

# CHESTERTON®

ISO 9001  
CERTIFIED

## 255™ Cartridge Dual Seal

Patented



# The new standard for reliability

Exclusive face design for superior emissions control capability.

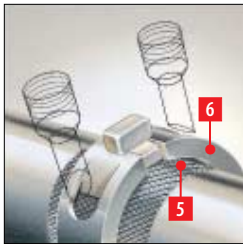
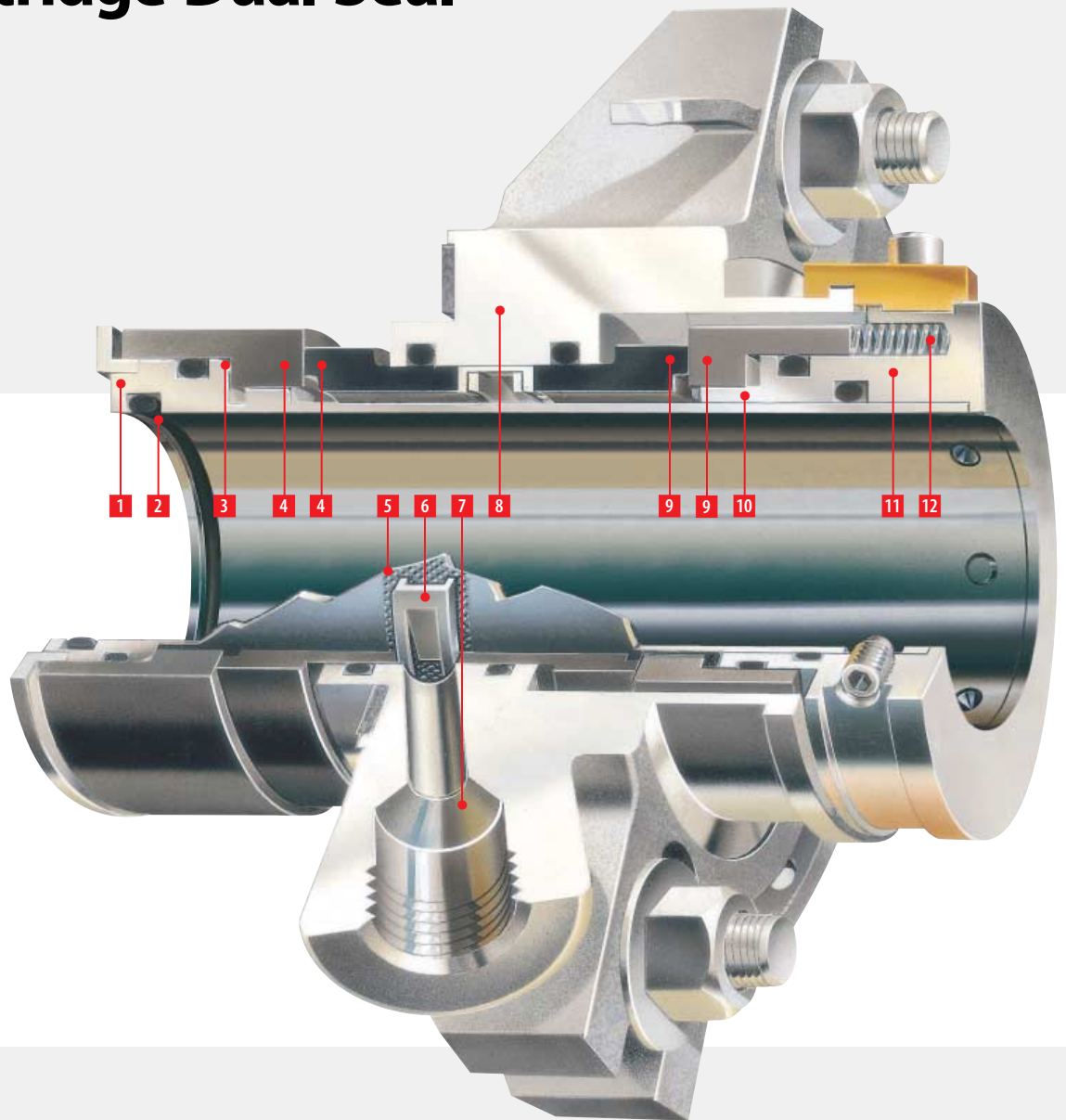
Stable, secure sealing under fluctuating conditions.

Patented features assure precision alignment from start-up.

The best value in dual sealing today.

# CHESTERTON®

## 255™ Cartridge Dual Seal

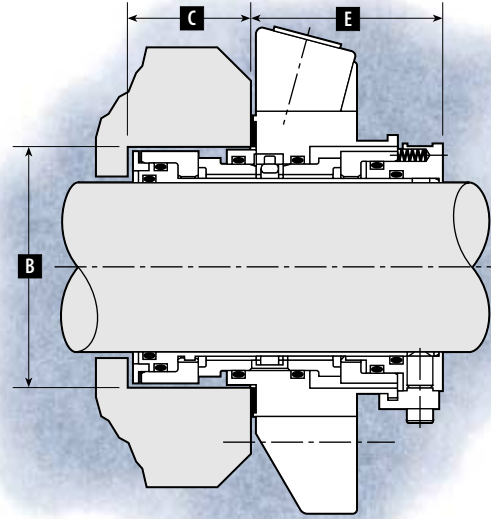
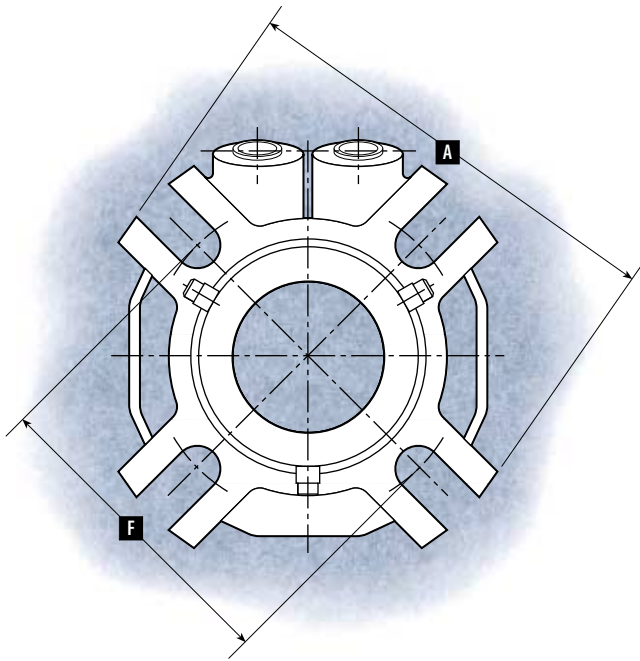


- 1** Wetted parts available in a variety of materials.
- 2** Every O-ring is either static or moves on a non-fretting, non-metallic surface.
- 3** Precision seal ring support shoulder maintains rotary alignment.
- 4** Inboard rotary and stationary faces. Dynamic stress-relieving seal rings, mated over a narrow cross-section for low heat generation.

- 5** Profiled sleeve provides positive pumping of barrier fluid.
- 6** Patented shuttle slides within gland to decouple faces from gland misalignment, channel barrier fluid, and provide anti-rotation for stationary seal rings.
- 7** Barrier fluid ports provide high capacity cooling.

- 8** Universal gland fits majority of pumps. ANSI oversize and API glands available.
- 9** Outboard stationary and rotary faces, identical to inboard set for simple assembly, low replacement inventory.
- 10** Inboard and outboard integral drive pads cannot loosen or fall out.

- 11** Patented Self-Centering Lock Ring™ mechanism locks the 255 to the shaft, automatically aligning the faces with the shaft.
- 12** Revolutionary Unified Seal Alignment™ requires only one set of springs to provide constant loading of all four faces. Springs are isolated from process and barrier fluids.

