
AMRESIST ACRIS®
PFA LINED BUTTERFLY VALVES

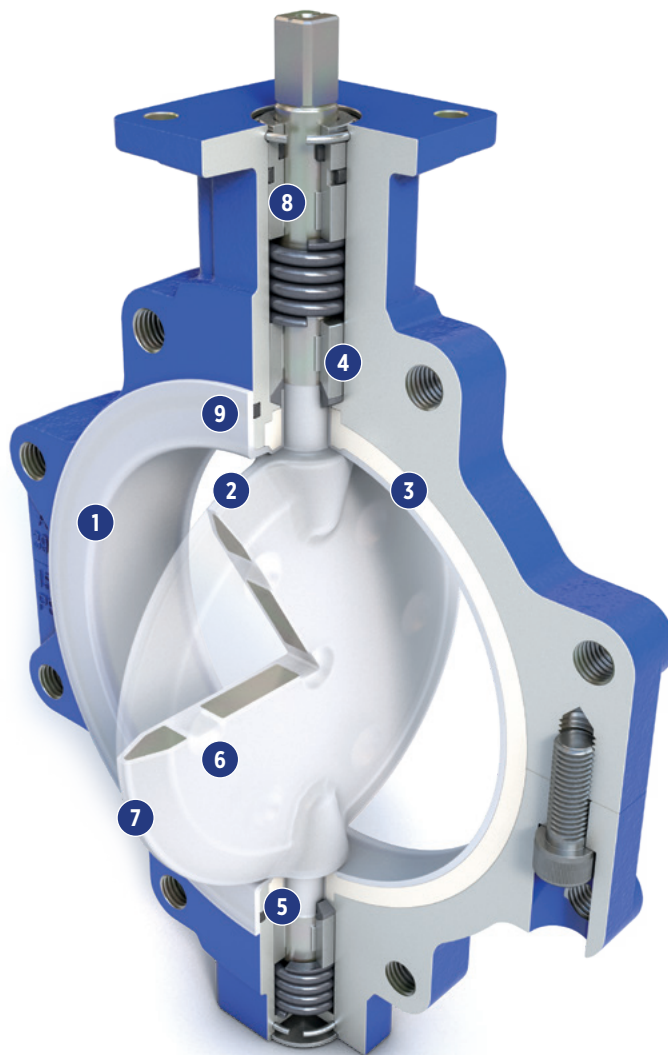


AMRESIST ACRIS® PFA LINED BUTTERFLY VALVES

Acris PFA lined butterfly valves offer unsurpassed resistance to corrosion, permeation and microbial contamination for maximum purity and reliability with minimal maintenance. Engineered for bidirectional zero leakage shutoff, Acris fully PFA lined valves are the high performance solution for critical applications. Made in USA.

DESIGN FEATURES

- 1 FULLY PFA LINED:** Fully PFA lined disc and body provide unsurpassed resistance to corrosion, permeation and microbial contamination for maximum purity and reliability with minimum maintenance.
- 2 LINER/DISC INTERFACE:** Durable, spherically molded PFA liner and matching disc interface to form a tight bidirectional seal.
- 3 360° ENERGIZED BACKUP LINER:** Full width 360° energized backup liner provides uniform sealing.
- 4 ACRISEAL™ STEM SEALING SYSTEM:** Live-loaded, self-adjusting to eliminate leak paths and reduce fugitive emissions for long-term, maintenance-free operation. (ISO 15848-1 compliant).
- 5 EXTENDED PFA LINER:** Forms a protective sleeve shielding stem from corrosive media and eliminating leak paths.
- 6 PFA DISC OVER-MOLDING:** Mechanically bonded to the base metal for full vacuum capability.
- 7 STREAMLINED DISC:** Engineered for maximum flow.
- 8 HIGH-STRENGTH ONE-PIECE DISC/STEM:** Provides positive disc control with improved reliability.
- 9 ENERGIZED FLANGE SEALS:** Maintains proper sealing between valve and flange.



SPECIFICATIONS

Size Range	NPS 1 to 24 25mm to 600mm
Pressure Ratings	Up to 150 psi (10 bar)
Temperature Range	-20°F to 320°F (-29°C to 160°C)
Vacuum Ratings	To 0.0002 psia (1.03 x 10 ⁻² torr)
Body Style	Two-piece, Wafer, Lug
Face-to-Face	ISO 5752, API 609
Top Plate	ISO 5211
FE Standard	ISO 15848-1, ISO 15848-2
Drilling	ASME B16.5 CL150, ASME B16.1 CL125

MATERIAL OPTIONS

Body	Ductile Iron
Shaft/Disc	17-4 SS over molded with PFA (1" to 12") Carbon Steel over molded with PFA (1" to 12") Carbon Steel disc, 17-4 SS shafts over molded with PFA (14" to 24") Titanium grade 7 (3" to 12")
Liner	PFA
Back-up Liner	Viton Silicone
Body Bolts	18-8, B7

ORDERING INFORMATION

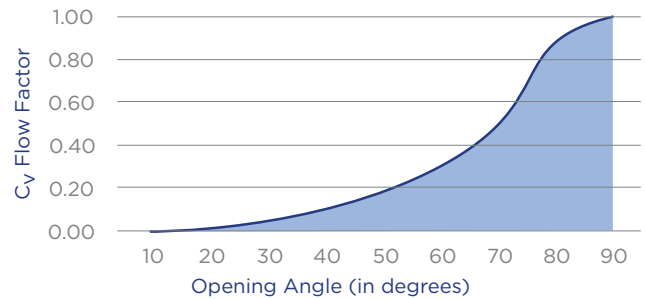
Size	NPS 1 to 24
Body Type	IW = ISO Wafer IL = ISO Lug L = Non ISO Lug 14" & 18" only
Body Material	3 = Ductile Iron
Shaft / Disc	1k = 17-4SS over molded with PFA (1" to 12") 1s = Carbon Steel / PFA (1" to 12") 1k = Carbon Steel Disc / 17-4 SS shafts (14" to 24") 7t = Titanium grade 7 (3" to 12")
Liner	F = PFA
Back-up Liner	S9 = Viton Blank = Silicone
Body Bolts	Blank = 18-8 Stainless Steel SB7 = A193 Gr B7 Bolting
Options	S9C = Viton back-up liner; B7 bolts; Cleaned, tested & packaged for chlorine gas service SC1 = Silicone back-up liner; Assembled, cleaned, tested, packaged for ultra pure service

Example:

6 inch IL-31kF/S9 = 6 inch ISO Lug, Ductile Iron Body, 17-4 SS Shaft/Disc over molded w/ PFA, PFA Liner, Viton back-up liner, 18-8 Body Bolts

FLOW CHARACTERISTICS

Flow Factor vs. Open Angle

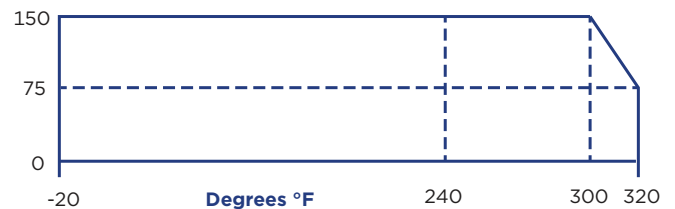


Flow Coefficient Factors at 10° Increments

Angle	10°	20°	30°	40°	50°	60°	70°	80°	90°
Cv	0	.02	.05	.10	.18	.30	.50	.90	1.0

PRESSURE/TEMPERATURE

PSIG



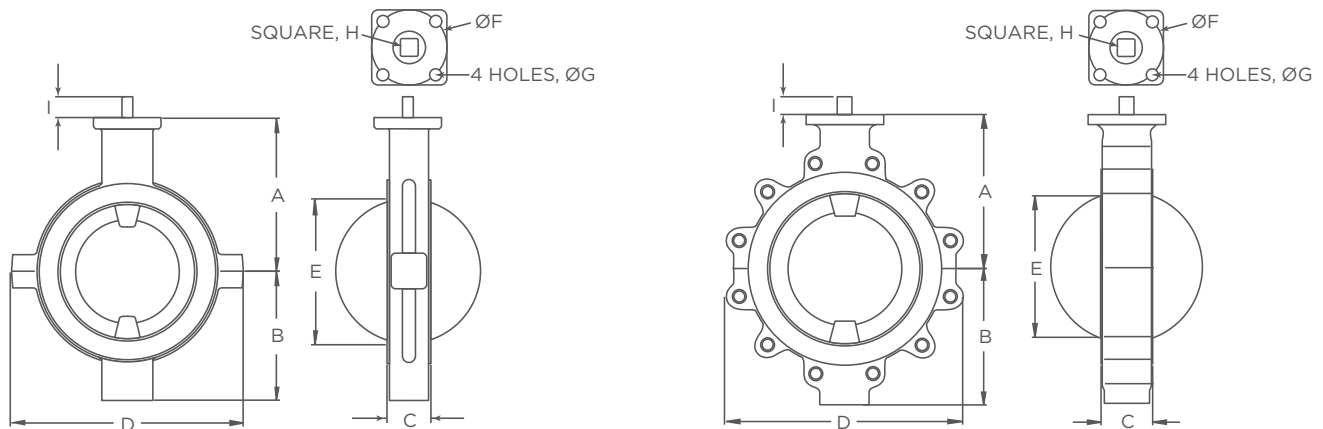
AMRESIST ACRIS® PFA LINED BUTTERFLY VALVES

HIGH PERFORMANCE PFA LINING

- > Melt processable for precise molding of parts with smoother surface finishes than PTFE liners.
- > Superior flexibility to withstand repeated flexing and dynamic loads for extended service life.
- > Higher resistance to permeation for increased durability with lower total cost of ownership.
- > Lower particle shedding for maximum purity.
- > Superior creep resistance at high temperatures.
- > Increased resistance to microbial contamination.



DIMENSIONS AND WEIGHTS



NPS	DIMENSIONS (inches)											WEIGHT (lbs)		
	A	B	C	Wafer** D	Lug D	E	ØF	ØG	H	I	ISO	Cv	Wafer**	Lug
1	3.74	1.69	1.35	3.38	3.38	0.000	1.969	0.312	0.630	1.02	F05	50	4	4
1¼	3.74	1.69	1.35	3.38	3.38	0.000	1.969	0.312	0.630	1.02	F05	50	4	4
1½	3.93	1.88	1.35	3.74	3.74	0.874	1.969	0.312	0.630	1.02	F05	100	5	6
2	4.25	2.24	1.69	3.97	4.56	1.312	1.969	0.312	0.630	1.02	F05	209	5	6
3	4.88	4.05	1.83	5.23	5.55	2.539	2.756	0.375	0.630	1.02	F07	580	10	12
4	5.62	4.80	2.12	6.73	7.99	3.271	2.756	0.375	0.630	1.02	F07	916	12	17
6	6.88	6.25	2.25	8.62	10.11	5.428	2.756	0.375	0.630	1.02	F07	2320	25	29
8	8.85	7.75	2.51	10.86	12.24	7.403	4.016	0.437	0.748	1.22	F10	5800	42	50
10	10.03	8.93	2.82	13.22	15.43	9.432	4.921	0.562	0.984	1.22	F12	9396	70	78
12	11.41	10.43	3.19	15.98	18.03	11.252	4.921	0.562	1.181	1.61	F12	15892	110	116
14	13.54	13.11	3.19	24.28	24.28	12.860	5.511	0.708	1.181	1.61	F14	21344	175	177
14*	13.54	13.11	4.12	20.35	20.35	13.127	5.511	0.708	1.181	1.61	F14	21344	193	195
16	14.48	14.13	4.12	23.62	23.62	14.747	5.511	0.708	1.417	1.52	F14	26912	225	229
18	16.49	16.81	4.50	24.40	24.40	16.600	5.511	0.708	1.417	1.85	F14	34104	323	326
18*	16.49	16.81	5.08	24.40	24.40	16.974	5.511	0.708	1.417	1.85	F14	34104	339	344
20	17.48	17.12	5.08	28.74	28.74	19.019	6.496	0.866	1.575	1.85	F16	41760	393	400
24	19.68	19.92	6.06	32.99	32.99	22.101	6.496	0.866	1.968	2.20	F16	60500	640	649

* Non-ISO Face-to-Face. ** 14-24" Wafer with alignment holes.

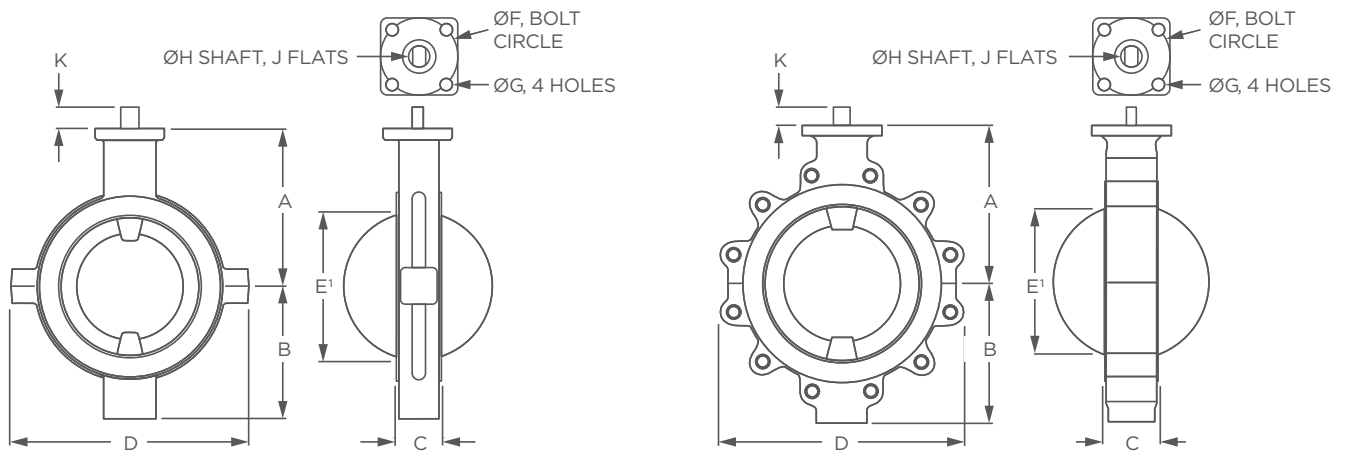
TITANIUM GRADE 7 SHAFT/DISC

For highly corrosive environments, and applications with solids or salt build up in the pipe, Acris PFA lined butterfly valves are available with an optional Titanium Grade 7 shaft/disc offering exceptional resistance to stress corrosion cracking in a chloride environment, and increased crevice corrosion resistance over Grade 2.

(Grade 7 = Grade 2 stabilized with 0.15% Palladium)



DIMENSIONS AND WEIGHTS



DIMENSIONS (inches)														WEIGHT (lbs)	
NPS	A	B	C	Wafer		E	ØF	ØG	ISO	ØH	J	K	Cv	Wafer	Lug
				D	D										
										Shaft	Flats				
3	4.88	4.05	1.83	5.23	5.55	2.539	2.756	0.375	F07	0.708	0.551	1.02	580	10	12
4	5.62	4.80	2.12	6.73	7.99	3.271	2.756	0.375	F07	0.708	0.551	1.02	916	11	16
6	6.88	6.25	2.25	8.62	10.11	5.428	2.756	0.375	F07	0.984	0.748	1.02	2320	23	27
8	8.85	7.75	2.51	10.86	12.24	7.403	4.016	0.437	F10	1.102	0.866	1.22	5800	38	46
10	10.03	8.93	2.82	13.22	15.43	9.432	4.921	0.562	F12	1.102	0.866	1.22	9396	62	70
12	11.41	10.43	3.19	15.98	18.03	11.252	4.921	0.562	F12	1.417	1.062	1.61	15892	102	108

AMRESIST ACRIS® PFA LINED BUTTERFLY VALVES

PROBLEM | LOW FLOW RATES

POSSIBLE EFFECTS

- > Lower pump efficiency
- > Lower production output
- > Engineering design requires larger lines
- > Increased construction costs
- > Higher line velocity
- > Increased erosion

LOW FLOW RATES | SOLVED

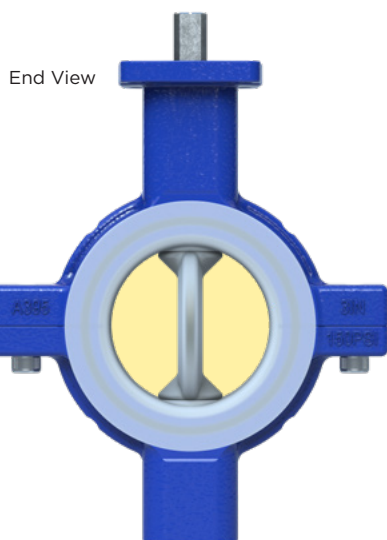
High Strength Core

- > A high strength 17-4 stainless steel, one-piece shaft-disc is at the core of the PFA disc.
- > The high strength core allows for a low-profile, high-flow disc design.

High-Flow Design Benefits

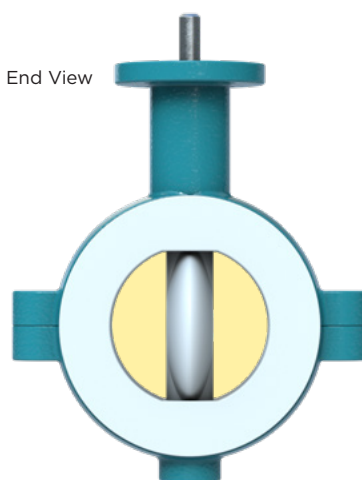
The high-flow design offers many benefits, such as:

- > Increased pump efficiency.
- > Increased production.
- > Lower line velocity.
- > Lowers erosion effects.
- > May allow the use of smaller line sizes.



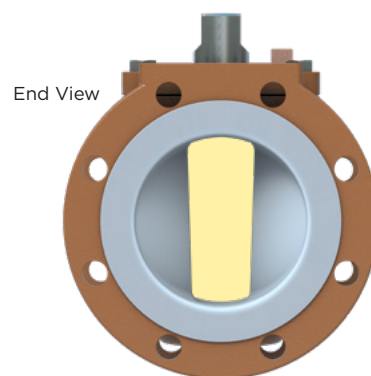
End View

ACRIS® LOW-PROFILE DISC
ALLOWS HIGHER FLOW RATES.



End View

LARGE DISC PROFILE
OF COMPETITORS
LOWERS FLOW RATES.



End View

TYPICAL PLUG VALVES HAVE HIGHER
FLOW RESTRICTIONS, RESULTING IN
LARGER VALVES TO ACHIEVE
REQUIRED FLOW RATES.

PROBLEM | SHAFT LEAKAGE

POSSIBLE EFFECTS

- > Shaft & bearing corrosion
- > Higher valve torque required
- > Loss of fine process control
- > Difficulty operating valve
- > Shaft breakage
- > Inability to isolate equipment
- > Inability to perform maintenance
- > Operations uncertainty
- > Unscheduled down time
- > More frequent shutdowns
- > Personnel safety/exposure
- > Recordable releases
- > Regulatory fines
- > Required use of exotic metal shaft/disc

SHAFT LEAKAGE | SOLVED

Acriseal™ Stem Sealing System

Precision engineered for reliable, maintenance-free service, the Acriseal three-step stem sealing system provides unmatched sealing for long term zero leakage performance.

Primary Seal (1)

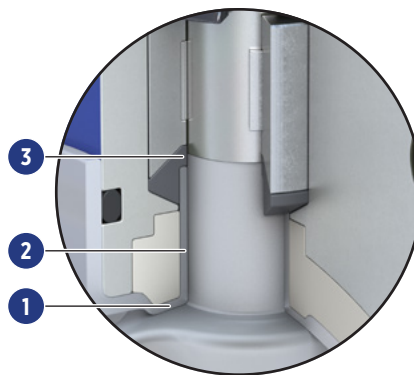
The primary seal is created by the spherically molded PFA body liner and matching disc hub interface. The energized backup liner maintains tight contact pressure for consistent shutoff in high cycle applications.

Secondary Seal (2)

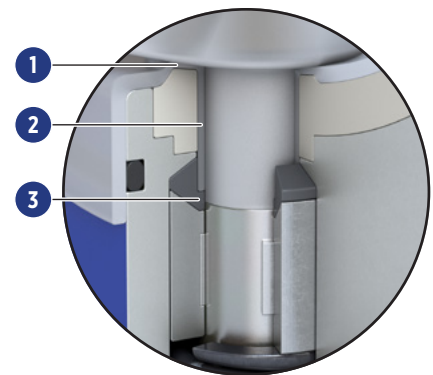
An independent secondary seal is formed by the extended body and disc liners. The flexible PFA body liner extends into the stem cavity and the disc liner envelops the stem. The resulting protective sleeve eliminates potential leak paths for fugitive emissions and shields internal components from contact with the media. This feature works in conjunction with the tertiary safety seal to ensure compliance with ISO 15848-1 standards for fugitive emissions.

Safety Seal (3)

The third sealing mechanism is a graphite filled PTFE safety seal. Completely isolated from the process media by the extended disc liner, and energized by a coil spring, the safety seal self-adjusts for changes in temperature and wear to ensure absolute zero leakage shutoff of corrosive and ultra pure process media.



UPPER SHAFT SEALING



LOWER SHAFT SEALING

PROBLEM | SEAT LEAKAGE

POSSIBLE EFFECTS

- > **Chemical cross contamination**
- > **Brine cross contamination**
- > **Untreated brine feed into electrolyzer**
- > **Reduced membrane efficiency**
- > **Lower electrolyzer output**
- > **Lower NaOH, H₂, and Cl₂ production**
- > **Inability to isolate equipment**
- > **Inability to perform maintenance**
- > **Operations uncertainty**
- > **Unscheduled down time**
- > **More frequent shutdowns**

SEAT LEAKAGE | SOLVED

Reliable Upstream/Downstream Sealing

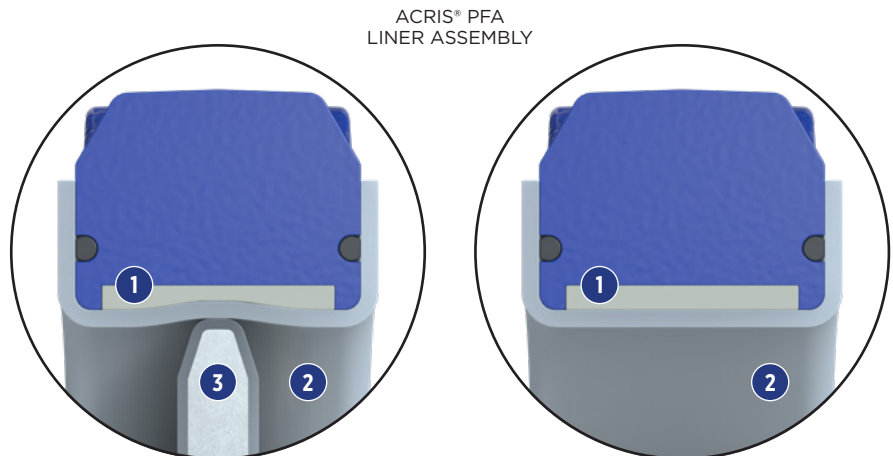
The elastomer backing (1) compresses the flexible PFA lining (2) around the leading edge of the disc (3) to provide zero leakage for many years of service.

Flexible PFA Liner

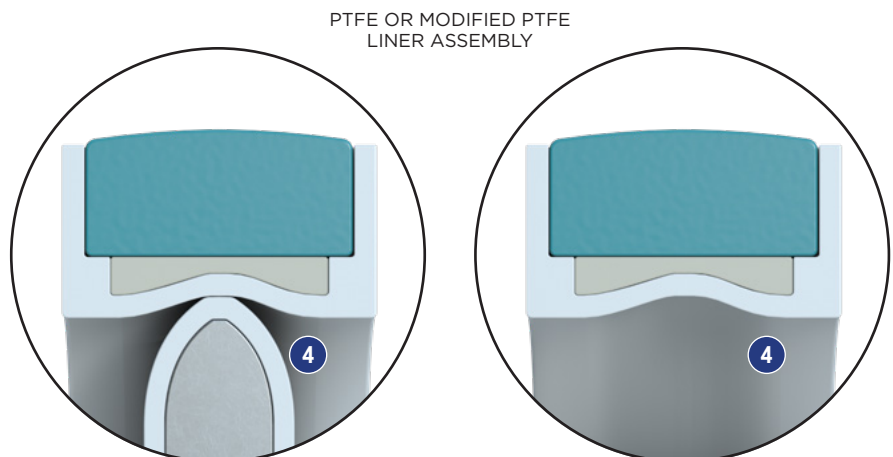
The PFA liner (2) remains flexible, never becoming stiff & rigid. This is in contrast to PTFE & Modified PTFE liners (4), which are usually thick sinterings — resulting in a stiff liner, unable to give tight shutoff over a long period of time.

Elastomer Backup Liner

The wide elastomer backup liner (1) in the ACRIS® valve rests in a machined body groove, which is essential in providing tight shutoff for end of line service at full pressure. This has enabled the ACRIS® to be used for pump & vessel isolation, as well as many other difficult services.



Flexible liner returns to original shape, resulting in long-term reliable sealing.



Rigid liner retains shape of disc, resulting in unreliable sealing.

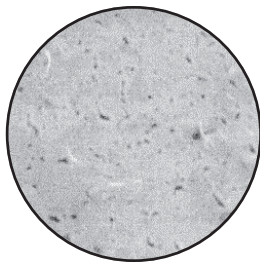
ADVANTAGES OF AMRESIST ACRIS[®] PFA LINER MATERIAL

PFA MATERIAL

- > Starts as pellets.



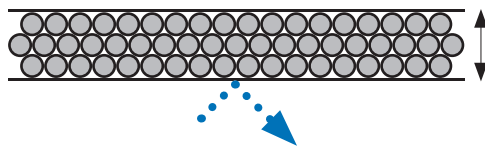
- > Melted and molded, forming mechanical + chemical bond.
 - > