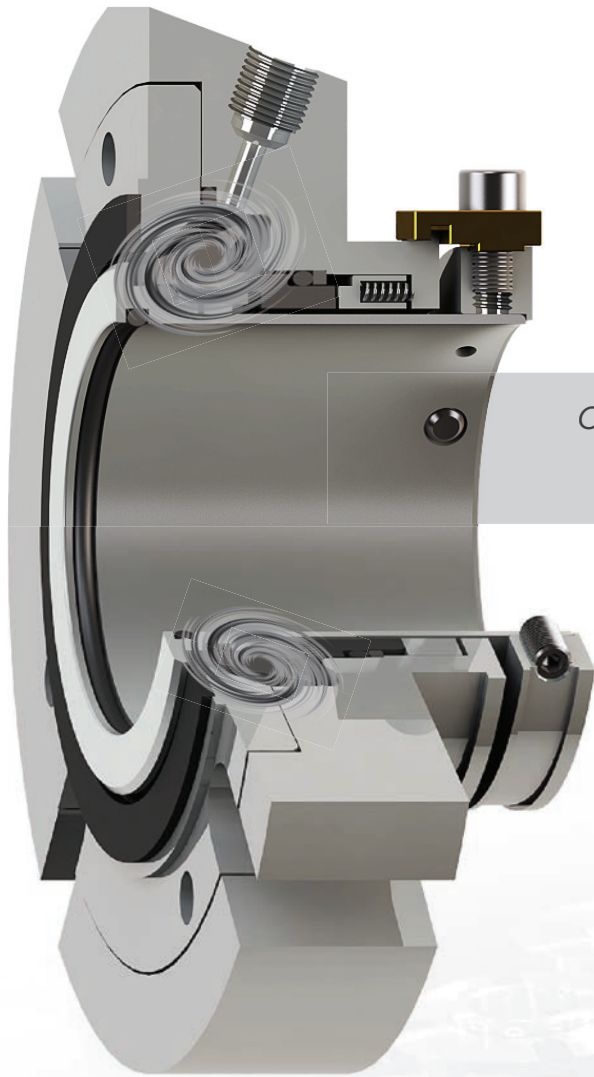




# Slurry Mechanical Seal



# CYCLONE™

*Creating a clean and cool chamber for seal faces,  
while rotating particles out...*

### **Powerful**

The force of motor is 100 times\* stronger than the force of nature

\* Formular: Centrifugal Force vs. Gravity =  $1.11 \times 10^{-5} \times R \times RPM^2$

### **Adaptive**

No need to modify existing pump

### **Flushless**

Tested against normal maximum-production-concentration for paper stock, sand, gypsum, sewage, and sugar, under no flush water and vibration condition

### **Prudent**

A flush port has been kept for initial cleansing or precaution during conversions



Scan the QR code  
to watch  
**Cyclone video**

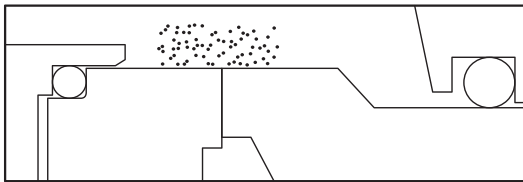
*Another break-through technology from **AIGI Environmental Inc.***



[www.aigienviroental.com](http://www.aigienviroental.com)

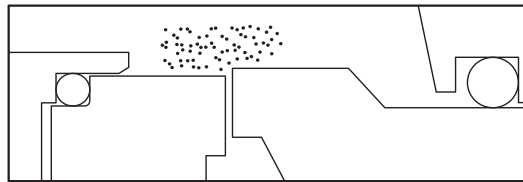
## Why slurry seal fails

### • Slurry problem I



Particles build-up

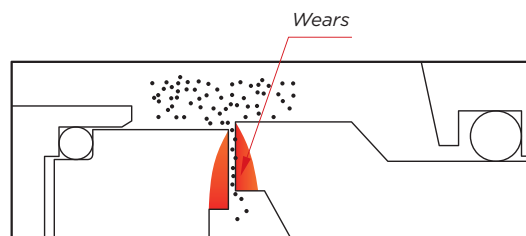
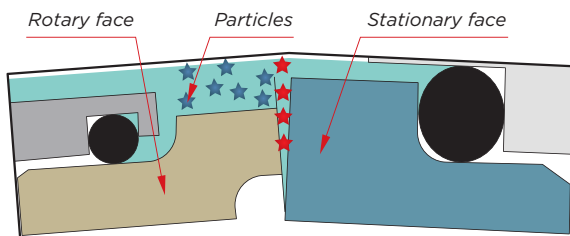
### • Slurry problem II



Shaft run-out

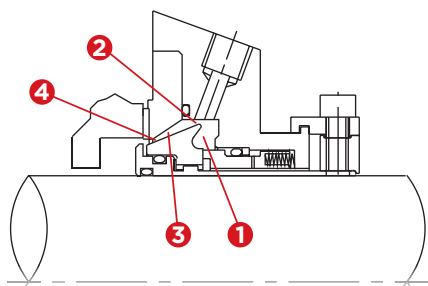
### • Frequent mechanical seal failures

Pushed by media pressure, when seal faces open up, particles get in between the rotary and stationary faces, wearing the seal faces out quickly.



This effect is like sand getting into eyes, and imagine it happens 1450 to 2900 times a minute (pump RPM)!

## The Cyclone™ solution — A powerful idea, a delicate design



The backside of the patented cyclone “ear” is configured with a specific engineered geometric relationship to the angled stationary parts directly above to create a powerful induced fluid flow. This engineered tapered channel creates fluid movement which ejects particles back to the pump.



1 Cleaning and cooling effect in the chamber



2 Channeling effect in the pipe



3 Ejection effect by the nozzle



4 Initial cleansing from the port

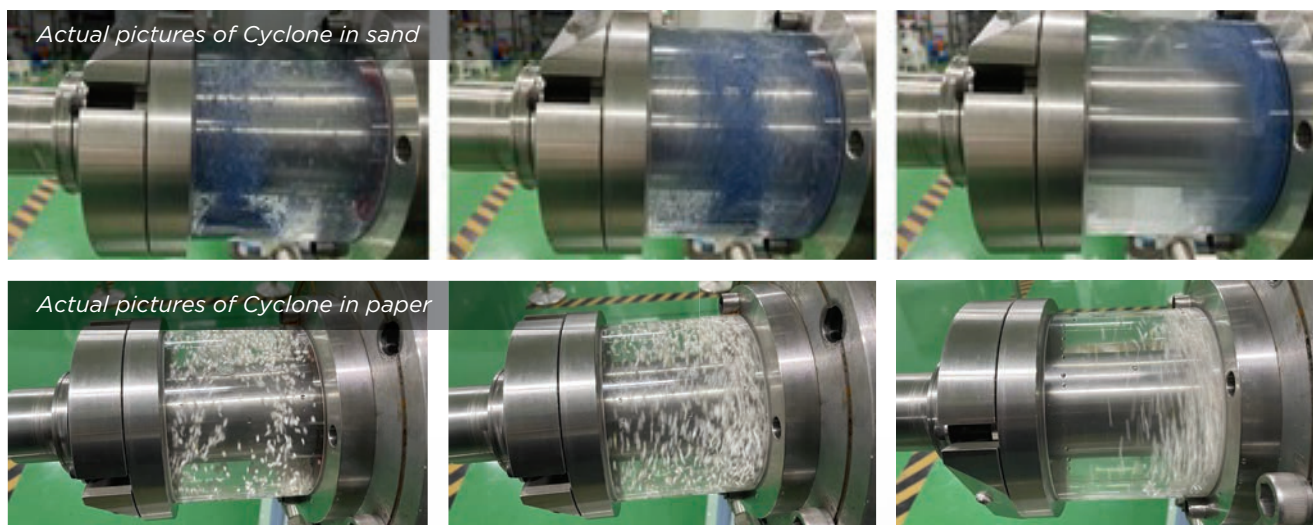
**Lab results**

Cyclone seals have passed lab-tests against the combination of the following severe conditions

- No flush water
- Intentionally induced vibration of shaft
- Almost the highest concentrations of production

Media concentration	Paper stock	Sand	Sewage	Gypsum	Sugar syrup
Normal	2% passed	15% passed	15% passed	15% passed	20% passed
High end of normal production	5% passed	35% passed	-	40% passed	40% passed

Tests reports available



**A gradual approach in converting to Cyclone**

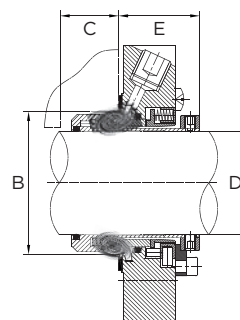
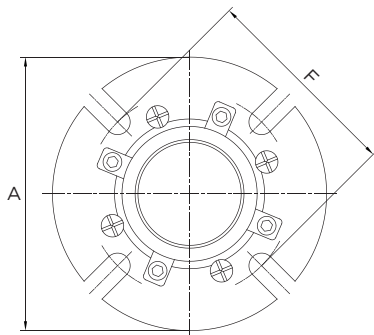
Though flushless production is the goal, precaution is always needed for improvement. So based on the principle of not changing two factors at the same time, the following is recommended:

- Step 1 Converting traditional seals to Cyclone, with no change in flush practice.
- Step 2 Once step 1 passes, gradually reduce flush amount by 1/3 each time.
- Step 3 Till the minimum level or the plant acceptable level is achieved!

**Initial cleansing is recommended, when possible in operation**

Even when the cyclone seal is in place, a step-by-step approach for each pump start-up is recommended. Since there can be clogging and sedimentary particles during pump shutdown, we recommend the following procedure: First, to flush the seal with normal pressure for just five minutes; then, to start the pump and observe for any irregularity; and then, to reduce the water to the minimum level or acceptable level for the production.

# 318J CYC Self-cleaning & cooling Single Seal (for media with particles)



• A-Gland diameter, B-Housing ID, C-Housing depth, D-Shaft diameter or sleeve diameter, E-Length of seal outside of housing, F-Bolt PCD

## 318J CYC single mechanical seal standard metric sizes (mm)

D-Shaft	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120
A	106	106	114	127	133	146	146	178	178	190	190	203	216	216	229	234	239	244	249
B-(max)	58	63	68	74	79	84	89	100	109	115	121	129	135	138	144	145	150	155	160
B-(min)	57	62	67	72	77	82	87	94	103	110	116	120	126	129	136	142	148	153	158
C-(min)	27	27	27	27	27	27	27	27	36	36	36	36	36	36	36	36	36	36	36
E	45	45	45	45	45	46	46	46	50	50	50	50	50	50	50	50	50	50	50
F-Min. M8	76	81	86	92	98	103	108	-	-	-	-	-	-	-	-	-	-	-	-
F-Min. M10	78	83	88	94	100	105	110	120	130	137	143	150	156	160	166	-	-	-	-
F-Min. M12	80	85	90	96	102	107	112	122	132	139	145	152	158	162	168	175	180	185	190
F-Min. M16	-	-	-	-	-	111	116	126	136	143	149	156	162	166	172	179	184	189	194

## 318J CYC single mechanical seal standard inch sizes (inch)

D-Shaft	1 1.125	1.25 1.375	1.5	1.625 1.75	1.875	2 2.125	2.25	2.375 2.5	2.625 2.75	2.875	3 3.125	3.25	3.375 3.5	3.675	3.75 3.875	4 4.125	4.25	4.375 4.5	4.625
A	4.17	4.17	4.49	5.00	5.24	5.75	5.75	7.01	7.01	7.48	7.48	7.99	8.50	8.50	9.02	9.21	9.41	9.61	9.80
B-(max)	2.28	2.48	2.68	2.91	3.11	3.31	3.50	3.94	4.29	4.53	4.76	5.08	5.31	5.43	5.67	5.71	5.91	6.10	6.30
B-(min)	2.24	2.44	2.64	2.83	3.03	3.23	3.43	3.70	4.06	4.33	4.57	4.72	4.96	5.08	5.35	5.59	5.83	6.02	6.22
C-(min)	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42
E	1.77	1.77	1.77	1.77	1.77	1.81	1.81	1.81	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97
F-Min. 3/8	3.05	3.25	3.44	3.68	3.92	4.11	4.31	4.70	5.10	5.37	5.61	5.89	6.12	6.28	6.52	-	-	-	-
F-Min. 1/2	3.18	3.37	3.57	3.81	4.04	4.24	4.44	4.83	5.22	5.50	5.74	6.01	6.25	6.41	6.64	6.92	7.11	7.31	7.51
F-Min. 5/8	3.30	3.50	3.70	3.93	4.17	4.37	4.56	4.96	5.35	5.63	5.86	6.14	6.37	6.53	6.77	7.04	7.24	7.44	7.63

**Standard materials** • Faces: TC/TC • Metals: 316L • Elastomers: FKM

**Operation limits** • Pressure: ≤ 20Bar • Temperature: ≤ 150°C • Speed: ≤ 20m/s

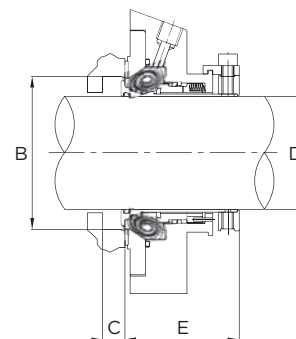
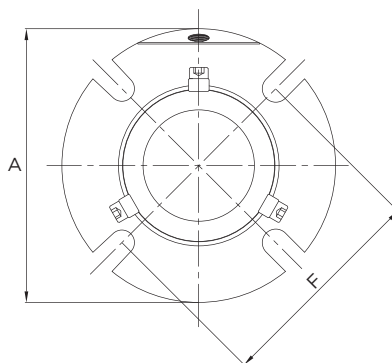
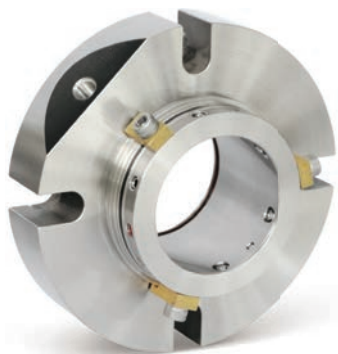
**Other materials available:** \*Seal pressure capabilities are dependent on the fluid sealed, temperature, speed and seal face combinations. For operation outside the limits and other materials consult AIGI Environmental Inc.

## 2318J CYC double mechanical seal: ask us for specification

※ Special sizes, materials, and retrofit upgrades can be custom-designed and custom-made.



# 318T CYC Self-cooling Single Seal (for water, oil media)



• A-Gland diameter, B-Housing ID, C-Housing depth, D-Shaft diameter or sleeve diameter, E-Length of seal outside of housing, F-Bolt PCD

## 318T CYC single mechanical seal standard metric sizes (mm)

D-Shaft	30	35	40	45	48	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120
A	125	129	135	140	140	145	150	160	195	198	204	208	215	217	223	230	232	236	242	248
B-(max)	58	62	68	73	74	78	83	93	109	112	119	123	129	132	138	145	150	155	160	165
B-(min)	52	57	62	67	70	72	77	82	97	100	107	111	117	120	126	133	138	143	148	153
C-(min)	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
E	54	54	54	54	54	54	54	54	68	68	68	68	68	68	68	68	68	68	68	68
F-Min. M8	76	80	86	92	92	97	102	112	-	-	-	-	-	-	-	-	-	-	-	-
F-Min. M10	78	82	88	94	95	99	104	114	132	135	141	144	151	154	160	167	-	-	-	-
F-Min. M12	81	85	90.5	96.5	97.5	101	106	116	134	137	143	146	153	156	162	169	172	176	184	188
F-Min. M16	-	-	-	-	-	-	-	-	138	141	147	151	157	160	166	173	176	180	188	192
F-Min. M20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	180	185	192	197

## 318T CYC single mechanical seal standard inch sizes (inch)

D-Shaft	1.125	1.250	1.5	1.625	1.875	2.000	2.25	2.375	2.625	2.875	3.000	3.25	3.375	3.625	3.750	4.000	4.25	4.375	4.625
A	4.92	5.07	5.31	5.51	5.51	5.90	6.30	7.67	7.79	8.03	8.18	8.46	8.54	8.78	9.05	9.13	9.29	9.53	9.76
B-(max)	2.28	5.08	2.67	2.87	2.91	3.26	3.66	4.29	4.41	4.68	4.84	5.17	5.19	5.43	5.70	5.91	6.10	6.30	6.49
B-(min)	2.05	2.24	2.44	2.64	2.76	3.03	3.23	3.82	3.94	4.21	4.37	4.61	4.72	4.96	5.24	5.43	5.63	5.83	6.02
C-(min)	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
E	2.13	2.13	2.13	2.13	2.13	2.13	2.13	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.68	2.68
F-Min. 3/8	3.07	3.23	3.46	3.70	3.74	4.10	4.49	5.20	5.31	5.55	5.67	5.94	6.06	6.30	6.57	-	-	-	-
F-Min. 1/2	3.19	3.35	3.56	3.80	3.84	4.17	4.57	5.30	5.42	5.63	5.78	6.05	6.17	6.40	6.68	6.77	6.96	7.24	7.43
F-Min. 5/8	-	-	-	-	-	-	-	5.43	5.55	5.79	5.94	6.18	6.30	6.54	6.81	6.93	7.09	7.40	7.56
F-Min. 3/4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.09	7.28	7.56	7.76

**Standard materials** • Faces: SC/SC • Metals: 316L • Springs: Hastelloy® C • Elastomers: FKM

**Operation limits** • Pressure: ≤30Bar • Temperature: ≤150°C • Speed: ≤20m/s

**Other materials available:** \*Seal pressure capabilities are dependent on the fluid sealed, temperature, speed and seal face combinations. For operation outside the limits and other materials consult AIGI Environmental Inc.

## 2318T CYC double mechanical seal: ask us for specification

※ Special sizes, materials, and retrofit upgrades can be custom-designed and custom-made.





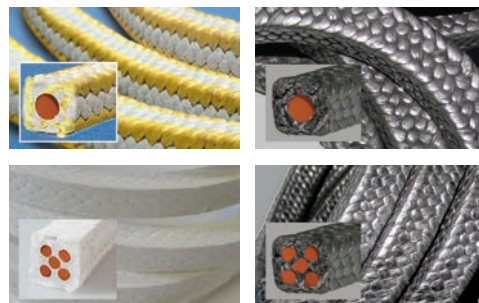
• **Heavy duty slurry packings**

SSSP packing is braided using a mix of high carbon content carbon fibers and PTFE yarn and then finish lubricated with high quality graphite. The high temperature resistance strength, self-lubricating properties of carbon fiber combined with the flexibility, chemical resistance and conformability of PTFE fibers makes SSSP the optimal choice for slurry applications in mining, pulp and paper, metals processing and power industries.



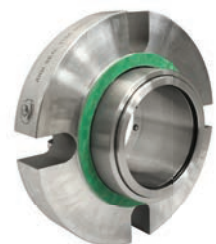
• **Silicone core reinforced packing lines**

SC packings add to braided packings a resilient single silicone rubber core, providing better memory and elasticity for packings to withstand radial shaft motion and vibration. MSC series add multiple silicon cores for even higher resiliency. Available in various materials.



• **Traditional mechanical seals**

AIGI offers complete series of traditional mechanical seals, including that for slurries.



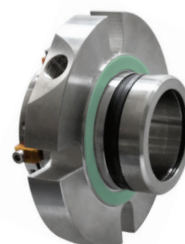
AIGI 318A  
Rotary Seal for  
Packing Conversion



AIGI 318D  
Large Spring Seal  
for Shaft Runout



AIGI 318T  
Standard  
Stationary Seal



AIGI 318J  
Sturdy  
Stationary Seal



AIGI 317  
Desulfurization  
Slurry Seal



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A Subsidiary of AIGI Industrial Group

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