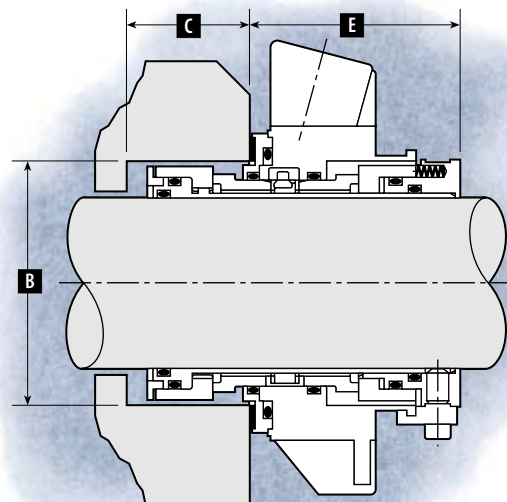
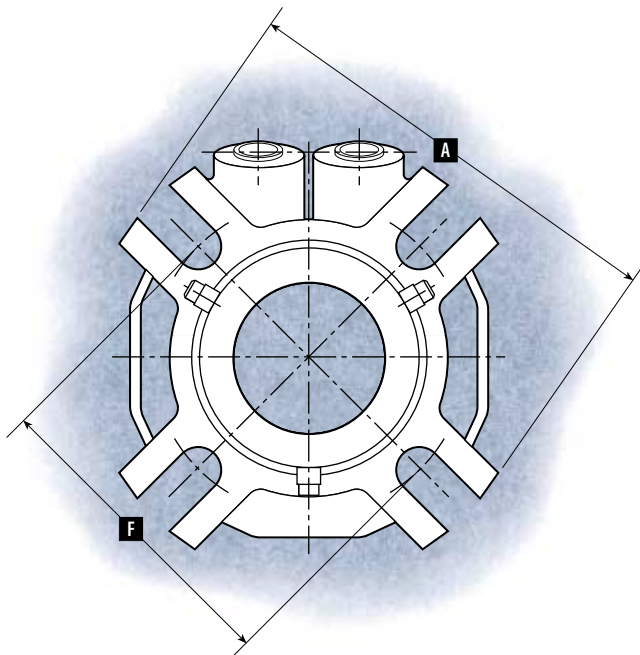


## 255 Dimensional Data

	Large Seal Size Inch																	Large Seal Size Metric											
	2.625	2.750	2.875	3.000	3.125	3.250	3.375	3.500	3.625	3.750	3.875	4.000	4.125	4.250	4.375	4.500	4.625	4.750	65	70	75	80	85	90	95	100	110	120	
A – MAX	6.45	7.71	7.83	7.94	7.99	8.19	8.31	8.44	8.49	8.72	8.84	8.96	8.99	8.99	9.34	9.49	9.49	10.49	A – MAX	164	196	202	203	211	214	221	228	237	266
B – MIN	3.63	3.75	3.88	4.00	4.13	4.25	4.38	4.50	4.63	4.75	4.88	5.00	5.13	5.25	5.38	5.50	5.63	5.75	B – MIN	92	95	102	105	111	114	121	127	137	146
B – MAX	3.69	4.19	4.32	4.44	4.57	4.69	4.82	4.94	5.07	5.19	5.32	5.44	5.57	5.69	5.82	5.94	6.07	6.19	B – MAX	93	105	112	115	121	124	131	137	147	156
C – MIN	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	C – MIN	44	44	44	44	44	44	44	44	44	44
E – MAX	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	E – MAX	64	64	64	64	64	64	64	64	64	64
F – MIN 1/2"	5.02	5.42	5.50	5.65	5.80	5.93	6.01	6.17	6.30	6.37	6.51	6.65	6.77	6.90	7.02	7.17	7.27	7.39	F – MIN 12 mm	127	137	143	147	152	156	161	168	177	187
F – MIN 5/8"	5.15	5.54	5.62	5.77	5.92	6.05	6.13	6.30	6.43	6.50	6.63	6.77	6.98	7.03	7.14	7.29	7.39	7.51	F – MIN 16 mm	131	141	147	151	156	160	165	172	181	191
F – MIN 3/4"	–	–	–	–	–	–	6.26	6.42	6.55	6.62	6.76	6.90	7.02	7.15	7.27	7.42	7.52	7.64	F – MIN 20 mm	–	–	–	–	161	165	170	177	186	196

**KEY:**

A – Gland Diameter    B – Stuffing Box Inside Diameter  
 C – Minimum Stuffing Box Depth    E – Outboard Seal Length    F – Minimum Bolt Circle By Bolt Size

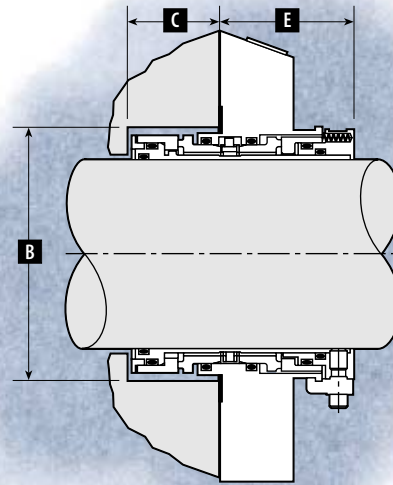
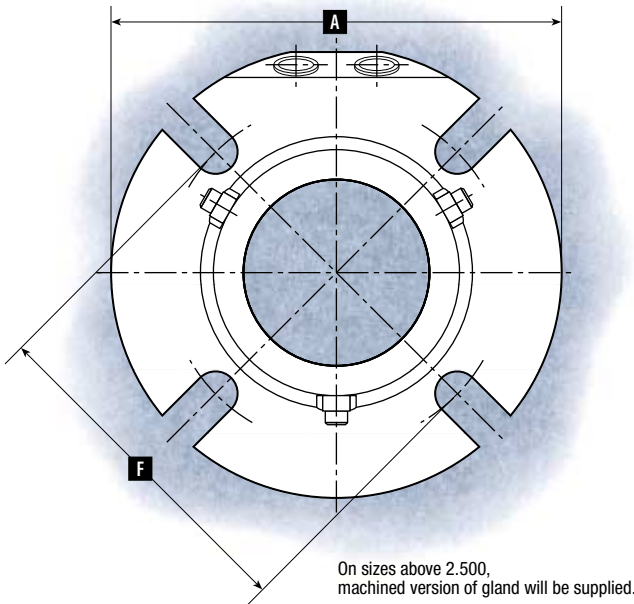


## 255 Dimensional Data

	Seal Size Inch														Seal Size Metric													
	1.000	1.125	1.250	1.375	1.500	1.625	1.750	1.875	2.000	2.125	2.250	2.375	2.500	25	28	30	32	33	35	38	40	43	45	48	50	55	60	
A - MAX	4.13	4.13	4.13	4.38	4.50	5.00	5.51	5.51	5.51	6.01	6.01	6.01	6.51	A - MAX	112	112	112	112	114	111	114	127	127	140	140	140	153	153
B - MIN	1.75	1.88	2.00	2.13	2.25	2.38	2.50	2.63	2.75	2.88	3.00	3.13	3.25	B - MIN	44	47	49	51	54	54	57	59	64	64	69	69	74	79
B - MAX	1.81	1.94	2.06	2.31	2.44	2.56	2.81	2.94	3.19	3.44	3.56	3.59	3.81	B - MAX	46	49	51	52	58	59	62	61	69	66	74	71	76	85
C - MIN	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36	C - MIN	35	35	35	35	35	35	35	35	35	35	35	35	35	35
E - MAX	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	2.16	E - MAX	55	55	55	55	55	55	55	55	55	55	55	55	55	55
F - MIN 3/8"	2.82	2.96	3.08	3.21	3.33	3.45	3.65	3.79	4.04	4.29	4.42	4.45	4.67	F - MIN 8 mm	70	73	76	77	78	80	83	86	89	93	94	98	-	-
F - MIN 1/2"	2.95	3.08	3.21	3.33	3.46	3.57	3.79	3.91	4.16	4.41	4.54	4.57	4.79	F - MIN 10 mm	72	75	78	79	80	82	85	88	91	95	96	100	103	113
F - MIN 5/8"	-	-	-	-	-	-	-	-	-	4.54	4.67	4.70	4.92	F - MIN 12 mm	74	77	80	81	82	84	87	90	93	97	98	102	105	115

**KEY:**

A - Gland Diameter B - Stuffing Box Inside Diameter  
 C - Minimum Stuffing Box Depth E - Outboard Seal Length F - Minimum Bolt Circle By Bolt Size



## 255 Dimensional Data

	Adapter Version Seal Size Inch														Oversize Gland Seal Size Inch					
	1.000	1.125	1.250	1.375	1.500	1.625	1.750	1.875	2.000	2.125	2.250	2.375	2.500	1.125	1.375	1.750	1.875	2.125	2.500	
A - MAX	4.13	4.13	4.13	4.38	4.50	5.00	5.51	5.51	5.51	6.01	6.01	6.01	6.51	A - MAX	4.49	5.40	6.64	5.99	6.99	7.77
B - MIN	1.75	1.88	2.00	2.13	2.25	2.38	2.50	2.63	2.75	2.88	3.00	3.13	3.25	B - MIN	2.65	2.82	3.51	3.57	3.89	4.51
B - MAX	1.81	1.94	2.06	2.31	2.44	2.56	2.81	2.94	3.19	3.44	3.56	3.59	3.81	B - MAX	2.94	2.99	3.74	3.80	4.24	4.74
C - MIN	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	C - MIN	1.54	1.54	1.36	1.36	1.36	1.36
E - MAX	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	E - MAX	1.98	1.98	2.16	2.16	2.16	2.16
F - MIN 3/8"	2.82	2.96	3.08	3.21	3.33	3.45	3.65	3.79	4.04	4.29	4.42	4.45	4.67	F - MIN 3/8"	3.78	4.03	5.21	-	-	-
F - MIN 1/2"	2.95	3.08	3.21	3.33	3.45	3.57	3.79	3.91	4.16	4.41	4.54	4.57	4.79	F - MIN 1/2"	-	-	5.33	5.00	-	-
F - MIN 5/8"	-	-	-	-	-	-	-	-	-	4.54	4.67	4.70	4.92	F - MIN 5/8"	-	-	5.46	-	5.95	6.75

**KEY:**

A - Gland Diameter B - Stuffing Box Inside Diameter  
 C - Minimum Stuffing Box Depth E - Outboard Seal Length F - Minimum Bolt Circle By Bolt Size

**Standard Materials\*\***

All Metal Parts: 316 SS.  
 Springs: Hastelloy C\*.  
 O-Rings: Fluorocarbon or AFLAST<sup>†</sup> installed; EPR included.  
 Rotary Face Inboard: Silicon Carbide, Tungsten Carbide.  
 Rotary Face Outboard: Silicon Carbide.  
 Stationary Face: Duplex Carbide™, Carbon, Silicon Carbide, Tungsten Carbide.

**Temperature**

To 300°F (150°C) Ethylene Propylene.  
 To 400°F (205°C) Fluorocarbon, AFLAS.  
 To 500°F (260°C) Perfluoroelastomer.

**Speed**

To 4000 RPM (20 mps).

**Pressure**

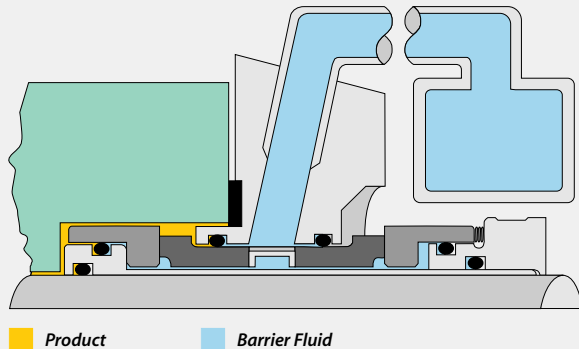
To 600 psi (40 BAR), inboard, outboard.

\* Haynes International, Inc. Registered Trademark.

\*\* Other materials available upon request.

† Asahi Glass Company Ltd. Registered Trademark.

# Long MTBPM in double or tandem mode



Meets the most stringent standards with confidence. With the proper barrier fluid arrangement, you can keep emissions at background levels.

## Advanced technology delivers superior reliability and applications flexibility

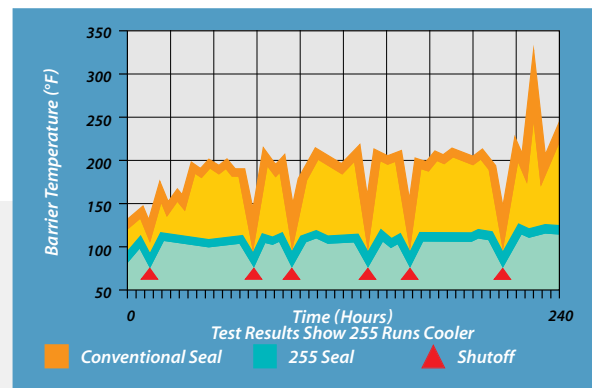
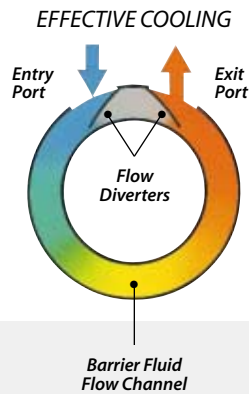
The 255 operates in double mode (barrier fluid pressure higher than stuffing box pressure) or tandem mode (barrier fluid pressure lower than stuffing box pressure). The exclusive design of the 255 enables it to operate in either mode with optimum hydraulic balance, narrow faces and no moving parts to hang up or clog.

## Built for the future of emissions control

The 255 is part of the new generation of CHESTERTON seals designed to meet environmental regulations for emissions control. The 255 provides superior reliability compared to conventional designs because face orientation and distortion are carefully controlled. 255 faces are square to the shaft and precisely mated with the patented Self-Centering Lock Ring™. Designed using Finite Element Analysis, these new faces feature long, thin cross-sections that are strong yet permit relief of dynamic stresses under fluctuating temperatures and pressure, thus preventing fugitive emissions.



■ Conventional Seal Pressure Range  
■ 255 Inboard Pressure Range



## Staying cool in operation and under pressure

The 255 handles 50 to 100% more pressure than typical seals, providing users with a "margin of safety" at start-up and shut-down when transient surges often occur.

The 255 features an internal positive barrier fluid pumping system with wide flow channels for efficient removal of heat. Plus, the faces mate over a narrow cross-section for lower frictional heat build-up.

Field experience showing the 255 to be cool running has been backed up by laboratory testing. The 255 and a widely used competitive double seal were run under identical conditions with repeated shutoffs. Test conditions: 1.875" (48 mm) shaft, water barrier fluid, room temperature, 1750 RPM, closed convection system. Results: 255 runs cool and steady while the conventional seal overheats and flashes.

# CHESTERTON®

## 255™ Cartridge Dual Seal

### The low inventory answer to dual sealing needs

The 255 not only meets the needs of applications requiring double or tandem mode barrier fluid arrangements, it is versatile in terms of choice of materials. The faces are easily swapped out by the user for hard face combinations and all wearing parts are user replaceable.

### Fluid flow control

CHESTERTON Dualflow™ is the advanced regulator for dual seal barrier fluid arrangements. Exclusive, no-maintenance, non-clog design and two-way flow rate detection increase reliability. Ideal for reducing unnecessary water consumption in flow through barrier systems.



### Contact your local CHESTERTON Fluid Sealing Specialist for precise system recommendations

CHESTERTON is the only company in the world with integrated engineering of both pumps and seals. While others are just beginning to understand the complex interactions of pumps and seals,



**Total**  
SYSTEM SOLUTIONS

Plantwide sealing:  
CHESTERTON  
155 Single Seals,  
255 and 225  
Dual Seals  
share the same  
faces.

our engineers have been working for over a decade to create a synergistic system. Let us help you identify opportunities for cost savings and greater efficiency around the plant.

The following are trademarks of A.W. CHESTERTON COMPANY: 255, Duplex Carbide, Self-Centering Lock Ring, Unified Seal Alignment, Dualflow.

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