at 4% to 5%. The stock temperature is 50ºC and the pressure 30 ft/hd. The pumps were previously sealed using packing and surges in the system pressure caused leakage problems.

The AESSEAL® SAI™/USL™ seals were installed in 1987 and gave an 18 month service life. No modifications were required.

Case No. 327E

In a Paper Mill, an AESSEAL® 85/8" SAI™ and rigid mount stationary with Solid Tungsten Carbide faces and Viton® 'O' rings was installed into a Voith Hydropulper VS26. The shaft rotates at 270 rpm and mixes water, recycled paper bales and chemicals in a vat to re-dissolve the paper. The product is at 60ºC and a static head of approximately 6 feet. The unit was previously packed using Kevlar and G.F.O. fiber packings, neither of which could control the leakage.

The AESSEAL® seal was installed in December 1991 and is still working satisfactorily.

Case No. 328E

In a Paper Mill, an AESSEAL® 170mm SCUSI™ seal with Solid Tungsten Carbide faces and Viton® 'O' rings was installed in a Voith Turbo Separator ATS10. The shaft rotates at 525 rpm and separates lumps of Paper Stock from the product. The stock is approximately 3.5% to 4.5% and 50ºC with pressure up to 3-4 barg. The unit was previously packed using Kevlar packing but this gave poor service due to sleeve wear and bearing contamination.

The AESSEAL® was first installed in December 1991 and gave an eleven month trouble-free service life. The unit was installed with a new sleeve and the seal has a machined gland plate (Z856).

Case No. 340E

In a Paper Mill, AESSEAL® 75mm CURC™ seals with Solid Tungsten Carbide faces and Viton® 'O' rings were installed in Scan 350/300/40 pumps. The pumps rotate at 1,450 rpm and supply Paper Stock to the next cleaning process. The product is at 35ºto 40ºC and 50 to 70 psig. The seals were supplied with the new pumps.

The AESSEALs were commissioned in December 1991 and are still working leak-free.

No modifications to equipment were required.

Case No. 341E

In a Paper Mill, AESSEAL® 65mm CURC™ seals with Solid Tungsten Carbide faces and Viton® 'O' rings were installed into Scan 250/250/32 pumps. The pumps rotate at 1,480 rpm and supply Paper Stock to the next cleaning process. The product is at 35ºto 40ºC and 50 to 70 psig. The seals were supplied with the new pumps.

The AESSEALs were commissioned in December 1991 and are still working leak-free. No modifications to the equipment were required.

Case No. 342E

In a Paper Mill, AESSEAL® 65mm CURC™ seals with Solid Tungsten Carbide faces and Viton® 'O' rings were installed into Scan 250/150/32 pumps. The pumps rotate at 1,450 rpm and supply Paper Stock to the next cleaning process. The product is at 35º to 40ºC and 50 to 70 psig. The seals were supplied with the new pumps.

The AESSEALs were commissioned in December 1991 and are still working leak-free. No modifications to equipment were required.

Case No. 343E

In a Paper Mill, AESSEAL® 65mm CURC™ seals with Solid Tungsten Carbide faces and Viton® 'O' rings were installed into Scan NB125/100/32 pumps. The pumps rotate at 1,450 rpm and supply Paper Stock to the next cleaning process.

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The product is at 35º to 40ºC and 50 to 70 psig. The seals were supplied with the new pumps.

The AESSEALs were commissioned in December 1991 and are still working leak-free. No modifications to equipment were required.

Case No. 344E

In a Paper Mill, AESSEAL® 75mm CURC™ seals with Solid Tungsten Carbide faces and Viton® 'O' rings were installed into Scan BA 350/300/40 pumps. The pumps rotate at 1,450 rpm and transfer White Water at 35º to 40ºC and 50 to 70 psig.

The AESSEALs were installed in the new pumps and were commissioned in December 1991. All are still operating leak-free.

No modifications to equipment were required.

Case No. 353E

In a Paper Mill, AESSEAL® 50mm CURC™ seals with Solid Tungsten Carbide faces and Viton® 'O' rings were installed to a Scan pump. The pump rotates at 1,450 rpm. and circulates Paper Stock around the Wet Broke Chest. The product is at 30ºC and a pressure of 3.5 barg. Previously the pump was packed using Kevlar material and was an embarrassment to the Engineering Section as they could never control the leakage.

The AESSEAL® CURC™ seal was installed in October 1991 and is still working leak-free.

An adaptor plate was produced against which to mount the seal.

Case No. 397E

In a Paper Mill, an AESSEAL® 21/8" IASC™ seal with Solid Tungsten Carbide faces and EPR 'O' rings was installed to a Black and Clawson P30 Selectifier Pressure Screen. The unit rotates at 900 rpm and removes clumps of paper fibers from 3% to 5% stock. The product is at 30ºC and 3 barg pressure. The unit was previously sealed with the manufacturer's seals which were difficult to install and only gave a six month average life.

The AESSEAL® IASC™ seal was installed in July 1991 and is still operating leak-free. Seal type is Z784.

Case No. 398E

In a Paper Mill, AESSEAL® 40mm SCUSI™ seals with Carbon/ Solid Tungsten Carbide faces and EPR 'O' rings were installed into Mather and Platt 1 x 2 A.VE.8 pumps. The pumps rotate at 2,870 rpm and transfer Condensate back to the Boiler Feed Tank. The product is at 85ºC and 2 barg pressure. Previously the pumps were packed using Kevlar material which leaked constantly.

The AESSEALs were installed in March 1992 and are still operating leak-free No modifications to equipment were required.

Case No. 399E

In a Paper Mill, AESSEAL® 30mm SCUSI™ seals with Carbon/ Chrome Oxide faces and Viton® 'O' rings were installed to Impact 7.5T4R/M01 pumps. The pumps rotate at 1,460 rpm and circulate Lubrication Oil around the Paper Making machine. The product is at 70ºC and 4.5 barg pressure. Previously the pumps were packed using Graphite/Asbestos packing which leaked continuously.

The AESSEAL® SCUSI™ seals were installed in November 1991 and are still operating leak-free.

No modifications to equipment were needed.

Case No. 400E

In a Paper Mill, AESSEAL® 33/4" CURC™ seals with Solid Tungsten Carbide faces and Viton® 'O' rings were installed to Black and Clawson CI10 and CI12 pumps. The pumps rotate at 985 rpm and transfer Virgin Stock from the Hydro-Pulper to the Dump Chest. The product is at 60ºC and 50 feet/head. Previously the pumps were packed using Kevlar material which leaked constantly.

The AESSEAL® CURC™ seals were installed in March 1992 and are still operating leak-free.

No modifications to equipment were required.

Case No. 477G

In November 1992, Hydro-Pulper Seals were fitted in a Paper Mill in Northumberland, England.

Mill No P1 had 2 off Black and Clawson units. The 1st Unit on P1 was installed with a 12.0" seal in November 1992 and was successful for 2 years. It was changed in 1995 and again in 1997 due to seal damage from mis-use.

Seal type SAI™ XL XS 12.0" TC vs TC DWG. 6450761 (Reference, Z1062)

Case No. 478G

The 2nd Unit on P1 was installed with a 12.0" seal in January 1994 and again was successful for 2 years plus. The seal was changed in 1996 and again in 1997 both due to mechanical damage. The smaller unit 'Dry End' was fitted with a 8 9/16" seal in 1994. These were changed once since.

Seal Type SAI™ XL XS 8.9/16" TC vs TC

DWG. 6452272 (Reference, Z1616)

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Case No. 479G

In March 1993, Hydro-Pulper Seals were fitted in a paper mill in Northumberland, England.

Mill No P2 had 2 off Esher Wyss Units. The 1st Seal (240mm) was installed in March 1993. It had 2 years operation and was changed in 1995, and 1997 due to mechanical damage from mis-use.

Seal Type SAI™ XL XS 240mm TC vs TC, Dwg. 6452291, Z Reference Z1171

The 2nd Unit was fitted in February 1996 and had 18 months successful operation but was changed in 1997 due to damage from mis-use.

Case No. 480G

In a Paper Mill, in the UK, several 150mm CDSA™ TC/TC// CRO2/CAR/Viton® seals (Z1427) were fitted to 5 off SUNDS JALAVARRA REFINERS (Defibrators), type JC03. These units have excessive axial movement of the shaft and were traditionally packed, with resulting inefficient sealing and high leakage rates.

The first seal was fitted in September 1993. To date, no failures have been reported.

Case No. 481G

In a Paper Mill, in the UK, several 200mm CDSA™ TC/TC// CRO2/CAR/Viton® seals Z3580 were fitted to 2 off SUNDS JALAVARRA REFINERS (Defibrators), type JC04. These units have excessive axial movement of the shaft and were traditionally sealed with Burgmann Back to Back seals. The Burgmann seals lasted approximately 9 months.

The first seal has been in service for 18 months with no reported failures to date.

Case No. 482G

In a UK Paper Mill, in November 1997, two 115mm CDSA™ TC/TC//CRO2/CAR/Viton® seals (Z4386) were fitted to a SUNDS JALAVARRA REFINER (Defribator), type JC01. These units have excessive axial movement of the shaft and were traditionally packed, with resulting inefficient sealing and high leakage rates.

Case No. 483G

In a Dimer Plant of a Paper mill Chemical division, in the North of England, a CDSA™ TC/TC//TC/CAR/V was fitted in April 1992 on an IDP Dimer Dump Tank Pump.The duty was Dimer (mix of fatty acids and clay solids), and the AESSEAL® replaces a Crane 109 back to back design. The seal operated with clean fatty acid barrier fluid, thermosyphoning from an existing pressure pot.

The seal performance was very good despite constant clogging problems in the pump. This meant that the pump was regularly stripped for cleaning. However, it was rebuilt using the same seal without any leakage problems. The seal eventually had to be repaired after numerous refits, but was considered by the customer to have given excellent results. A spare seal was also purchased so there was no down time when the seal was sent to the Derby repair centre.

On this particular application the 'sister' pump was fitted with a Chesterton 241 double seal which gave endless problems. These were resolved by Chesterton only when they replaced the IDP pump with a Chesterton pump and supplied a new type 255 seal design.

Case No. 484G

In August 1995, 4 off 40mm FI-CDSA™ seals, CAR/SIC// CER/CAR, with Aflas® elastomers inboard and Viton® elastomers outboard, were fitted to Stork pumps, in a Tall oil plant, in England. The duty was tall oil and fatty acids at 180-200ºC (355-395ºF). The seals operated with cooled fatty acid barrier fluid via SSE10 retention vessels supplied at constant pressure from existing system. Good service life to date, with no reported problems. During a planned shutdown, 4 off seals were sent for repair May/June 1997, and the stocked spare seals were subsequently fitted.

Case No. 485G

In August 1995, 6 off 48 and 58mm CONII seals, CAR/CER, were fitted to Stork pumps, in a Tall oil plant, in England. The duty was tempered water supply and cooling water supply. Good service life to date, with no reported problems.

Case No. 487G

At a Paper Mill in Louisiana, USA, two Safematic seals had been installed on a Kvaerner white liquor pressure disk filter.

One of the units had leaked on installation and was removed from service after only four months, leaking badly. The other unit, the inboard unit, eventually failed after less than a year in service.

The major problem was the cost of the competitor's seals at $17,000 US, as well as the extreme difficulty in fitting the competitor's products.

AESSEAL® installed a 339 mm (13.346") SAI™ seal and stationary in August 1996. (The SAI™ reference = Z3472, and the Stationary reference = Z3484)

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The seal was specially designed for ease of installation and a letter exists from Advanced Fluid Technologies, complimenting the company on the design work undertaken.

The AESSEAL® unit, seal and stationary, were supplied at $12,000 US and were still working on the 14th October 1997, leak free.

The seal is fitted on the external side of the Kvaerner unit, which is the higher pressure side. It is worthy of note that another Mill in Arkansas also uses this Kvaerner unit and that both inboard and outboard seals, as supplied by the competitor, were leaking after less than 12 months.

Case No. 700

In February 1998, AESSEAL® supplied and installed two 4.125" IADC™, TC/TC//TC/CAR double seals with Aflas® elastomers for a PSV 400"B" Hooper Pressure Screen application, in a paper mill in the USA.

An adapter plate was designed to fit directly onto the screen vessel, so that the seal could be bolted from the bearing side.

The seal primarily seals screened paper stock, at an ambient temperature and a pressure of 80 psig (5.5 barg). The seals were installed and have no reported problems to date. See Z4422 for the Seal, & Z4596 for the adapter plate, and AESSEAL® drawing G.A. Number 6462849 for further details.

Case No. 701

In September 1997, AESSEAL® supplied and installed two 285mm special CURC™, CAR/CRO2 single seals with Viton® elastomers for a cooling water pump application.

The seals replaced a Trist Type CW mechanical seal, and were installed on a Mather & Platt cooling water pump. The seals operated at 375rpm at an Ambient temperature and a pressure of 2 barg (30 psig), and were connected as API plan 13. The seals were installed and have no reported problems to date. See Z 4209 and AESSEAL® drawing G.A. Number 6460579 for further details.In March 1998, the plant ordered 4 more identical seals.

Case No. 702G

In January 1996, a 30mm SCUSI™, CAR / CER / Aflas® was installed on a Stork pump operating on Duty solvents. The seal has had no reported failures to date.

Case No. 703G

In December 1997, AESSEAL® supplied and duly installed two 4.125" IADC™, TC/TC//TC/CAR double seals with Aflas® elastomers for a PSV 2600 Hooper Pressure Screen application, in a paper mill in the USA.

An adapter plate was designed to fit directly onto the screen vessel, so that the seal could be bolted from the bearing side.

The seal primarily seals screened paper stock, at an ambient temperature and a pressure of 80 psig (5.5 barg). The seals were installed and have no reported problems to date. See Z4422 for the Seal, & Z4423 for the adapter plate, and AESSEAL® drawing G.A. Number 6462045 for further details.

In February 1998, the plant ordered 3 more identical seal units for a Hooper pressure screen model PSV 400, see case histories 700 and 705.

Case No. 704G

In December 1997, AESSEAL® supplied a 7.875" CDM™, TC/TC//TC/CAR double seal with Aflas® elastomers for a Oxygen Reactor application. The "Fluffer seal" ran at 350 rpm primarily sealing water, paper stock and caustic with a PH of 10.5 to 11.0, a temperature of 96-105ºC (200-220F) and a pressure from 5.5-10 barg (80-150 psig).

See Z4536, and AESSEAL® drawing G.A. Number 6460948 for further details.

Case No. 705

In February 1998, AESSEAL® supplied and installed one 4.125" IADC™, TC/TC//TC/Car double seals with Aflas® elastomers for a PSV 400"C" Hooper Pressure Screen application, in a paper mill in the USA.

An adapter plate was designed to fit directly onto the screen vessel, so that the seal could be bolted from the bearing side.

The seal primarily seals screened paper stock, at an ambient temperature and a pressure of 80 psig (5.5 barg). The seals were installed and have no reported problems to date. See Z4422 for the Seal, & Z4597 for the adapter plate, and AESSEAL® drawing G.A. Number 6462850 for further details.

Case No. 706

In September 1997, AESSEAL® supplied and installed one 4.724" (120mm) Bird Screen Seal, TC/TC single seal, with Aflas® elastomers for a Bird Centriscreen model 80, in a paper mill in the USA.

The seal replaced a Sealol 676 (special) unit, and primarily screened paper stock, at an ambient temperature (mill water) and a pressure of 80 psig (5.5 barg). The seals were installed and have no reported problems to date. See Z4267 for the Seal, and AESSEAL® drawing G.A. Number 6461080 for further details.

Case No. 707G

In 1995, 2 off CONII, TC/SIC/Viton® seals were installed on Stork pumps operating in a Liquid resin duty at 160 and 140ºC. Both seals have no reported failures up to November

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1997.

Case No. 708G

A 35mm FI-CDSA™ (Titanium Rotary) seal, SiC/SiC//SiC/CAR, with Kalrez® elastomers, was fitted to an IDP Worthington Simpson, in a Chemical Division of a Paper Plant in England. The duty was Unidime at 240-250ºC (465-482ºF). First seal was installed April/May 1996 and replaced a Crane 59U back to back seal operating with existing cooled fatty acid barrier fluid from a Thermosyphon pressure vessel. Problems were experienced, therefore CONSULT AESSEAL® TECHNICAL DEPARTMENT.

Case No. 709G

In 1995, 6 off 35 and 50mm CONII seals, were fitted to a range of Stork, SIHI, and IDP pumps, in a chemical division of a Paper Plant in England. The duties were raw materials, mainly Monomer and Dimers, at ambient temperatures.

Case No. 710G

In 1991, 3 off Worthington Simpson pumps were converted from packing to 70mm CURC™. There were no failures up to 1996. In 1996 the pumps were replaced with a Stork model, and CONII seals were installed. The seals were sealing cooling water, and there have been no reported failures to date.

Case No. 711G

In April 1992, a 35mm CDSA™ CAR/SIC//SIC/CAR with Kalrez® elastomers, was fitted on a SIHI Ryland with a SSE10 system. The sealing duty was Resin at 140-220ºC (284-430ºF), (hard resin), and was operated with hot fatty acid barrier fluid in a Thermosyphon system. The seal was giving good service life until June 1995. The seal has been returned for repair several times but this was always due to operator error causing product to solidify and damage the seal. A new SIHI Ryland pump with the same seal type and system was installed in June 1995 and is also giving good service life.

Case No. 712G

In 1995, 2 off CONII, TC/SIC/Viton® were installed on SIHI Ryland pumps operating in a Liquid resin duty at 160º and 140ºC. Both seals have no reported failures to date.

Case No. 713H

In August 1996, a 30mm CDSA™ seal CAR/TC//CRO2/CAR, with Kalrez® elastomers, was fitted to a Stork pump, in a chemical division of a Paper Plant in England. The duty was Hot Resin at 180-200ºC (355-395ºF). The seal operated with a Pumppac employing a zone one motor and Glycerine barrier fluid. It has been in service to date with no reported problems.

Case No. 714H

In May 1997, 32mm and 40mm CDSA™ seals, CAR/TC//CRO2/CAR, with Kalrez® elastomers, were fitted to Stork pumps, in a Chemical Division of a Paper Plant in England. The duty was Hot Resin at 150-190ºC (302-375ºC). The seals were operated with a PUMPPAC™ MkII employing a zone one motor and Glycerine barrier fluid. They have been in service to date with no reported problems.

Case No. 715G

In 1995, two 50mm CONII seals were fitted to IDP pumps, in a Chemical Division of a Paper Plant in England. The duty was Cooling water and the seals have been in service to date with no reported problems.

Case No. 716G

In July 1991, a paper mill in Northumberland, England, was fitted with 2.125" IASC™ single seals installed on Black & Clawson 30P screens. In October 1997 one was changed due to machine repair (not seal failure). A new seal was installed and all units are running (to date). Reference Z784.

Case No. 717G

In a Recycling Mill in England, 250 off CURC™ single seals are fitted on various Pulp duties. General seal sizes are 38MM, 48MM, 65MM, 75MM and 100MM, and are mainly unquenched.

Case No. 718G

In a Recycling Mill in England, some CDSA™ double seals are fitted on various Pulp duties, supported with a W2 SSE10 system.

Case No. 719G

In a Recycling Mill in England, 20 off Condensate pumps are fitted with CDSA™, and installed on ABS Scanpump pumps.

Case No. 720G

In a Recycling Mill in England, 10 off CURC™ PCP single seals are installed on Seepex pumps.

Case No. 721G

In a speciality chemicals plant, a 2.750" DBDS™ double seal, SIC/SIC//SIC/CAR faces with Kalrez® 4079 elastomers

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inboard, Viton® elastomers outboard, is fitted on a Nash Liquid ring vacuum pump, model 125I. The seal was fitted in June 1997, sealing a Vinyl Chloride stripper tank and is working to date. The pump operates at 1,750 rpm, with temperature ranging from ambient to 40ºC (100ºF). The barrier fluid is propylene Glycol 190 PSJ.

Case No. 722G

In a recycling mill in the South of England, several IASC™ screen seals were fitted on BLACK & CLAWSON PS 36 Screens. The AESSEALs replaced Ropac R32 Slurry Stationary seals, and were installed in November 1993. One failed in July 1997. However, this was replaced and all are still running, since November 1997.

Case No. 723G

In a recycling mill in the South of England, 6 off SAIs and CURC™ Stationaries have been installed on BIRD SCREENS. Slight modifications were made to the machine in November 1993, when the AESSEALs replaced the OEM Garlock Clipper seal. Since November 1997, no failures have been reported.

Case No. 724G

In a Chemical division of a paper mill, in the North of England, 50mm and 3.000" CDM™ double seals CAR/SIC//SIC/CAR/ Viton® were installed on Batch Reactors on a Dimer duty plus various additions, including fatty acids, phosphoric acid and resins.

In total three batch reactors were converted, the third sealed with a 3.500" SAI™ back to back unit which was converted from a Lightnin cartridge unit and Crane 109 back to back design.

All seals are providing good service, and all new equipment coming on site will be specified with AESSEAL® seals.

Case No. 725G

In a Pulp mill in Alaska, USA, 9 off DBDS™ seals were installed on BINGHAM (HVLM-24) - DIGESTER Circulation pumps, running at 1,750 rpm. These seals lasted 9 months before the Mill closed. The seals were 3.625" TC/TC// TC/CAR/Viton®, sealing MAGNESIUM BISULPHITE, at a temperature of 176ºC (350ºF), with a 15 barg, (220 psig) and stuffing box pressure of 0 to, 12 barg (180 psig).

Case No. 726G

In a Pulp mill in Georgia, USA, a 3.625" Alloy 276, DBDS™ SIC/SIC//SIC/CAR was fitted with Kalrez® 4079 inboard elastomers and Viton® elastomers outboard. The seal was fitted on a BINGHAM HVLM-24 DIGESTER Circulation pump sealing CALCIUM BISULPHITE, and a Barrier Pressure of 130 psig (9 barg) and a Stuffing box pressure of 0 to 100 psig (7 barg). The seal was originally installed in August 1997 with Viton® inboard elastomers, and was replaced in December 1997 due to inboard O-ring attack.

Case No. 727G

In a mill in Jessup, USA, a DBDS™ operating on a Bingham pump on a digester circulation duty was installed. The process temperature was 150-175ºC (300ºF-350ºF) and the barrier pressure was set at 6 barg (90 psig). The seal was replaced after 6 months service, and is still working well.

Case No. 728G

In a Paper Mill, in USA, numerous CDSA™ seals 2.500", 3.312", and 4.312" were fitted to operate in paper stock on a range of Goulds 3175S, M and L stock pumps.

Most of the process pressures were 30-45 psig (2-3 barg), and paper stock was around 6% consistency.

All units were configured with a flow through barrier fluid approximately 15 psig (1 barg) higher than the process pressure in the stuffing box, with flow rates of 1/4 to 3/8 Gallons per Minute (2.5 L/Min). This was accomplished by using a pressure and flow regulating device to control the barrier fluid. In most cases a proximity probe is used to monitor the flow rate of the barrier fluid to seal. If a loss of flow is detected, the unit either trips an alarm or disables the pump.

Seals were fitted at various times through 1997, and are running perfectly to date.

Case No. 729G

In a paper finishing plant in Northumberland, England, almost all stock pumps handling paper stock are fitted with CURC™ seals, with a standard specification of TC/TC/V and operate with water flush. Average seal life 5-6 years.

Case No. 730G

In a paper finishing plant in Northumberland, England, CAR / SIC // SIC / CAR, CDSA™ installed on Condensate pumps, have been running since 1991.

Case History 731G

In a paper mill in the USA a 2.375" CURC™ complete with FMG with stepped sleeve was installed in a type 4100 13 DTB 14, split case double suction Warman pump. The application was a paper machine fan pump. The pumped media was bleached paper stock at approximately 1.5 to 2.0% consistency at an ambient temperature. Shaft rotation was 3,500 rpm with the product pressure at the mechanical seal approximately 3 to 4 barg (45-60 psig). The 2.375" CURC™ FMG was fitted with a TC rotary and SiC stationary face

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combination with the EPR elastomers. Clean flush water was supplied to the gland at approximately 1 barg above stuffing box pressure. To better utilize the flush media, a floating stuffing box bushing was employed.

The average run to failure for this seal configuration has been 2 to 2 1/2 years.

For further details on this seal see drawing number 6463468 (Z-4717).

Case History 732G

In a paper mill in the UK 85 off SNOZ™, steam nozzle seals were fitted between 1994 and 1997. Product media was steam at around 130ºC, (266ºF) operating up to 2 barg (29 psig).

Case History 733G

In November 1997, in a paper mill in the USA a 260mm Deflection Roll seal was installed on a Kusters Roll. Seal faces were antimony Carbon (stationary) against a Tungsten Carbide (Rotary). The duty was sealing bearing oil. The clipped design improved seal installation over some of the previously installed competitor designs.

For further details on this seal see drawing number 6461455 (Z-4283).

Case History 734 G

In March 1998, in a stock preparation plant of a paper mill in the UK a 7.000" RDS™ with Car/Chrox seal faces and Viton® elastomers was fitted on a SUNDS hydro-pulper. The stuffing box pressure was 0.5 barg (7 psigg) and stock consistency was 3% fiber. Product temperature was 50ºC (122ºF), and the shaft speed was 330 rpm.

Packing was previously employed, however this had extremely high wear rates and the seal water flush did not lubricate the packing. The result was water ingress into the bearing housing, drive belt slippage, and expensive refurbishment costs. The site engineers had to change the oil in the bearing housing every 4 weeks due to the water ingress.

Case History 735 G

In June 1997, in a paper mill in the UK, two 120mm CURC™ were fitted at either side of an Ahlstrom Fan Pump. The CURC™ had Car/TC seal faces and Viton® elastomers. The product was 0.7% recycled fiber. The Stuffing box pressure was less than 1 barg (15 psig), with a temperature of 48ºC (118ºF). The shaft speed was 1,440 rpm.

The packing previously employed leaked excessively and contaminated the bearings resulting in bearing failure. Each pump was completely rebuilt after less than 11 months operation.

The CURC™ 's fitted are still running satisfactorily to date (July 1998).

CASE No. 882H

In a Paper plant in the USA, a 2.000" CDSA™ with TC/TC// CAR/CROX faces with Viton® elastomers was fitted to a Sprout-Baueu V Auto Strainer, model VA-A-400-GSL.

The duty being pumped is Hot Clay Coating at a temperature of 100°F.

This operation was a real mess, as it used 1/4" CS packing and leaked profusely. We designed an adapter plate to accept a 2.000" CDSA™ and flush mill seal water at 50 psig pressure through seal at 1/2 GPM flow rate. Works beautifully. Mill Manager has also commented on this. Total of 4 Strainers so far. 1st seal installed November 1997.

CASE No. 883H

In a Power plant in the USA, a 1.750" SCUSI™ with CAR/ SIC faces with Aflas® elastomers was fitted to a Goulds pump, model: 3405 Group M Double Suction.

The duty being pumped is Hot Condensate at a temperature of 190°F.

The customer was previously using a John Crane 1100 seal.

The SCUSI™ seal was installed on 11th September 1997 with flush from pump discharge through gland plate and is running beautifully.

CASE No. 884H

In a Paper & Pulp plant, a 2.750" SAI with TC/TC faces with Aflas® elastomers was fitted to a Voith Sulzer Pressure Screen, model number 3CS.

The duty being pumped is Pulp Stock at a temperature of 110°F with a shaft speed of 1180 rpm.

The customer was previously using a Chesterton 880 Carlon Seal and a plated TC 'O' Ring seat for less money, and upgraded faces. The seal is in the Mill Stores awaiting time when the Chesterton needs to be replaced.

CASE No. 885H

In a Pulp Mill in the USA, 8x 2.750" CURC™ seals with TC/TC faces with Viton® elastomers were fitted to a Goulds pump, model 3180-M. The duty being pumped is Paper Stock at a

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temperature of 120°F.

The seals were installed in October 1995 and are still running beautifully. This is a new recycled Mill, runs sporadically (20% of the time). Originally the pumps had Goulds Dynamic seals which were mis-applied at this facility, and leaked miserably. We recommended the Mill installed new taper bore stuffing bores and operate the seals with no flush.

CASE No. 886H

In a Pulp Mill in the USA, a 2.750" CDSA™ with TC/TC/CAR/CER faces with Viton® elastomers was fitted to a Goulds pump, model 3180-M. The duty being pumped is Recycled Paper Stock at a shaft speed of 1180 rpm.

The seal was installed in October 1995 and runs beautifully with seal water controlled at 40 psig and 1/2 GPM through seal.

CASE No. 887H

In a Waste Treatment plant in the USA, a 1.875" SCUSI™ with TC/TC faces with Viton® elastomers was fitted to a Goulds pump, model HS3X3-10.

The duty being pumped is Waste Water/Sludge at a temperature of 100°F and a shaft speed of 1760 rpm.

The seal was installed in March 1996 and runs beautifully with seal flush through gland plate, using filtered mill water.

CASE No. 894H

In the USA, a 5.500" RDS™ with CAR/CROX faces with Aflas® elastomers was fitted to an Andritz Top Winder Feeder, model 486-12. The duty being pumped is Pulp/Steam at a temperature of 340°F with a shaft speed of 700 rpm and a pressure of 70 psig.

The customer was previously using an AWC 221 Split single seal with CAR/CER faces and Aflas® elastomers. There was no indicator pin on installation. See Z4492 for further details.

CASE No. 901H

In a Paper Mill in the USA, a 4.125" IADC™ with TC/TC//CAR/CHOX faces with Aflas® elastomers was fitted to a Hooper Pressure Screen model PSV 400 C. The duty being pumped is Pulp Stock at a temperature of 155°F with a shaft speed of 525 rpm and pressure at 35 psig.

The customer was previously using a Chesterton 880 Single seal with TC stationary. The Mill found it very hard to install correctly. Generally very short life, and very costly to constantly repair as bearings fail when seal fails.

See Z4597 for further details.

CASE No. 902H

In a Paper Industry in the USA, a 4.125" IADC™ seal TC/TC//CAR/CHOX with Aflas® elastomers was fitted to a Hooper Pressure Screen, model PSV 400 B.

The duty being pumped is Pulp Stock at a temperature of 155°F with a shaft speed of 525 rpm and a pressure of 35 psig.

The previous seal did not work well. When the leaks start, water/pulp falls down on drive and causes pulsations in the screen flow. See Z4596 for further details.

CASE No. 921H

In a Pulp & Paper Industry a 55mm CRCO TC/TC//FURON LIP with Viton® elastomers was installed to a Valmet Headbox.

The duty being pumped is Paper Stock at a shaft speed of 12 - 15 rpm and product pressure at 40 - 50 psig.

The previous seal was a Safematic Safebellow SBE-065-GRVH Single seal with Viton® elastomers. The seal leaked under the lip seal into the bearing. See Z4594 for further details.

CASE No. 927H

A 2.750" CDSA™ TC/TC//CAR/TC with Aflas® elastomers was installed to a Goulds 3410L Centrifugal pump.

The duty being pumped is Black Liquor. The temperature is 200°F with a shaft speed of 1800 rpm. The seal also operates along with API Plan No 62 - water in and out to drain.

See A4925 for further details.

CASE No. 932H

In a Stock preparation plant a 7.000" RDS™ CAR/CHROX with Viton® elastomers was fitted to a Sunds JP2/3DH Hydropulper pump.

The product being pumped is Virgin Fiber at a temperature of 50°C with a shaft speed of 330 rpm and a product pressure of 7 psig.

The previous seal used had excessive leakage. Ingress of water into bearing housing, the water is causing the drive belt to slip. The seal lasted only 8 weeks.

CASE No. 933H

In a Paper Machine plant 2x CURC™ CAR/TC with Viton® elastomers were fitted to a Ahlstrom ZPP4 Fan Pump.

The duty being pumped is Recycled Fiber. Product temperature is 48°C with a shaft speed of 1440 rpm and product pressure at <15 psig.

The previous seal's problem was excessive gland water

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leakage: contaminated bearing and the bearing failed also with failure of the rotating element. Complete rebuild of pump in less then 11 months.

CASE No. 934H

In a Fiber Preparation/Bleaching plant a 85mm IADC-FS™ TC/TC//TC/CB with Aflas® inboard and Viton® outboard elastomers was fitted to a IMPCO/BELOIT 208/210/210 Pressure Screen.

The duty being pumped is Paper “Brown” Stock at a product temperature of 220°F with a shaft speed of 1200 rpm and a product pressure of 150 psig.

The previous seal was a Lip seal from OEM was purged with grease when leakage occurred water to into the bearings and failed screen. The seal lasted only 12 months.

See Z4855 for further details.

CASE No. 944H

In a Paper Mill in Essex a 1.750” CDSA™ TC/TC//CAR/CHROX with Viton® ‘O’ rings was fitted to a Aurora CT994 15414 Pump. The shaft speed is running at 3000 rpm. The mechanical seal operates with a W2 Thermosyphon System.

CASE No. 945H

In a Paper Mill in the USA a 70mm CDSA™ FMG was fitted to a Ahlstrom MPP1500 pump. Shaft speed is 1800 rpm.

The seal was installed in September 1997 and is still working well. The customer was previously using a Safematic component double seal. See Z3841 for further details.

CASE No. 956H

In a UK Paper Mill a 75mm CURC™ TC/TC with Viton® ‘O’ rings was fitted to a ABS Dip Tower 1 Scanpump, model BA350/300-40.

The product being pumped is De-inked Pulp at a temperature of 50°C with a shaft speed of 1485 rpm and a pressure of 300 psig (21 barg).CASE No. 957H

In a UK Paper Mill a 100mm CDSA™ TC/TC/CROX was fitted to a ABS Dip Tank Scanpump, model BA400/400-56.

The product being pumped is De-inked Pulp at a temperature of 50°C with a shaft speed of 740 rpm and a pressure of 400 psig (27 barg).

The mechanical seal also operated with a W2 System.

CASE No. 958H

In a UK Pulp & Paper Industry a 100mm CDSA™ TC/TC/CROX was fitted to a ABS Machine Tank Pump, model BA400/400-56.

The product being pumped is Stock at a temperature of 50°C with a shaft speed of 740 rpm and a pressure of 400 psig (27 barg).

The mechanical seal also operated with a W2 System.

CASE No. 959H

In a UK Pulp & Paper Industry a 100mm CURC™ CAR/TC with Viton® ‘O’ rings was fitted to a ABS 3rd Stage Cleaner Pump, model BA400/400-56.

The product being pumped is Paperstock at a temperature of 50°C with a shaft speed of 990 rpm and a pressure of 400 psig (27 barg).

CASE No. 960H

In a UK Pulp & Paper Industry a 75mm CDSA™ TC/TC/CROX/CAR was fitted to a ABS 4th Stage Cleaner Pump, model BA350/300-40.

The product being pumped is Paperstock at a temperature of 50°C with a shaft speed of 1485 rpm and a pressure of 300 psig (21 barg).

The mechanical seal also operated with a W2 System.

CASE No. 962H

In a UK Paper Mill a 75mm CURC™ TC/TC with Viton® ‘O’ rings was fitted to a ABS Sweetner Stock Pump, model BA350/300-40.

The product being pumped is De-inked Pulp at a temperature of 50°C with a shaft speed of 990 rpm and a pressure of 300 psig (21 barg).

CASE No. 963H

In a UK Paper Mill a 100mm CURC™ CAR/TC with Viton® ‘O’ rings was fitted to a ABS Cloudy Filtrate Pump, model BA500/500-56.

The product temperature is 50°C with a shaft speed of 990 rpm and a pressure of 500 psig (34 barg).

CASE No. 964H

In a UK Paper Mill a 75mm CURC™ CAR/TC with Viton® ‘O’ rings was fitted to a ABS Clear Filtrate pump, model BA350/300-40.

The product temperature is 50°C with a shaft speed of 1485 rpm and a pressure of 300 psig (21 barg).

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CASE No. 965H

In a UK Paper Mill a 100mm CURC™ CAR/TC with Viton® 'O' rings was fitted to a ABS Disc Filter Shower Water Pump, model NB300/250-53.

The product temperature is 50°C with a shaft speed of 1485 rpm and a pressure of 250 psig (17 barg).

CASE No. 966H

In a UK Paper Mill a 100mm CURC™ TC/TC with Viton® 'O' rings was fitted to a ABS Recovered Fiber Pump, model BA400/400-56.

The product temperature is 50°C with a shaft speed of 740 rpm and a pressure of 400 psig (27 barg).

CASE No. 967H

In a UK Paper Mill a 100mm CURC™ CAR/TC with Viton® 'O' rings was fitted to a ABS Clear Filtrate Header Pump, model BA500/500-56.

The product being pumped is Clear Filtrate at a temperature of 50°C with a shaft speed of 990 rpm and a pressure of 500 psig (34 barg).

CASE No. 968H

In a UK Paper Mill a 75mm CURC™ TC/TC with Viton® 'O' rings was fitted to a ABS Couch Pit Pump 1, model BA250/250-40

The product temperature is 50°C with a shaft speed of 1485 rpm and a pressure of 250 psig (17 barg).

CASE No. 969H

In a UK Pulp & Paper Industry a 100mm CURC™ TC/TC with Viton® 'O' rings was fitted to a ABS Press Pulper 1 Pump, model BA400/400-56.

The product temperature is 50°C with a shaft speed of 740 rpm and a pressure of 400 psig (27 barg).

CASE No. 970H

In a UK Pulp & Paper Industry a 100mm CURC™ TC/TC with Viton® 'O' rings was fitted to a ABS PM Dry End Pulper Pump, model BA400/400-45.

The product being pumped is Broke Pulp at a temperature of 50°C with a shaft speed of 990 rpm and a pressure of 400 psig (27 barg).

CASE No. 971H

In a UK Pulp & Paper Industry a 100mm CURC™ TC/TC with Viton® 'O' rings was fitted to a ABS PM Reel Pulper Pump, model BA400/400-45.

The product being pumped is Broke Pulp at a temperature of 50°C with a shaft speed of 990 rpm and a pressure of 400 psig (27 barg).

CASE No. 972H

In a UK Pulp & Paper Industry a 75mm CURC™ TC/TC with Viton® 'O' rings was fitted to a ABS Winder 1 Pulper Pump, model BA250/250-40.

The product being pumped is Broke Pulp at a temperature of 50°C with a shaft speed of 990 rpm and a pressure of 250 psig (17 barg).

CASE No. 973H

In a UK Pulp & Paper Industry a 75mm CURC™ TC/TC with Viton® 'O' rings was fitted to a ABS Broke Roll Pulper Pump, model BA250-250-32.

The product being pumped is Broke Pulp at a temperature of 50°C with a shaft speed of 1485 rpm and a pressure of 250 psig (17 barg).

CASE No. 974H

In a UK Pulp & Paper Industry a 65mm CURC™ TC/TC with Viton® 'O' rings was fitted to a ABS Broke Tank Pump, model BA250-250-32.

The product being pumped is Broke Pulp at a temperature of 60°C with a shaft speed of 1485 rpm and a pressure of 250 psig (17 barg).

CASE No. 975H

In a UK Pulp & Paper Industry a 65mm CURC™ CAR/TC with Viton® 'O' rings was fitted to a ABS 5th Stage Cleaner Pump, model NB200/150-40.

The product being pumped is Paperstock at a temperature of 50°C with a shaft speed of 1485 rpm and a pressure of 150 psig (10 barg).

CASE No. 976H

In a UK Paper Mill a 65mm CURC™ CAR/TC with Viton® 'O' rings was fitted to a ABS Secondary Screen Pump, model BA250-250-32.

The product temperature is 50°C with a shaft speed of 1485 rpm and a pressure of 250 psig (17 barg).

CASE No. 977H

In a UK Pulp & Paper Industry a 48mm CURC™ TC/TC// CROX/CAR was fitted to a ABS Tertiary Screen Pump, model

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FB80-80-26.

The product being pumped is Paperstock at a temperature of 50°C with a shaft speed of 1470 rpm and a pressure of 80 psig (5 barg).

The mechanical seal also operated with a W2 System.

CASE No. 978H

In a UK Paper Mill a 65mm CURC™ CAR/TC with Viton® 'O' rings was fitted to a ABS Wire Pit Heating Water Pump, model BA250-250-32.

The product being pumped is White Water at a temperature of 50°C with a shaft speed of 1485 rpm and a pressure of 250 psig (17 barg).

CASE No. 979H

In a UK Paper Mill a 75mm CURC™ CAR/TC with Viton® 'O' rings was fitted to a ABS Consistency Control Pump, model BA250-250-32.

The product being pumped is White Water with a shaft speed of 980 rpm and a pressure of 250 psig (17 barg).

CASE No. 980H

In a UK Pulp & Paper Industry a 65mm CURC™ CAR/TC with Viton® 'O' rings was fitted to a ABS 6th Stage Cleaner Pump, model NB150/125-32.

The product being pumped is Paperstock at a temperature of 50°C with a shaft speed of 1485 rpm and a pressure of 125 psig (9 barg).

CASE No. 981H

In a UK Pulp & Paper Industry a 75mm CURC™ TC/TC with Viton® 'O' rings was fitted to a ABS Winder 2 Pulper Pump, model BA250-250-40.

The product being pumped is Broke Pulp at a temperature of 50°C with a shaft speed of 990 rpm and a pressure of 250 psig (17 barg).

CASE No. 982H

In a UK Pulp & Paper Industry a 100mm CURC™ TC/TC with Viton® 'O' rings was fitted to a ABS 4th Press Pulper Pump model BA400/400-56.

The product being pumped is Broke Pulp at a temperature of 50°C with a shaft speed of 740 rpm and a pressure of 400 psig (27 barg).

CASE No. 983H

In a UK Pulp & Paper Industry a 100mm CURC™ TC/TC with quench and Viton® 'O' rings were fitted to an ABS Couch Pit Pump 2, model BA400/400-45.

The product being pumped is Broke Pulp at a temperature of 50°C with a shaft speed of 1485 rpm and a pressure of 400 psig (27 barg).

CASE No. 984H

In a UK Pulp & Paper Industry a 65mm CURC™ CAR/TC with Viton® 'O' rings was fitted to an ABS Super Clean Filtrate Pump, model NB200/150-32.

The product temperature is 50°C with a shaft speed of 1485 rpm and a pressure of 150 psig (10 barg).

CASE No. 985H

In a UK Paper Mill a 65mm CURC™ CAR/TC with Viton® 'O' rings was fitted to a ABS Knock Off Shower Pump, model NB125/100-32.

The product being pumped is Clear Filtrate at a temperature of 50°C with a shaft speed of 2900 rpm and a pressure of 100 psig (6 barg).

CASE No. 986H

In a UK Paper Mill a 55mm CURC™ CAR/TC with Viton® 'O' rings was fitted to an ABS Warm Water Heat Recovery Pump, model NB200/150-40.

The product being pumped is Water at a temperature of 50°C with a shaft speed of 1485 rpm and a pressure of 150 psig (10 barg).

CASE No. 987H

In a UK Paper Mill a 38mm CURC™ CAR/TC with Viton® 'O' rings was fitted to an ABS Heat Recovery Shower Water Pump, model NB65/40-20.

The product being pumped is Water at a temperature of 50°C with a shaft speed of 2950 rpm and a pressure of 40 psig (3 barg).

CASE No. 988H

In a UK Paper Mill a 48mm CURC™ with Viton® 'O' rings was fitted to a ABS Retention Agent Dilution Water Pump, model NB100/65-28.

The product being pumped is Water at a temperature of 50°C with a shaft speed of 2980 rpm and a pressure of 65 psig (4

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barg).

CASE No. 989H

In a UK Paper Mill a 65mm CURC™ CAR/TC with Viton® 'O' rings was fitted to an ABS LP Shower Water Pump, model NB200/150-40.

The product being pumped is Water at a temperature of 50°C with a shaft speed of 1450 rpm and a pressure of 150 psig (10 barg).

CASE No. 990H

In a UK Paper Industry a 65mm CURC™ CAR/TC with Viton® 'O' rings was fitted to a ABS Shower Water, model NB200/150-40.

The product being pumped is Super Clean Filtrate at a temperature of 50°C with a shaft speed of 1485 rpm and a pressure of 150 psig (10 barg).

CASE No. 991H

In a UK Paper Mill a 65mm CURC™ CAR/TC with Viton® 'O' rings was fitted to a ABS Tray Clear Filtrate, model BA250/250-32.

The product being pumped is Clear Filtrate at a temperature of 50°C with a shaft speed of 1450 rpm and a pressure of 250 psig (17 barg).

CASE No. 992H

In a UK Paper Mill a 65mm CURC™ TC/TC with Quench and Viton® 'O' rings was fitted to a ABS Broke Circulation Pump, model NB250/250-32.

The product temperature is 50°C with a shaft speed of 1485 rpm and a pressure of 250 psig (17 barg).

CASE No. 993H

In a UK Paper Mill a 65mm CURC™ TC/TC with Quench and Viton® 'O' rings was fitted to an ABS Broke Tower Pump, model NB250/250-32.

The product temperature is 50°C with a shaft speed of 1485 rpm and a pressure of 250 psig (17 barg).

CASE No. 994H

In a UK Pulp & Paper Industry a 48mm CURC™ TC/TC with Quench and Viton® 'O' rings was fitted to an ABS Broke Roll Pulper Circulation Pump, model BA150/80-26.

The product being pumped is Broke Pulp at a temperature of 50°C with a shaft speed of 1450 rpm and a pressure of 80 psig (5 barg).

CASE No. 995H

In a UK Pulp & Paper Industry a 65mm CURC™ TC/TC with Quench and Viton® 'O' rings was fitted to an ABS Trim Pulper Pump, model BA150/150-32.

The product being pumped is Broke Pulp at a temperature of 50°C with a shaft speed of 1485 rpm and a pressure of 150 psig (10 barg).

CASE No. 996H

In a UK Pulp & Paper Industry a 48mm CURC™ TC/TC with Quench and Viton® 'O' rings was fitted to an ABS Trim Pulper Circulation Pump, model BA150/150-26.

The product being pumped is Broke Pulp at a temperature of 50°C with a shaft speed of 1485 rpm and a pressure of 150 psig (10 barg).

CASE No. 997H

In a UK Paper Mill a 65mm CURC™ TC/TC with Viton® 'O' rings was fitted to an ABS Tray Water Pump 2, model NB200/150-32.

The product being pumped is Super Clear Filtrate at a temperature of 50°C with a shaft speed of 1485 rpm and a pressure of 150 psig (10 barg).

CASE No. 998H

In a UK Paper Mill a 65mm CDSA™ TC/TC/CROX/CAR was fitted to an ABS Secondary Broke Screen Pump, model NB200/150-32.

The product being pumped is Super Clear Filtrate at a temperature of 50°C with a shaft speed of 1485 rpm and a pressure of 150 psig (10 barg).

CASE No. 999H

In a UK Paper Mill a 65mm CURC™ CAR/TC with Viton® 'O' rings was fitted to an ABS Vacuum Pump Seal Water Pump, model NB200/150-32.

The product being pumped is Fresh Water at a temperature of 40°C with a shaft speed of 1485 rpm and a pressure of 150 psig (10 barg).

CASE No. 1000H

In a UK Paper Mill a 65mm CURC™ CAR/TC with Viton® 'O' rings was fitted to an ABS Deaeration Vacuum Seal Water Pump, model NB100/65-32.

The product being pumped is Fresh Water at a temperature of 40°C with a shaft speed of 1485 rpm and a pressure of 65 psig (4 barg).

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CASE No. 1001H

In a UK Paper Mill a 65mm CURC™ CAR/TC with Viton® 'O' rings was fitted to an ABS Cooling Water Pump, model NB200/150-32.

The product being pumped is Process Water with a shaft speed of 990 rpm and a pressure of 150 psig (10 barg).

CASE No. 1002H

In a UK Paper Mill a 65mm CURC™ CAR/TC with Viton® 'O' rings was fitted to an ABS Cooling Water Return Pump, model.NB200/150-32.

The product being pumped is Process Water at a temperature of 35°C with a shaft speed of 1485 rpm and a pressure of 150 psig (10 barg).

CASE No. 1003H

In a UK Paper Mill a 65mm CURC™ CAR/TC with Viton® 'O' rings was fitted to an ABS Sealing Water Pump 1, model NB80/50-26.

Shaft speed is 2950 rpm with a pressure of 50 psig (3 barg).

CASE No. 1004H

In a UK Paper Reclamation Mill a 48mm CURC™ CAR/TC with Viton® 'O' rings was fitted to an ABS Sealing Water Pump 2, model NB80/50-26.

Product temperature is 35°C with a shaft speed of 2950 rpm and a pressure of 50 psig (3 barg).

CASE No. 1005H

In a UK Paper Reclamation Mill a 38mm CURC™ TC/TC with EPR 'O' rings was fitted to an ABS Caustic Soda Pump, model NB65/40-20.

The product being pumped is Caustic Soda at a temperature of 40°C with a shaft speed of 1450 rpm and a pressure of 40 psig (3 barg).

CASE No. 1006H

In a UK Paper Reclamation Mill a 38mm CDSA™ TC/TC with Viton® 'O' rings was fitted to an ABS Felt/Wire Washing Caustic Soda Pump, model NB65/40-20.

The product being pumped is Caustic Soda at a temperature of 40°C with a shaft speed of 1485 rpm and a pressure of 150 psig (10 barg).

CASE No. 1036J

In a UK Paper Mill a 65mm CURC™ Cart/STC with Viton® 'O' rings was fitted to an ABS AHR Booster Pump 1, model NB150/125-26.

The product being pumped is Water/Glycol at a temperature of 45°C (113°F) with a shaft speed of 1485 rpm and a pressure of 125 psig (8 barg).

CASE No. 1037J

In a UK Paper Mill a 65mm CURC™ seal with Car/STC faces and Viton® 'O' rings was fitted to an ABS River Water Pump 1, model BA250/250-32.

The product being pumped is Water at a shaft speed of 1485 rpm and a pressure of 250 psig (17 barg).

CASE No. 1038J

In a UK Paper Mill a 65mm CURC™ seal with CAR/STC faces and Viton® 'O' rings was fitted to an ABS River Water Storage Mixer Pump, model BA250/250-32.

The product being pumped was Water at a shaft speed of 1485 rpm and a pressure of 250 psig (17 barg).

CASE No. 1039J

In a UK Paper Mill a 65mm CURC™ seal with CAR/STC faces and Viton® 'O' rings was fitted to an ABS Screened River Water Pump, model BA250/250-32.

The product being pumped is Water at a pressure of 250 psig (17 barg).

CASE No. 1040J

In a UK Paper Mill a 65mm CURC™ with CAR/STC faces and Viton® 'O' rings was fitted to an ABS Screened/Treated River Water Pump, model BA250/250-32.

The product being pumped is Water at a pressure of 250 psig (17 barg).

CASE No. 1041J

In a UK Paper Mill a 48mm CURC™ with CAR/STC faces and Viton® 'O' rings was fitted to an ABS Saturated Water Pump 1, model NB65/40-26.

The product being pumped is Water at a temperature of 25°C (77°F) with a shaft speed of 2940 rpm and a pressure of 40 psig (2 barg).

CASE No. 1042J

In a UK Paper Mill a 48mm CURC™ with CAR/STC faces and Viton® 'O' rings was fitted to an ABS Dirty Backwash Water

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Pump, model BA150/150-26.

The product being pumped is Water at a shaft speed of 1470 rpm and a pressure of 150 psig (10 barg).

CASE 1043I

In a UK Pulp & Paper Industry a 65mm CURC™ CAR/STC with Viton® 'O' rings was fitted to an ABS Treated River Water Pump, model BA250/250-32.

The product being pumped is Water with a stuffing box pressure of 250 psig (17 barg). The pump operates at 1470 rpm.

CASE 1044I

In a UK Pulp & Paper Industry a 48mm CURC™ CAR/STC with Viton® 'O' rings was fitted to an ABS Process Water Storage Mixing Pump, model BA150/150-26.

The product being pumped is Water with a stuffing box pressure of 150 psig (10 barg). The pump operates at 1470 rpm.

CASE 1045I

In a UK Pulp & Paper Industry a 48mm CURC™ with CAR/STC faces with Viton® 'O' rings was fitted to an ABS Treated River Water Pump, model nb80/50-26.

The product being pumped is Water with a temperature of 20/35°C (68/95°F) with a stuffing box pressure of 50 psig (3 barg). The pump operates at 2950 rpm.

CASE 1046I

In a UK Pulp & Paper Industry a 65mm CURC™ with CAR/STC with Viton® 'O' rings was fitted to an ABS Vitox Pump for Primary Treated Effluent, model BA200/200-32.

The product being pumped is Primary Treated Effluent with a stuffing box pressure of 200 psig (13 barg). The pump operates at 1480 rpm.

CASE 1047I

In a U Pulp & Paper Industry a 65mm CURC™ with CAR/STC faces with Viton® 'O' rings was fitted to an ABS Cooling Tower Circulation Pump, model BA250/250-32.

The pump operates at 1470 rpm with a temperature of 50°C (122°F) with a stuffing box pressure of 250 psig (17 barg).

CASE 1048I

In a UK Pulp & Paper Industry a 65mm CURC™ with CAR/STC faces with Viton® 'O' rings was fitted to an ABS Vitox Pump 1, model BA250/250-32.

The pump operates at 1470 rpm with a stuffing box pressure of 250 psig (17 barg).

CASE 1049I

In a UK Pulp & Paper Industry a 48mm CURC™ with CAR/STC faces with Viton® 'O' rings was fitted to an ABS Spray Water Booster Pump 4, model NB80/50-26.

The product being pumped is Final Treated Effluent with a temperature of 25/35°C (68/95°F) with a stuffing box pressure of 50 psig (3 barg). The pump operates at 2950 rpm.

CASE 1050I

In a U Pulp & Paper Industry a 48mm CURC™ with CAR/STC faces with Viton® 'O' rings was fitted to an ABS Tertiary Sludge pump, model BA150/150-26.

The pump operates at 990 rpm with a temperature of 25/35°C (68/95°F) with a stuffing box pressure of 150 psig (10 barg).

CASE 1051I

In a UK Pulp & Paper Industry a 48mm CURC™ with CAR/STC faces with Viton® 'O' rings was fitted to an ABS Chilled Water Pump 1, model NB100/65-26.

The pump operates at 1485 rpm with a temperature of 5/30°C (41/86°F) with a stuffing box pressure of 65 psig (4 barg).

CASE 1052I

In a UK Pulp & Paper Industry a 75mm CURC™ with CAR/STC faces with Viton® 'O' rings was fitted to an ABS 2nd Stage Prescreen Feed Pump1, model BA250/250-40. The seal was also fitted with a quench.

The product being pumped is Re Pulped Waste with a temperature of 50°C (122°F) with a stuffing box pressure of 250 psig (17 barg). The pump operates at 1485 rpm.

CASE 1053I

In a UK Pulp & Paper Industry a 100mm CURC™ with STC/STC faces with Viton® 'O' rings was fitted to an ABS Dump Tank 1, model BA4500/500-56. The seal was also fitted with a quench.

The product being pumped is Paper Stock with a stuffing box pressure of 500 psig (34 barg). The pump operates at 980 rpm.

CASE 1054I

In a UK Pulp & Paper Industry a 75mm CURC™ with STC/STC faces with Viton® 'O' rings was fitted to an ABS Dump

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Tank 2 Recirculation Pump, model BA350/300-40. The seal is also fitted with a quench.

The product being pumped is Paper Stock with a stuffing box pressure of 300 psig (20 barg). The pump operates at 1450 rpm.

CASE 1055I

In a UK Pulp & Paper Industry a 75mm CURC™ with STC/STC faces with Viton® 'O' rings was fitted to an ABS Preflotator Stock Pump, model BA350/300-40. The seal is also fitted with a quench.

The product being pumped is Paper Stock with a stuffing box pressure of 300 psig (20 barg). The pump operates at 720 rpm.

CASE 1056I

In a UK Pulp & Paper Industry a 100mm CURC™ with CAR/STC faces with Viton® 'O' rings was fitted to an ABS Preflotator Feed Pump 1, model BA500/500-56.

The product being pumped is Paper Stock with a stuffing box pressure of 500 psig (34 barg).

CASE 1057I

In a UK Pulp & Paper Industry a 100mm CDSA™ with TC/TC//CROX/C faces was fitted to a ABS 2nd Stage Cleaner Feed Pump, model BA500/500-56.

The product being pumped is De-inked Pulp with a temperature of 45°C (113°F) with a stuffing box pressure of 500 psig (34 barg). The pump operates at 990 rpm.

CASE 1058I

In a UK Pulp & Paper Industry a 75mm CURC™ with CAR/STC faces with Viton® 'O' rings was fitted to an ABS 3rd Stage Cleaner Feed Pump, model BA250/250-40.

The product being pumped is De-inked Pulp with a stuffing box pressure of 250 psig (17 barg). The pump operates at 1485 rpm.

CASE 1059I

In a UK Pulp & Paper Industry a 75mm CDSA™ with TC/TC//CROX/C faces was fitted to a ABS FS Reject LW Cleaner Pump 1, model BA350/300-40.

The product being pumped is De-inked Pulp with a temperature of 45°C (113°F) with a stuffing box pressure of 300 psig (20 barg).

CASE 1060I

In a UK Pulp & Paper Industry a 100mm CURC™ with CAR/STC faces with Viton® 'O' rings was fitted to a ABS Cloudy Filtrate Pump 1, model BA500/500-56.

The product being pumped is Filtrate with a stuffing box pressure of 500 psig (34 barg). The pump operates at 990 rpm.

CASE 1061I

In a UK Pulp & Paper Industry a 75mm CURC™ with CAR/STC faces with Viton® 'O' rings was fitted to a ABS White Water Tower Pump, model BA350/300-40.

The product being pumped is White Water with a temperature of 45°C (113°F) with a stuffing box pressure of 300 psig (20 barg).

CASE 1062I

In a UK Pulp & Paper Industry a 100mm CURC™ with CAR/STC faces with Viton® 'O' rings was fitted to a ABS Clear Water Tower Pump, model BA500/500-56.

The product being pumped is White Water with a temperature of 45°C (113°F) with a stuffing box pressure of 500 psig (34 barg). The pump operates at 740 rpm.

CASE 1063I

In a UK Pulp & Paper Industry a 100mm CURC™ with CAR/STC faces with Viton® 'O' rings was fitted to an ABS Post Flotator Stock Pump 1, model BA500/500-56.

The product being pumped is Paperstock with a stuffing box pressure of 500 psig (34 barg). The pump operates at 990 rpm.

CASE 1064I

In a UK Pulp & Paper Industry a 100mm CDSA™ with TC/TC/CROX/C faces was fitted to an ABS LW Cleaner Feed Pump 1, model BA500/500-56.

The product being pumped is De-inked Pulp with a temperature of 45°C (113°F) with a stuffing box pressure of 500 psig (34 barg). The pump operates at 990 rpm.

CASE 1065I

In a UK Pulp & Paper Industry a 100mm CDSA™ with TC/TC/CROX/C faces was fitted to an ABS LW Cleaner 2nd Stage Pump, model BA400/400-45.

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The product being pumped is De-inked Pulp with a temperature of 45°C (113°F) with a stuffing box pressure of 400 psig (27 barg). The pump operates at 1485 rpm.

CASE 1066I

In a UK Pulp & Paper Industry a 75mm CDSA™ with TC/TC/CROX/C faces was fitted to an ABS Wire Press Filtrate Pump, model BA350/300-40.

The product being pumped is White Water with a temperature of 45°C (113°F) with a stuffing box pressure of 300 psig (20 barg). The pump operates at 1485 rpm.

CASE 1067I

In a UK Pulp & Paper Industry a 100mm CURC™ with CAR/STC faces with Viton® 'O' rings was fitted to an ABS Drum Washer Filtrate Pump, model BA500/500-56.

The product being pumped is White Water with a temperature of 45°C (113°F) with a stuffing box pressure of 500 psig (34 barg). The pump operates at 990 rpm.

CASE 1068I

In a UK Pulp & Paper Industry a 75mm CURC™ with CAR/STC faces with Viton® 'O' rings was fitted to an ABS Alkaline Dispersion Water Pump, model NB200/150-50.

The product being pumped is Clear Water with a temperature of 45°C (113°F) with a stuffing box pressure of 150 psig (10 barg). The pump operates at 1485 rpm.

CASE 1069I

In a UK Pulp & Paper Industry a 75mm CURC™ with CAR/STC faces with Viton® 'O' rings was fitted to an ABS Neutral Dispersion Water Pump 1, model NB200/150-50.

The product being pumped is Clear Water with a temperature of 45°C (113°F) with a stuffing box pressure of 150 psig (10 barg). The pump operates at 1485 rpm.

CASE 1070I

In a UK Pulp & Paper Industry a 75mm CURC™ with CAR/STC faces with Viton® 'O' rings was fitted to an ABS Neutral Clear Water Pump 1, model BA350/300-30.

The product being pumped is Clear Filtrate with a temperature of 45°C (113°F) with a stuffing box pressure of 300 psig (20 barg). The pump operates at 1485 rpm.

CASE 1071I

In a UK Pulp & Paper Industry a 75mm CURC™ with CAR/STC faces with Viton® 'O' rings was fitted to an ABS Sludge Dewatering Filtrate Pump, model BA250/250-40.

The product being pumped is Effluent with a temperature of 45°C (113°F) with a stuffing box pressure of 250 psig (17 barg). The pump operates at 1485 rpm.

CASE 1072I

In a UK Pulp & Paper Industry a 100mm CURC™ with CAR/STC faces with Viton® 'O' rings was fitted to an ABS Process Water Booster Pump, model BA400/400-45.

The product being pumped is Fresh Water with a temperature of 20°C (69°F) with a stuffing box pressure of 400 psig (27 barg). The pump operates at 990 rpm.

CASE 1073I

In a UK Pulp & Paper Industry a 75mm CURC™ with CAR/STC faces with Viton® 'O' rings was fitted to an ABS Effluent Storage Pump 1, model BA350/300-40.

The product being pumped is Effluent with a temperature of 20 - 45°C (68 - 113°F) with a stuffing box pressure of 300 psig (20 barg). The pump operates at 900/1060 rpm.

CASE 1074I

In a UK Pulp & Paper Industry a 75mm CURC™ with CAR/STC faces with Viton® 'O' rings was fitted to an ABS Borewell Water Supply Pump 1, model BA300/300-40.

The product being pumped is Water with a stuffing box pressure of 300 psig (20 barg). The pump operates at 1485 rpm.

CASE 1075I

In a UK Pulp & Paper Industry a 75mm CURC™ with CAR/STC faces with Viton® 'O' rings was fitted to an ABS Backwash Water Pump, model BA350/300-40.

The product being pumped is Process Water with a stuffing box pressure of 300 psig (20 barg). The pump operates at 740 rpm.

CASE 1076I

In a UK Pulp & Paper Industry a 75mm CURC™ with CAR/STC faces with Viton® 'O' rings was fitted to an ABS Process Water Pump 1, model BA350/300-40.

The product being pumped is Process Water with a stuffing box pressure of 300 psig (20 barg).

CASE 1077I

In a UK Pulp & Paper Industry a 75mm CURC™ with CAR/STC faces with Viton® 'O' rings was fitted to an ABS Primary Treated Effluent Pump 1, model BA350/300-40.

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The product being pumped is Primary Treated Effluent with a temperature of 20/35°C (68 - 113°F) with a stuffing box pressure of 300 psig (20 barg). The pump operates at 900/1100 rpm.

CASE 1078I

In a UK Pulp & Paper Industry a 75mm CURC™ with CAR/STC faces with Viton® 'O' rings was fitted to an ABS Vitox Pump 4, model BA350/300-40.

The product being pumped is Mixed Liquor with a temperature of 25/35°C (77 - 95°F) with a stuffing box pressure of 300 psig (20 barg). The pump operates at 990 rpm.

CASE 1079I

In a UK Pulp & Paper Industry a 75mm CURC™ with CAR/STC faces with Viton® 'O' rings was fitted to an ABS Recycled Activated Sludge Pump 1, model BA350/300-40.

The product being pumped is Recycled Activated Sludge with a temperature of 25/35°C (77/95°F) with a stuffing box pressure of 300 psig (20 barg). The pump operates at 990 rpm.

CASE 1080I

In a UK Pulp & Paper Industry a 65mm CURC™ with STC/STC faces with Viton® 'O' rings was fitted to an ABS 3rd Stage Prescreen Feed Pump 1, model FB150/150-38.

The product being pumped is Paper Stock with a stuffing box pressure of 150 psig (10 barg). The pump operates at 1450 rpm.

CASE No. 1205J

In April 1998, a Double mechanical cartridge seal with pumping scroll was fitted to a Valmet TP100 screen on the secondary broke stage in a recycling fiber plant in the UK.

With growing environmental concerns and plant focus on water usage, AES elected to install a "pumping" mechanical seal with SSE25 (25 UK litres, 6.6 US Gallons) Jumbo pot.

Operating pressures were around 2 to 4 barg, (29-58 psig) depending on whether or not the basket was blocked or Jet washed. The seal lasted 12 months and was replaced in April 1999 with an improved design, which could maintain higher product to barrier fluid differentials.

The current seal is installed on the same SSE25 pot, and runs around 48 degrees C (119 degrees F), and 1200 rpm.

The seal is currently installed and working without any problems.

For further information, see Z Reference 4658, and AESSEAL® general arrangement 6463079.

CASE No. 1206J

In 1998, a 100mm MDC Double mechanical cartridge seal was fitted to a Sunds Jyla 150 screen in a plant in Sweden.

The seal is currently installed and working (for 81 weeks to date) without any problems.

For further information, see Z Reference 3615, and AESSEAL® general arrangement 6458574.

CASE No. 1207J

In 1996, a 75mm MDC Double mechanical cartridge seal was fitted to a Sunds Jyla 100 screen in a plant in Sweden.

The seal is currently installed and working (for 163 weeks to date) without any problems.

For further information, see Z Reference 3840, and AESSEAL® general arrangement 6459736.

CASE No. 1208J

In December 1999, a Double mechanical cartridge seal (IADC™) was designed and dispatched to be fitted to a Bird Screen Model 400 for a pulp & paper plant in the USA.

The seal was fitted on a Black Liquor process with operating temperatures of around 180 degrees F (82 degrees C).

For further information, see Z Reference Z5755, and AESSEAL® general arrangement 6469586.

CASE No. 1209J

In August 1998, a Double mechanical cartridge seal (IADC™) was designed and fitted to a Valmet Tampella Screen for a pulp & paper plant in the USA.

The 120mm seal replaced a Safematic SAF-120-QREG-303373, and was supplied with TC/TC//TC/Car seal faces and Aflas® Elastomers.

For further information, see Z Reference Z4840, and AESSEAL® general arrangement 6464264

CASE No. 1210J

In a paper mill in the USA, AESSEAL® 7 off 85mm IADC™ TC/TC//TC/CB with Aflas® 'O' rings were installed on a Beloit model 210 Hi-Q Fine Screens. These seals were installed on a mill outage as part of a project upgrade to the screens.

Installations occurred on August 29th 1998 and are still operational to date. The purchase cost savings were $2,000

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compared to the John Crane seals previously installed.

The seal water line was installed using an inverted P-Trap configuration and the seals did not fail when the mill lost its entire mill water supply due to a broken water line soon after start-up. The inverted P-trap water supply maintained enough water to provide an adequate fluid film to the seal in spite of the fact that there was no mill water for a period of time.

For further information, see Z Reference 4855 and AESSEAL® general arrangement 6464344.

CASE No. 1211J

In a paper mill with a preferred supplier contract with AES, a Sunds Model CMB 8030 was retro-fitted with AESSEALs on May 14th 1999. This seal was purchased as an alternative to the Safematic option. The seal installed was a CDSA™ with FMG 5.500" TC/TC//TC/Car with Aflas® elastomers. The cost saving was $2,100 (£1,400)!.

CASE No. 1224J

In a Paper and Pulp plant in the USA, a 50mm DMSF™ (53mm parts) with TC/TC//TC/CARB faces and Aflas®/Viton® 'O' rings was fitted to a Ahlstrom Frame 3 pump, model APT-32-4.

The product being pumped is Black Liquor with a temperature of 210°F (98°C) with a stuffing box pressure of 15 psig (1 barg). The pump operates at 1200 rpm.

See Z5119 for further details.

CASE No. 1226J

In a Pulp & Paper plant a 85mm PCP CURE™ with TC/TC faces and EPR 'O' rings was fitted to a MONO Screw Pump. API Plan 62 is employed.

The product being pumped is Calcium Liquor with a temperature of 80°C (176°F) with a stuffing box pressure of 4 barg (58 psig). The pump operates at 600 rpm.

CASE No. 1238J

In a Pulp & Paper plant in the USA a 60mm DMSF™ with TC/TC//TC/CAR faces and Aflas®/Viton® 'O' rings was fitted to a Ahlstrom pump, model APT-42-6.

The product being pumped is Black Liquor with a temperature of 150°F (65°C) with stuffing box pressure at 25 psig (1.7 barg). See Z5101 for further details.

CASE No. 1251J

In a PULP & PAPER plant in the UK a 55mm CSWIB was fitted to a Lamort Thermo Fiber Teknik Cleaner pump.

The product being pumped is Paper Fiber with a temperature of 50°C (122°F) with a stuffing box pressure of 10 psig. The pump operates at 1200 rpm.

See Z7088 for further details.

CASE No. 1253J

In a PULP & PAPER plant in Germany a 90mm CDSA™ was installed to a Voith Entstipper screen.

The product being pumped is Paper Stock with a temperature of 20°C (68°F) with a stuffing box pressure of 4 barg (58 psig). The pump operates at 1410 rpm.

See Z7103 for further details.

CASE No. 1254J

In a PAPER & PULP plant a 140mm RDS™ with CAR/CHOX faces and Aflas® 'O' rings was fitted to a SUNDS/VALMET Chip Screw feeder, model SD-60.

The product being pumped is Wood Chips/Chip chute with a temperature of 90 - 120°C (194 - 248°F) with a stuffing box pressure of 3 barg (43 psig). The pump operates at 700 - 800 rpm.

See Z7140 for further details.

CASE No. 1263J

In a Pulp & Paper plant a 4.500" CDM™ with TC/TC//TC/CB faces and Aflas®/Viton® 'O' rings was fitted to a Allis Chalmers pump, model F8N1.

The product being pumped is Black Liquor with a temperature of 220°F (104°C) with a shaft speed of 32 psig (2 barg). The pump operates at 1200 rpm.

See Z7002 for further details.

CASE No. 1264J

In a Pulp & Paper plant in the USA a 4.500" CDM™ with TC/TC//TC/CB faces with Aflas®/Viton® 'O' rings was fitted to a Allis Chalmers pump, model F8N1.

The product being pumped is Black Liquor with a temperature of 212°F (100°C) with a stuffing box pressure of 35 psig (2 barg). The pump operates at 1200 rpm.See Z7002 for further details.

CASE No. 1267J

At a Paper Mill in Scotland a 5.000" CURC™ TC/TC Viton® 316L was installed onto a Harwood Pulper.

Please contact AESSEAL plc Scotland for additional information.

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CASE No. 1278J

A 5.00" CURC™ with EPDM 'O' Rings and Tungsten Carbide on Tungsten Carbide faces was fitted to a 8 x 6 x 21 PWO Allys Charmers pump at Nampac Cardboard (pulp and paper industry), in Roslyn situated in Pretoria, South Africa. The media being pumped is hot water at about 65 Deg C, with palp fiber in this water. This seal was put in on trial and the agreement was that the customer would only need to make payment once our seal had outlasted the old seal by twice the life span.

This customer was using a Chesterton split seal that cost about R 35000 - 00. Our seal with some small adaptations only cost them R18000 - 00. The CURC™ has outlasted the Chesterton split easily, and the customer was so impressed with the cool running temperature and general manner of operation of the AESSEAL® that the customer has made full payment within 4 months instead of the 6 months, as previously agreed.

CASE No. 1288J

Jylavhaara screen seal in a paper mill in Chepstow - model 100 ML. Was using packing for the sealing and required the benefits of the mechanical seal. Fitted with 100mm IASC™ CAR/TC/Aflas® with FMG to utilize the threaded gland follower. No modification required to seal housing.

CASE No. 1291J

In a paper mill CURC™ TC TC were fitted to Ahlstrom ZPP 41-500 fan pumps. Seals were modified to increase the depth of the slots.

New sleeves were manufactured without the removal grooves. The seals have been installed and are removed every two years on a planned maintenance basis.

Previous seal was packing which if not regularly checked would leak excessively Water ingress to bearings would cause a complete failure of the rotating. As the shaft dropped impeller wear rings would touch and cause the unit to seize on occasions bending the shaft.

CASE No 1334K

In March 2003, a Pulp & Paper mill in the USA installed a MagTecta™ on a Goulds 3196MT on a spare pump assembly. The maintenance foreman was asked by AES to put it through the "test". AES suggested that they put the pump in service with a water hose soaking the seal/radial for a few hours. Well, you know what happens when a salesman starts talking and actually suggests something! They acted on it, only they put it in a condensate location, using a CDSA™/ VSE/10 ltr/W3 system. Then they directed a condensate line, probably 160*+F condensate, directly at the seal for 4 days!!! And no it didn't fail, it is still working with no moisture in the bearing housing. Contact Fred Osborn (AESSEAL USA) for further details.

CASE No 1346K

In April 2003, 2 off 2.125" MagTecta™ (3.125" parallel housing) were designed and dispatched to AESSEAL Knoxville USA for an end user application in New Hampshire. The MagTecta™ sealed the bearing chamber of the pump. For further information see AZA9285 and GA 7124187.

For further information contact Dave Drew from SPG (AESSEAL USA Distributor).

CASE No 1359K

A 1.750" CDSA™ TC/TC//TC/Car (Aflas® inboard and Viton® outboard elastomers) was fitted to a Goulds 3196MT Chip Chute pump in a Pulp mill in North East coast of USA. The seal was installed in March 03 and sealed AQ Dispersion pulp. Contact Charles Lynch (AESSEAL USA sales engineer) for further details.

CASE No 1374K

8 off 2.937" LXS Magtecta™ seals to fit in a 4.000" housing, are to be dispatched in April/May 03 to an End user Paper Mill on the West coast USA. 4 off are to be installed immediately and 4 will be placed on stock. Further information contact Fred Osborn (AESSEAL® sales engineer) or Industrial Packing (AESSEAL® distributor).

CASE No 1385K

Contact Chuck Mayhue of Samson, Macon, GA for questions.

Seals installed in a Pulp & Paper Mill in the USA in April, 2001 have saved the plant approximately $800 per month due to reducing downtime for packing (material & labor).

CASE No 1392K

A 70mm MagTecta-TXS™ was installed on a Screw press gearbox in the Pulp and Paper Industry in South East of England.

The MagTecta™ was sealing the oil filled bearing chamber. The customer had a bucket under the previous lip seal arrangement. The bucket was filled will oil every day. The operators had to empty the bucket and refill the gearbox. This involved 1 hour per day of there time. The leaking oil would also fall onto coating operators, which was creating a health and safety issue. Every four to six months they would have to

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machine new shaft sleeves and repair seal housings of at a cost of approx £160.00 a time.

The MagTecta™ was installed end of March and is currently leak free. Needless to state that the end-user operators are delighted with the performance.

For further information contact Gary Mills (AESSEAL SE sales engineer).

CASE No 1393K

A 3.750" MagTecta-LXS™ was installed on the 2nd dryer gearbox on a coating machine in the Pulp and Paper Industry in South East of England.

The MagTecta™ was sealing the oil filled bearing chamber and replaced a lipseal arrangement. The lipseal allowed oil to enter and contaminate the greased filled bearing chamber. This lead to the failure of bearings.

Furthermore, there was no lipseal at the other side of the bearing chamber. The escaped oil therefore poured through the bearings and out onto the floor. This created a plant safety hazard.

The MagTecta™ was installed mid April.

For further information contact Gary Mill (AESSEAL® SE sales engineer).

CASE No 1394K

In April 2003, 10 off 3.400" MagTecta™ (4.400 housing) were designed and dispatched to be installed on a Worthington Pump application in the USA.

The MagTecta™ sealed the bearing chamber of the pump. For further information see AZA9287 and GA 7124210.

For further information contact Fred Osborn (AESSEAL® USA Sales engineer) or Industrial Packing (AESSEAL® distributor).

CASE No 1395K

In April 2003, 8 off 2.937" MagTecta™ (4.000 housing) were designed and dispatched to be installed on a Fan application on the west coast of the USA.

The MagTecta™ were installed on a split pillar block bearing arrangement replacing an Inpro lab bush. The customer machined the pillar block to suit the MagTecta™ outside diameter.

For further information contact Fred Osborn (AESSEAL® USA Sales engineer) or Industrial Packing (AESSEAL® distributor - west coast).

CASE No 1396K

A 55mm CDSA™ was fitted to an Escher Wyss paper machine pumping paper stock (pulp) at 60ºC 6 barg pressure with Aflas® elastomers, 1450 RPM.

CASE No 1411K

In August 2002 a 140mm IADC™ screen seal was installed on a Ahlstrom Moduscreen HB4 in a Pulp and Paper plant in Northern Europe. The single seal had TC/TC seal faces and Aflas® elastomers. The IADC™ sealed vapours of Formaldehyde, fatty acids, aliphatic aromatic vapours and others at a temp of 260ºC. The shaft rotated at 100 rpm and the barrier was 15ºC set at a pressure of 3 barg.

See AZA8749 and GA 7117311 for further details. For further details contact John Van Rijsbergen (AESSEAL Netherland).

CASE No 1413K

In the Paper & Pulp Industry, a 6.000 CSMO™, AZA9204, drawing no. 7123122, was fitted to a Chemineer Mixer, model 5HSN, mixing 3-5% Paper Stock. Seal faces are Tungsten Carbide/Tungsten Carbide, and Aflas® elastomers, 316L metallurgy.

For further information please contact Bill Fryers, Chemineer Ltd.

CASE No 1438K

2 off 125mm MagTecta™ are fitted on a Solvo Pulper (similar to a Hydro pulper) in the UK Pulp and Paper industry. The Magtecta™ are installed to stop water ingress into a grease filled bearing housing, running at around 300rpm. Seal was installed 1st week in March 2003. Contact David Stone UK sales engineer

CASE No 1446K

On an Escher Wyss Pump, E2K, a 95mm CDSA™ seal AZA9230, drawing 7123404 was fitted in April 2003. Faces are Tungsten Carbide/Tungsten Carbide/Tungsten Carbide/Carbon with Aflas® elastomers inboard and outboard, seal metallurgy is 316L SS. The product is 4-5% Paper Stock at 60°C and cavity pressure 6 barg. Contact John Van Rijsbergen for further information.

CASE No 1569K

On a Egger Turo Submersible pump, Model E, a 48mm CURC™, Drg no. 7124500, seal Z ref 9307, was fitted with Tungsten Carbide/Tungsten Carbide faces and Viton® elastomers, and 316L Stainless Steel wetted parts.

The seals are to be installed in the first week of May.

For further information please contact Gary Mills, AESSEAL plc (SE) in the UK.

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CASE No 1618K

In April 2003 a 50mm CAPI A2 dual (API 610 V8) was installed on a C.E.A. Prototype Archimedean Screw Transporter.

The seal had ANT CAR/SIC//ANT CAR/SIC faces with Viton® elastomers. The sealed product was pieces of wood with a temperature of 50C and pressure of 40 barg. The shaft rotated at 20 - 50 RPM.

See stock code TB0300101A--200M050 and GA 7123701. For further information contact Bernard Salengrois at AESSEAL France SARL.

CASE No 1626K

In April 2003, a USA distributor ordered 10 off 0.781" MagTecta™ (1.500" OD) for a P&P roller application on the west coast of the USA.

The seals are to be installed in May 2003. For further information contact Tim Trepanier or Chris Rehmann at AESSEAL Inc. (Knoxville).

CASE No 1664K

In April 2003 a 30mm CAPI A2 Dual seal was installed on a C.E.A. Prototype Archimedean Screw Transporter.

The seal had ANT CAR/SIC faces with Viton® elastomers. The sealed product was a piece of wood with a temperature of 50 C and pressure of 40 barg. The shaft rotated at 50 rpm.

See TB0300101A--200M030 and GA 7123696. For further information contact Bernard Salengrois at AESSEAL France SARL.

CASE No 1695K

Early 2003, a 1.625" TC/TC//TC/Car CDSA™ with Aflas® inboard and Viton® elastomers outboard, was installed in a P&P plant in southwestern Virginia in southeast USA.

The seal was sealing Black Liquor on a Labour pump rotating at 1460 rpm. A SSE10 SW3™ seal support system with water barrier fluid was employed.

Contact Charles Lynch (AESSEAL® USA sales engineer) for further details.

CASE No 1696K

A Pulp & Paper Mill in South Africa have made the 90 x 110 MagTecta™ stock Item for their ABB Scan Pumps. These pumps are quite popular in the pulp and paper industry and there should be a big market for this application.

The confidence in the product (and the size of the problem they currently have) is of such a nature that the product was made stock item before even tested.

For further information contact Nico Van Nieherk (AESSEAL pty)

CASE No 1698K

In 2002 a number of 1.375" TPOC'S (STD and ANSI+) were installed in a P&P plant in the USA.

The seals provided an unbalanced (higher) closing force than that of a CURC™. This was a perceived advantage on site.

For further information, contact Keith Hodson (AESSEAL Knoxville).

CASE No 1699K

In 2002 a number of 1.875" TPOC'S (STD and ANSI+) were installed in a P&P plant in the USA.

The seals provided an unbalanced (higher) closing force than that of a CURC™. This was a perceived advantage on site.

For further information, contact Keith Hodson (AESSEAL Knoxville).

CASE No 1722K

In a paper mill on the west coast of the USA, DMSF™ seals TC/TC/TC/CAR and Aflas® elastomers were installed into an Alhstrom APT31-4 pump. The system used in conjunction with this seal was a SSE25 SW3™. The pump rotates at 1800 rpm and handles black liquor from No 4 tank to the dust recycle accumulation tank.

Seal failure was mainly down to poor quality water supplied to the seal. The SSE25 SW3™ system now maintains a good quality barrier to the seal thus extending seal life. The customer has been extremely pleased with this solution.

The seal and system were installed in December 1999 and were still working in June 2003.

For additional details contact Fred Osborn, email fosborn@aesseal.com or AESSEAL Inc, email knxadmin@aesseal.com

CASE No 1727K

In May 2003, a CDM™ seal, 150mm, Z9369, Drg. No.7125379, was fitted to a Sunds JP3 Defibrator in a P&P plant in Germany.

Seal faces were Tungsten Carbide/Tungsten Carbide/Chrome Oxide/Carbon, elastomers were Aflas® and wetted parts 316L Stainless Steel.

For further information please contact Barry Bamford,

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AESSEAL Deutschland AG

CASE No 1733K

An EXOTIC CDM™ seal, 70mm, Z9237, Drg. No. 7123524 was fitted to a Ahlstrom Ahlmixer, model 40P2-14-GR.

Product is Bleached Paper Stock, at 100°F and pressure was 40 psig.

Seal faces were Silicon Carbide/Silicon Carbide/Carbon/Silicon Carbide, elastomers were Aflas, inboard and out and wetted parts Alloy 20.

For further information please contact Cathy Wilson, AESSEAL Inc.

CASE No 1740K

In a paper mill on the west coast of the USA, DMSF™ seals TC/TC/TC/CAR and Aflas® elastomers were installed into Goulds 3175L pumps. The systems used in conjunction with the seals were SSE25 SW3™ with Cooling Coil-Boise Tank. The pumps rotate at 980 rpm and handle heavy black liquor recirculation.

Seal failure was mainly down to poor quality water supplied to the seals. The SSE25 SW3™ with Cooling Coil-Boise Tank now maintains a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution.

The seals and systems were installed in August 2001 and were still working in June 2003.

For additional details contact Fred Osborn, email fosborn@aesseal.com or AESSEAL Inc, email knxadmin@aesseal.com

CASE No 1741K

In a paper mill on the west coast of the USA, CDSA™ seals TC/TC/TC/CAR and Aflas® elastomers were installed into Goulds 3196MTX pumps. The systems used in conjunction with these seals were SSE10 SW2™. The pumps rotate at 1755 rpm and handle Green Liquor from Transfer Tank No 2.

Seal failure was mainly down to poor quality water supplied to the seal. The SSE10 SW2™ now maintains a good quality barrier to the seal thus extending seal life. The customer has been extremely pleased with this solution.

The seals and systems were installed in March 2002 and were still working in June 2003.

For additional details contact Fred Osborn, email fosborn@aesseal.com or AESSEAL Inc, email knxadmin@aesseal.com

CASE No 1742K

In a paper mill on the west coast of the USA, CDSA™ seals TC/TC/TC/CAR and Aflas® elastomers were installed into Goulds 3196MTX pumps. The systems used in conjunction with the seals were SSE10 SW2™. The pumps rotate at 1755 rpm and handle Green Liquor from Transfer Tank No 1.

Seal failure was mainly down to poor quality water supplied to the seals. The SSE10 SW2™ now maintains a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution.

The seals and systems were installed in March 2002 and were still working in June 2003.

For additional details contact Fred Osborn, email fosborn@aesseal.com or AESSEAL Inc, email knxadmin@aesseal.com

CASE No 1743K

In a paper mill on the west coast of the USA, CDSA™ seals TC/TC/TC/CAR and Aflas® elastomers were installed into Goulds 3180S pumps. The system used in conjunction with the seals were SSE10 SW2™. The pumps rotate at 1775 rpm and handle White Liquor from Transfer Tank No 2.

Seal failure was mainly down to poor quality water supplied to the seals. The SSE10 SW2™ now maintains a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution.

The seals and systems were installed in September 2001 and were still working in June 2003.

For additional details contact Fred Osborn, email fosborn@aesseal.com or AESSEAL Inc, email knxadmin@aesseal.com

CASE No 1744K

In a paper mill on the west coast of the USA, CDSA™ seals TC/TC/TC/CAR and Aflas® elastomers were installed into Goulds 3180S pumps. The system used in conjunction with the seals were SSE10 SW2™. The pumps rotate at 1,175 rpm and handle Ash Mix from Tank recirculation sluice.

Seal failure was mainly down to poor quality water supplied to the seals. The SSE10 SW2™ now maintains a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution.

The seals and systems were installed in December 2001 and were still working in June 2003.

For additional details contact Fred Osborn, email fosborn@aesseal.com or AESSEAL Inc, email knxadmin@aesseal.com

CASE No 1745K

In a paper mill on the west coast of the USA, CDSA™ seals TC/TC/TC/CAR and Aflas® elastomers were installed into Goulds 3180S pumps. The system used in conjunction with the seals were SSE10 SW2™. The pumps rotate at 1175 rpm and handles Ash Mix from Mix Tank to Ash Storage No 1.

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Seal failure was mainly down to poor quality water supplied to the seals. The SSE10 SW2™ now maintains a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution.

The seals and systems were installed in January 2002 and were still working in June 2003.

For additional details contact Fred Osborn, email fosborn@aesseal.com or AESSEAL Inc, email knxadmin@aesseal.com

CASE No 1746K

In a paper mill on the west coast of the USA, CDSA™ seals TC/TC/TC/CAR and Aflas® elastomers were installed into Goulds 3180S pumps. The system used in conjunction with the seals were SSE10 SW2™. The pumps rotate at 1770 rpm and handle Liquor Spill.

Seal failure was mainly down to poor quality water supplied to the seals. The SSE10 SW2™ now maintains a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution.

The seals and systems were installed in June 2002 and were still working in June 2003.

For additional details contact Fred Osborn, email fosborn@aesseal.com or AESSEAL Inc, email knxadmin@aesseal.com.

CASE No 1747K

In a paper mill on the west coast of the USA, CDSA™ seals TC/TC/TC/CAR and Aflas® elastomers were installed into Goulds 3180S pumps. The systems used in conjunction with the seals were SSE10 SW2™. The pumps rotate at 1180 rpm and handle Weak Liquor.

Seal failure was mainly down to poor quality water supplied to the seals. The SSE10 SW2™ now maintains a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution. The seals and systems were installed in May 2002 and were still working in June 2003.

For additional details contact Fred Osborn, email fosborn@aesseal.com or AESSEAL Inc, email knxadmin@aesseal.com

CASE No 1748K

In a paper mill on the west coast of the USA, CDSA™ seals TC/TC/TC/CAR and Aflas® elastomers were installed into Goulds 3196MTX pumps. The systems used in conjunction with the seals were SSE10 SW2™. The pumps rotate at 1765rpm and handle Strong Liquor.

Seal failure was mainly down to poor quality water supplied to the seals. The SSE10 SW2™ now maintains a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution.

The seals and systems were installed in March 2002 and were still working in June 2003.

For additional details contact Fred Osborn, email fosborn@aesseal.com or AESSEAL Inc, email knxadmin@aesseal.com

CASE No 1749K

In a paper mill on the west coast of the USA, CDSA™ seals TC/TC/TC/CAR and Aflas® elastomers were installed into Goulds 3196LTX pumps. The systems used in conjunction with the seals were SSE10 SW2™. The pumps rotate at 1775 rpm and handle liquor from the 3rd effect transfer tank.

Seal failure was mainly down to poor quality water supplied to the seals. The SSE10 SW2™ now maintains a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution.

The seals and systems were installed in December 2001 and were still working in June 2003.

For additional details contact Fred Osborn, email fosborn@aesseal.com or AESSEAL Inc, email knxadmin@aesseal.com

CASE No 1750K

In a paper mill on the west coast of the USA, DMSF™ seals TC/TC/TC/CAR and Aflas® elastomers were installed into Ahlstrom APT 5 pumps. The systems used in conjunction with the seals were SSE25 SW2™ with Cooling Coil. The pumps rotate at 1,750 rpm and handle 73% Black Liquor at 234°F

Seal failure was mainly down to poor quality water supplied to the seals. The SSE25 SW2™ with Cooling Coil now maintains a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution.

The seals and systems were installed in January 2002 and were still working in June 2003.

For additional details contact Fred Osborn, email fosborn@aesseal.com or AESSEAL Inc, email knxadmin@aesseal.com

CASE No 1751K

In a paper mill on the west coast of the USA, CDSA™ seals TC/TC/TC/CAR and Aflas® elastomers were installed into Allis Chalmers PWO F8B1 pumps. The systems used in conjunction with the seals were SSE10 SW3™. The pumps rotate at 1150 rpm and handle Black Liquor in the Evaporator Pump.

Seal failure was mainly down to poor quality water supplied to

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the seals. The SSE10 SW3™ now maintains a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution.

The seals and systems were installed in March 2002 and were still working in June 2003.

For additional details contact Fred Osborn, email fosborn@aesseal.com or AESSEAL Inc, email knxadmin@aesseal.com

CASE No 1752K

In a paper mill on the west coast of the USA, DMSF™ seals TC/TC/TC/CAR and Aflas® elastomers were installed into Ahlstrom APT22-2 pumps. The systems used in conjunction with the seals were SSE10 SW2™. The pumps rotate at 1800 rpm and handle Steam Condensate in the No 5 Evaporator.

Seal failure was mainly down to poor quality water supplied to the seals. The SSE10 SW2™ now maintains a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution.

The seals and systems were installed in July 2000 and were still working in June 2003.

For additional details contact Fred Osborn, email fosborn@aesseal.com or AESSEAL Inc, email knxadmin@aesseal.com

CASE No 1753K

In a paper mill on the west coast of the USA, DMSF™ seals TC/TC/TC/CAR and Aflas® elastomers were installed into Goulds 3196MTX pumps. The systems used in conjunction with the seals were SSE10 SW2™. The pumps rotate at 1,800 rpm and handle 7th Effect Condensate in the No 9 Evaporator.

Seal failure was mainly down to poor quality water supplied to the seal. The SSE10 SW2™ now maintains a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution.

The seals and systems were installed in April 2002 and were still working in June 2003.

For additional details contact Fred Osborn, email fosborn@aesseal.com or AESSEAL Inc, email knxadmin@aesseal.com

CASE No 1754K

In a paper mill on the west coast of the USA, DMSF™ seals TC/TC/TC/CAR and Aflas® elastomers were installed into Goulds 3196STX pumps. The systems used in conjunction with the seals were SSE10 SW2™. The pumps rotate at 1800 rpm and handle No 6 Effect Dirty Condensate in the No 10 Evaporator.

Seal failure was mainly down to poor quality water supplied to the seals. The SSE10 SW2™ now maintains a good quality barrier to the seal thus extending seal life. The customer has been extremely pleased with this solution.

The seals and systems were installed in February 2001 and were still working in June 2003.

For additional details contact Fred Osborn, email fosborn@aesseal.com or AESSEAL Inc, email knxadmin@aesseal.com

CASE No 1755K

In a paper mill on the west coast of the USA, DMSF™ seals TC/TC/TC/CAR and Aflas® elastomers were installed into Goulds 3196MTX pumps. The systems used in conjunction with the seals were SSE10 SW2™. The pumps rotate at 1800 rpm and handle 5th Effect Liquor Discharge in the No 5 Evaporator.

Seal failure was mainly down to poor quality water supplied to the seals. The SSE10 SW2™ now maintains a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution.

The seals and systems were installed in September 2001 and were still working in June 2003.

For additional details contact Fred Osborn, email fosborn@aesseal.com or AESSEAL Inc, email knxadmin@aesseal.com

CASE No 1756K

In a paper mill on the west coast of the USA, DMSF™ seals TC/TC/TC/CAR and Aflas® elastomers were installed into Goulds 3196LTX pumps. The systems used in conjunction with the seals were SSE10 SW2™. The pumps rotate at 1200 rpm and handle No 6 Effect Liquor Discharge in the No 5 Evaporator.

Seal failure was mainly down to poor quality water supplied to the seals. The SSE10 SW2™ now maintains a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution.

The seals and systems were installed in May 2001 and were still working in June 2003.

For additional details contact Fred Osborn, email fosborn@aesseal.com or AESSEAL Inc, email knxadmin@aesseal.com

CASE No 1757K

In a paper mill on the west coast of the USA, DMSF™ seals TC/TC/TC/CAR and Aflas® elastomers were installed into Ahlstrom APT32-2 pumps. The systems used in conjunction with the seals were SSE10 SW2™. The pumps rotate at 1200 rpm and handle Liquor Discharge from Flash Tank and No 5 Evaporator.

Seal failure was mainly down to poor quality water supplied to the seals. The SSE10 SW2™ now maintains a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution.

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The seals and systems were installed in May 2001 and were still working in June 2003.

For additional details contact Fred Osborn, email fosborn@aesseal.com or AESSEAL Inc, email knxadmin@aesseal.com

CASE No 1758K

In a paper mill on the west coast of the USA, DMSF™ seals TC/TC/TC/CAR and Aflas® elastomers were installed into Ahlstrom APT31-4 pumps. The systems used in conjunction with the seals were SSE10 SW2™. The pumps rotate at 1800 rpm and handle 7th Effect Liquor from No 8 Evaporator.

Seal failure was mainly down to poor quality water supplied to the seals. The SSE10 SW2™ now maintains a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution.

The seals and systems were installed in September 1999 and were still working in June 2003.

For additional details contact Fred Osborn, email fosborn@aesseal.com or AESSEAL Inc, email knxadmin@aesseal.com

CASE No 1759K

In a paper mill on the west coast of the USA, DMSF™ seals TC/TC/TC/CAR and Aflas® elastomers were installed into Ahlstrom APT31-6 pumps. The systems used in conjunction with the seals were SSE10 SW2™. The pumps rotate at 1800 rpm and handle No 7 Effect Liquor from No 9 Evaporator.

Seal failure was mainly down to poor quality water supplied to the seals. The SSE10 SW2™ now maintains a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution.

The seals and systems were installed in January 1999 and were still working in June 2003.

For additional details contact Fred Osborn, email fosborn@aesseal.com or AESSEAL Inc, email knxadmin@aesseal.com

CASE No 1760K

In a paper mill on the west coast of the USA, DMSF™ seals TC/TC/TC/CAR and Aflas® elastomers were installed into Worthington 6 CNG 84 pumps. The systems used in conjunction with the seals were SSE10 SW2™. The pumps rotate at 1800 rpm and handle No 5 Effect Liquor from No 9 Evaporator.

Seal failure was mainly down to poor quality water supplied to the seals. The SSE10 SW2™ now maintains a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution.

The seals and systems were installed in March 2001 and were still working in June 2003.

For additional details contact Fred Osborn, email fosborn@aesseal.com or AESSEAL Inc, email knxadmin@aesseal.com

CASE No 1761K

In a paper mill on the west coast of the USA, DMSF™ seals TC/TC/TC/CAR and Aflas® elastomers were installed into Worthington 6 CNG 84 pumps. The systems used in conjunction with the seals were SSE10 SW2™. The pumps rotate at 1800 rpm and handle No 4 Effect Liquor from No 9 Evaporator.

Seal failure was mainly down to poor quality water supplied to the seals. The SSE10 SW2™ now maintains a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution.

The seals and systems were installed in April 2002 and were still working in June 2003.

For additional details contact Fred Osborn, email fosborn@aesseal.com or AESSEAL Inc, email knxadmin@aesseal.com

CASE No 1762K

In a paper mill on the west coast of the USA, DMSF™ seals TC/TC/TC/CAR and Aflas® elastomers were installed into Worthington 6 CNG 84 pumps. The systems used in conjunction with the seals were SSE10 SW2™. The pumps rotate at 1200 rpm and handle No 6 Effect Liquor from No 10 Evaporator.

Seal failure was mainly down to poor quality water supplied to the seals. The SSE10 SW2™ now maintains a good quality barrier to the seal thus extending seal life. The customer has been extremely pleased with this solution.

The seals and systems were installed in May 2000 and were still working in June 2003.

For additional details contact Fred Osborn, email fosborn@aesseal.com or AESSEAL Inc, email knxadmin@aesseal.com

CASE No 1763K

In a paper mill on the west coast of the USA, DMSF™ seals TC/TC/TC/CAR and Aflas® elastomers were installed into Worthington 6 CNG 84 pumps. The systems used in conjunction with the seals were SSE10 SW2™. The pumps rotate at 1800 rpm and handle No 5 Effect Liquor from No 10 Evaporator.

Seal failure was mainly down to poor quality water supplied to the seals. The SSE10 SW2™ now maintain a good quality barrier to the seal thus extending seal life. The customer has

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been extremely pleased with this solution.

The seals and systems were installed in August 1999 and were still working in June 2003.

For additional details contact Fred Osborn, email fosborn@aesseal.com or AESSEAL Inc, email knxadmin@aesseal.com

CASE No 1764K

In a paper mill on the west coast of the USA, DMSF™ seals TC/TC/TC/CAR and Aflas® elastomers were installed into Worthington 6 CNG 84 pumps. The systems used in conjunction with the seals were SSE10 SW2™. The pumps rotate at 1800 rpm and handle No 4 Effect Liquor from No 10 Evaporator.

Seal failure was mainly down to poor quality water supplied to the seals. The SSE10 SW2™ now maintains a good quality barrier to the seal thus extending seal life. The customer has been extremely pleased with this solution.

The seals and systems were installed in March 2002 and were still working in June 2003.

For additional details contact Fred Osborn, email fosborn@aesseal.com or AESSEAL Inc, email knxadmin@aesseal.com

CASE No 1765K

In a paper mill on the west coast of the USA, DMSF™ seals TC/TC/TC/CAR and Aflas® elastomers were installed into Ahlstrom APT42-6 pumps. The systems used in conjunction with this seals were SSE10 SW2™. The pumps rotate at 1800 rpm and handle No 5 Weak Liquor to Evaporators.

Seal failure was mainly down to poor quality water supplied to the seals. The SSE10 SW2™ now maintains a good quality barrier to the seal thus extending seal life. The customer has been extremely pleased with this solution.

The seals and systems were installed in October 2000 and were still working in June 2003.

For additional details contact Fred Osborn, email fosborn@aesseal.com or AESSEAL Inc, email knxadmin@aesseal.com

CASE No 1766K

In a paper mill on the west coast of the USA, DMSF™ seals TC/TC/TC/CAR and Aflas® elastomers were installed into Worthington 6 CNG 104 pumps. The systems used in conjunction with the seals were SSE10 SW2™. The pumps rotate at 1200 rpm and handle No 8 Effect Liquor for No 10 Evaporator.

Seal failure was mainly down to poor quality water supplied to the seals. The SSE10 SW2™ now maintains a good quality barrier to the seal thus extending seal life. The customer has been extremely pleased with this solution.

The seals and systems were installed in May 2000 and were still working in June 2003.

For additional details contact Fred Osborn, email fosborn@aesseal.com or AESSEAL Inc, email knxadmin@aesseal.com

CASE No 1769K

In Early May 2003, 2off 4.000" Magtecta™ were installed on a Pillar/plummer block in P&P plant on the west coast of the USA. The pillar block housing was machined to accommodate a standard MagTecta™. The pillar blocks housed the oil lubricated bearings for a fan. The seals are currently working leak free and the customer is very happy.

Contact Fred Osborn (AESSEAL® USA sales) for further details.

CASE No 1778K

4 off 190mm MagTecta™ were installed on a roller in Germany in May 2003.

They are currently working leak free and replaced a lipseal design which constantly leaked and gave problems.

The bearing chamber was filled with 500ml of oil. The seals were successfully tested in Rotherham before dispatch.

For further information, contact Barry Bamford (AESSEAL Germany)

The shaft rotates at 750rpm.

CASE No 1779K

1 off 7.250" Magtecta™ is designed and scheduled to be dispatched in Aug 2003 for a P&P plant in North Carolina.

The MagTecta™ is to be installed on a Falk Gearbox on a Black Clawson Hydropulper which seals bleached paper stock. It will have a 6 bolt hole flange.

The temp is 120 deg F and shaft speed is 450 rpm

Contact Jerome Moore (AESSEAL® Knoxville sales engineer) for further information.

CASE No 1780K

1 off 8.250" MagTecta™ is designed and scheduled to be dispatched in Aug 2003 for a P&P plant in Oregon USA.

The MagTecta™ is to be installed on a Double D Beloit Refiner which sees paper stock and water.

The shaft speed is 600 rpm

Contact Fred Osborn (AESSEAL® Knoxville sales engineer) for further information.

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CASE No 1781K

A 3.625" IASC™ was fitted to a Black and Clawson Ultra Screen, Product, Temp, pressure unknown. Seal faces were Tungsten Carbide/Tungsten Carbide with Aflas® 'O' rings. Wetted parts was 316L Stainless Steel.

See AZA9372 and GA 7125401 for further details.

CASE No 1795K

At a paper mill in Florida USA, two CDSA™ seals TC/TC/TC/CAR and Aflas®/Viton® elastomers were installed into Worthington 4CNG-104 pumps. The systems used in conjunction with the seals was a SSE10 SW2™. The pumps handle Green Liquor and is situated in the power house.

The SSE10 SW2™ systems maintain a good quality barrier to the seal thus extending seal life.

The seals and systems were installed in July 1998 and were still working in June 2003.

For additional details contact AESSEAL Inc, email knxadmin@aesseal.com

CASE No 1801K

The paper mill is situated in the South of the USA and has two paper machines, a bleach plant and a ground wood mill. The seal installed was a CDSA™ seal TC/TC/TC/CB and Aflas®/Viton® elastomers. The system used in conjunction with the seal was a SSE10 SW3™. To date the seal water system has saved 5'256'000 gallons of water to this one pump. This mill values water at $100.00 per million gallons, so in the past five years the seal water system has saved $525.60 in clean seal water alone. This does not account for the cost of disposal which is as much or even more.

Each seal replacement covers the cost of the SSE10 SW3™ system. Seal and system were installed in May 1998 and were still working in July 2003. For additional details contact AESSEAL Inc, email knxadmin@aesseal.com

CASE No 1809K

A Pulp & Paper Mill in th USA had a problem with the Oxidizer system and the cost to re-evaporate water from the Black Liquor system. In the past seals were set up with either a water flush or Quench and Drain arrangement. At times large volumes of water would need to be drawn off at a cost of over $500.00/gallon. As well several seals had failed due to main Flush water header being shut off during washdown cycle. AES has installed an SW2™ system and CDSA™ that currently has saved two seals and nearly $5,000 in re-evaporation costs since installed in January of 2003. An ongoing cost study is being conducted by Mill staff for all of the Plant for consideration as standard system on all Oxidizer/ Black Liquor transfer pumps. Submitted by Chris Stanton, AES Seal PGH, PA.

CASE No 1810K

Customer previously utilized John Crane seals with a Flush on Caustic. Several seal failures attributed to loss of seal water and improper environmental controls. AES has installed CURC™ seals with a steam quench and seal has run since March of 2002. Submitted by Chris Stanton AES Seal PGH, PA (USA)

CASE No 1811K

A Pulp & Paper Mill in the USA had a problem with seal life on Starch pumps. As in many cases, seal flush water supply is a problem at this mill. AES set up CDSA™ with a Quench and Drain monitoring pressure into and out of seal and made recommendations to isolate the water header for pumps in area. Seal has run since December of 2001. Submitted by Chris Stanton PGH, PA (USA)

CASE No 1812K

A Pulp Mill in the USA had this application packed and saw several failures, costly equipment repairs and lost product. AES installed CDP seals in April of 2002 and seals are still running. Conversion from packing to seals has been a priority at this site as few seals had been utilized in years past due to perceptions of high cost. Submitted by Chris Stanton PGH,PA

CASE No 1813K

A Paper Mill Coatings area had long-standing problem of losing seals after periods of downturn on Latex supply pumps. During inspection it was found that while pumps were idle the seal water supply was either shut off or greatly reduced. Several Competitors seals were found encased with Latex. AES first set up seal water system with pressure gauges on inlet and outlet, as well as isolating the pumps from the main water supply. This enabled customer to monitor the proper amount of flush pressure to overcome system and box pressures. CDP seals were installed in August of 2002 and have run since with no failures. Previous seals were lasting 1 month. Submitted by Chris Stanton PGH, PA

CASE No 1823K

In 2003 a CDSA™ seal was fitted on a Lightnin Horizontal mixer, model 208VSE25. Contact Charley Lynch (AES USA sales engineer) for further information.

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CASE No 1824K

In 2003 a CDSA™ seal was fitted on a Lightnin Horizontal mixer, model 4VS75

Contact Charley Lynch (AES USA sales engineer) for further information.

CASE No 1827K

In 2003 a 3.500" CDSA™ seal was fitted on a Impco/Beloit HIGH SHEAR Horizontal mixer.

Contact Charlie Lynch (AES USA sales engineer) for further information.

CASE No 1834K

In a Paper Mill in the SE USA, 2 Goulds 3175 M Knotter Feed Pumps were fitted with AES CMAX™ Seals. The pumps were previously packed and leaked approximately 4 gpm of black liquor and water to the floor drain. Due to environmental concerns the customer was required to seal the units. The CMAX™ seals can be moved with out being reset to clear paper stock knots from the pumping chamber, the seal chamber is flushed with 2gpm of high-pressure water into the seal chamber. The seals have been installed since March 2003. See Jerome Moore (AES USA sales engineer) for further information.

CASE No 1835K

In a Paper Mill in the SE USA, 2 Goulds 3175 L Knotter Feed Pumps were fitted with AES CMAX™ Seals. The pumps were previously packed and leaked approximately 5 gpm of black liquor and water to the floor drain. Due to environmental concerns the customer was required to seal the units. The CMAX™ seals are able to be moved with out being reset to clear paper stock knots from the pumping chamber, the seal chamber is flushed with 2gpm of high pressure water into the seal chamber. The seals have been installed since March 2003. See Jerome Moore (AES USA sales engineer) for further information.

CASE No 1836K

In a Paper Mill in the SE USA, 2 Prochem Side Entry Agitators were fitted with AES RDS™ Split Seals and a specially designed split adapter plate and split seal service device. The units had previously been packed and could only be re-packed every other year due to the malfunction of the OEM Shut Off Device. With the AES Solution, the 100' Paper Stock Tower can be isolated from the split seal and the faces changed when ever required. The seals are inspected and new faces installed every two years. The seals have been installed since 1999.

CASE No 1848K

In a Tissue Mill in the SE USA, 3 Sulzer Ahlmix Units were sealed with AESSEAL® CDSA™ seals. These cartridge seals replaced the competitors redi-fit seals, which ran water to drain. The AES Seals were installed with SW2™ Water Management Systems and have been in service since November 2002. See Jerome Moore (AES USA sales engineer) for further information.

CASE No 1876K

Territory: Southeast USA Industry: Pulp and Paper Application: Boiler Feed Water Pump Application Details: 2.490" SMSS23™ (AESSEAL® Stock #3AABS20--A-010C/1R01, Drawing #7115530) with Graham Coolers (AESSEAL® Stock #AES23-25X6C) fit to an Ingersoll Rand Model 3CNTA-8 pump in Feb. 2002. Approx. one month later the pump bearings failed, however the seals did not. The pump was rebuilt, as a precaution the seals were repaired as well. In May 2002 the rebuilt pump was put back into service and continues to run well. Contact Charles Lynch (AESSEAL® USA sales engineer) for further details.

CASE No 1883K

This has been installed on a Byron & Jackson HSJA 2 X 3 X 8.5 API pump which has been sold to A Pulp & Paper Mill in South Africa for a Hot Water Application. The API pump was used because of the great suction pressure required by the pump system. The hot water is entering the pump at 210 Deg C and because of this we needed to install a Grahams Cooler to better the environment around the seal. Contact Bevan Baybrooke (AESSEAL Pty) for further information.

CASE No 1888K

In January 2003 a 120mm CDSA™ was installed on a Valmet-Tampella Screen. The seal had TC/TC//TC/CAR and Aflas® elastomers. See Z4840 and GA 6464264. For further information contact Rob Waites at AESSEAL Pty Ltd.

CASE No 1915K

A 3.500" Mixmaster IV was fitted to a Lightnin' Model 84S20 in March, 2001 The seal is still working fine.

CASE No 1918K

In a Pulp plant in Canada, a 1.750" DMSF™ was installed in a Goulds 3196 MTX pumping weak Black Liquor.

The seal with TC/TC/TC/C faces, Aflas® elastomers and Stainless wetted parts was used in a SSE25 SW2-US-CC system.

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CASE No 1937K

In a pulp plant in Canada, a 50mm DMSF™ was installed on an Ahlstrom pump pumping condensate.

The seal with TC/C/TC/C faces, EPR elastomers and stainless wetted parts was used in a SSE10 SW2™ system.

CASE No 1943K

At a paper mill in the USA, CDSA™ seals TC/TC/TC/CAR and Aflas® and Viton® elastomers were installed into Goulds 3410L DBL END pumps in February 2001. The systems used in conjunction with the seals were SSE25 SW3™. The pumps rotate at 1800 rpm and handle Contaminated Condensate in the Accumulator Cond. Return #1 Pump. Plant number M24-4002.

The SSE25 SW3™ now maintain a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution. The seal mean-time-between-failure was 973 days.

CASE No 1944K

At a paper mill in the USA, CDSA™ seals TC/TC/TC/CAR and Aflas® and Viton® elastomers were installed into Goulds 3410L DBL END pumps in February 2001. The systems used in conjunction with the seals were SSE25 SW3™. The pumps rotate at 1800 rpm and handle Contaminated Condensate in the Accumulator Cond. Return #2 Pump. Plant number M24-4003.

The SSE25 SW3™ now maintain a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution. The seal mean-time-between-failure was 973 days.

CASE No 1945K

At a paper mill in the USA, CDSA™ seals TC/TC/TC/CAR and Aflas® and Viton® elastomers were installed into Goulds 3410M DBL END pumps in February 2001. The systems used in conjunction with the seals were SSE10 SW2™. The pumps rotate at 1200 rpm and handle Contaminated Condensate in the Pre-Evap Contaminated Cond. Pump. Plant number M24-4004.

The SSE10 SW2™ now maintain a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution. The seal mean-time-between-failure was 973 days.

CASE No 1946K

At a paper mill in the USA, CDSA™ seals TC/TC/TC/CAR and Aflas® and Viton® elastomers were installed into Goulds 3196 MTX pumps in February 2001. The systems used in conjunction with the seals were SSE10 SW2™. The pumps rotate at 1800 rpm and handle Foul Condensate in the Pre-Evap Foul Condensate #1 Pump. Plant number M24-4005.

The SSE10 SW2™ now maintain a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution. The seal mean-time-between-failure was 973 days.

CASE No 1947K

At a paper mill in the USA, CDSA™ seals TC/TC/TC/CAR and Aflas® and Viton® elastomers were installed into Goulds 3196 MTX pumps in February 2001. The systems used in conjunction with the seals were SSE10 SW3™. The pumps rotate at 1800 rpm and handle Foul Condensate in the Pre-Evap Foul Condensate #2 Pump. Plant number M24-4006.

The SSE10 SW3™ now maintain a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution. The seal mean-time-between-failure was 973 days.

CASE No 1948K

At a paper mill in the USA, CDSA™ seals TC/TC/TC/CAR and Aflas® and Viton® elastomers were installed into Goulds 3415 M pumps in February 2001. The systems used in conjunction with the seals were SSE25 SW3™. The pumps rotate at 900 rpm and handle Black Liquor 15.5% in the Pre-Evap Product Liquor Pump. Plant number M24-4007.

The SSE25 SW3™ now maintain a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution. The seal mean-time-between-failure was 973 days.

CASE No 1952K

At a paper mill in the USA, CURC™ seals CAR/TC and Aflas® elastomers were installed into Goulds 3409 L pumps in February 2001. No systems were used in conjunction with the seals. The pumps rotational speed is unknown and handle Water, location unknown. Plant number M24-4024. The seal mean time between failure was 973 days.

CASE No 1953K

At a paper mill in the USA, CDSA™ seals TC/TC/TC/CAR and Aflas® and Viton® elastomers were installed into Goulds 3410 M DBL END pumps in February 2001. The systems used in conjunction with the seals were SSE25 SW3™. The pumps rotate at 1800 rpm and handle Contaminated Condensate in

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the Stripped Condensate Pump. Plant number M24-4030.

The SSE25 SW3™ now maintain a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution. The seal mean-time-between-failure was 973 days.

CASE No 1954K

At a paper mill in the USA, CDSA™ seals TC/TC/TC/CAR and Aflas® and Viton® elastomers were installed into Goulds 3410 M DBL END pumps in February 2001. The systems used in conjunction with the seals were SSE10 SW2™. The pumps rotate at 1800 rpm and handle Foul Condensate in the Stripper FD. #1 East Pump. Plant number M24-4004.

The SSE10 SW2™ now maintain a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution. The seal mean-time-between-failure was 973 days.

CASE No 1955K

At a paper mill in the USA, CDSA™ seals TC/TC/TC/CAR and Aflas® and Viton® elastomers were installed into Goulds 3410 M DBL END pumps in February 2001. The systems used in conjunction with the seals were SSE10 SW2™. The pumps rotate at 1800 rpm and handle Foul Condensate in the Stripper FD. #2 West Pump. Plant number M24-4033.

The SSE10 SW2™ now maintain a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution. The seal mean-time-between-failure was 973 days.

CASE No 1956K

In a paper mill in the USA, CDSA™ seals TC/TC/TC/CAR and Aflas® and Viton® elastomers were installed into Goulds 3196 MTX pumps in January 2001. The systems used in conjunction with the seals were SSE10 SW2™. The pumps rotate at 1800 rpm and handle Foul Condensate in the Pre-Evap Hotwell Foul Cond.E pump. Plant number M24-4042.

The SSE10 SW2™ now maintains a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution, as the seal mean-time-between-failure was 973 days.

CASE No 1957K

In a paper mill in the USA, CDSA™ seals TC/TC/TC/CAR and Aflas® and Viton® elastomers were installed into Goulds 3196 MTX pumps in January 2001. The systems used in conjunction with the seals were SSE10 SW2™. The pumps rotate at 1800 rpm and handle Foul Condensate in the Pre-Evap Hotwell East pump. Plant number M24-4042.

The SSE10 SW2™ now maintains a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution, as the seal mean-time-between-failure was 973 days.

CASE No 1958K

In a paper mill in the USA, CDSA™ seals TC/TC/TC/CAR and Aflas® and Viton® elastomers were installed into Goulds 3196 MTX pumps in January 2001. The systems used in conjunction with the seals were SSE10 SW2™. The pumps rotate at 1800 rpm and handle Foul Condensate in the Pre-Evap Hotwell Foul Cond.W pump. Plant number M24-4043.

The SSE10 SW2™ now maintains a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution, as the seal mean-time-between-failure was 973 days.

CASE No 1959K

In a paper mill in the USA, CDSA™ seals TC/TC/TC/CAR and Aflas® and Viton® elastomers were installed into Goulds 3410 L DBL END pumps in January 2001. The systems used in conjunction with the seals were SSE25 SW3™. The pumps rotate at 900 rpm and handle Black Liquor 13% in the Pre-Evap Feed #1 pump. Plant number M24-4055.

The SSE25 SW3™ now maintains a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution, as the seal mean-time-between-failure was 973 days.

CASE No 1960K

In a paper mill in the USA, CDSA™ seals TC/TC/TC/CAR and Aflas® and Viton® elastomers were installed into Goulds 3410 L pumps in January 2001. The systems used in conjunction with the seals were SSE25 SW3™. The pumps rotate at 900 rpm and handle Black Liquor 13% in the Pre-Evap Feed #2 pump. Plant number M24-4056.

The SSE25 SW3™ now maintains a good quality barrier to the seals thus extending seal life. The customer has been extremely pleased with this solution, as the seal mean-time-between-failure was 973 days.

CASE No 1961K

In a paper mill in the USA, CURC™ seals CAR/TC and Aflas® elastomers were installed into Goulds 3700 L pumps in January 2001. No systems were used in conjunction with the seals. The pumps rotational speed is unknown and they handle Water.

CASE No 1962K

In a paper mill in the USA, CURC™ seals CAR/TC and Aflas® elastomers were installed into Goulds 3409 L pumps in

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January 2001. No systems were used in conjunction with the seals. The pumps rotational speed is unknown and handle Water, location unknown. Plant number M24-4022.

CASE No 1963K

In a Pulp and Paper Mill in the USA 4 off 6.250" CURC™ seals with Antimony Carbon / TC Seal faces and Aflas® Elastomers were fitted in 1998 to 2 Warren EC 135 Screw pumps with hopper auger force feeds - there are thought to be only around 20 of these pumps in the world. The CASE No 1964K

In a Pulp and Paper Mill in the USA 2 off 6.250" CDSA™ seals with TC/TC//TC/Carbon Seal faces and Aflas® Elastomers have been fitted to a Warren EC 135 Screw pump with hopper auger force feed - there are thought to be only around 20 of these pumps in the world. The seals are fitted to the high pressure end of the pump with the Suction end being packed. The Pump is not yet commissioned in service (October 2003). The product being pumped is Thick Paper Stock at a concentration of 20%. For further information see AZA8915 and AESSEAL® drawing number 7119226.

Note:

Due to the AESSEAL® policy of continuous improvement the following seal types have been upgraded:-

SCI™ upgraded to SCUSI™

CSAI™ upgraded to CURC™

CAPI™ upgraded to CURC™

CAPO™ upgraded to CRCO™

CMDS™ upgraded to CDSA™ & DMSF™

The original products evolved into more modern seals which were designed to enhance application performance. The product model reference in the case study is the most modern design, even if at the time of installation the actual installation was the predecessor model.

All information featured in these case histories has been obtained directly from Plant Engineers.

Although we have confidence in the accuracy of this information, it is not offered as a guarantee for seals manufactured by AESSEAL®.

Any prospective user of our product should verify the information stated to their own satisfaction.

Further information is available on all the case histories contained in this booklet upon request.

Issue 'A' refers to information which was current on the 31st. January, 1989.

Issue 'B' refers to information which was current on 31st. January, 1990.

Issue 'C' refers to information which was current on 31st. January, 1991.

Issue 'D' refers to information which was current on 31st. January, 1992.

Issue 'E' refers to information which was current on 31st. January, 1993.

Issue 'F' refers to information which was current on 31st. January, 1995.

Issue 'G' refers to information which was current on 31st. January, 1998.

Issue 'H' refers to information which was current on 31st. October, 1999.

Issue 'I' refers to information which was current on 31st. March, 2000.

Issue 'J' refers to information which was current on 31st. November, 2000.

Issue 'K' refers to information which was current on 31st. March, 2003.

Where the statement 'the seals are still working' is made, this means that the customer is or was still using AESSEAL® mechanical seals at the time the case history was updated: as denoted by either

Issue 'A', Issue 'B', Issue 'C', Issue 'D', Issue 'E', Issue 'F', Issue 'G', Issue 'H', Issue 'I' or Issue 'J'.

For more detailed information, please contact our Applications Department.

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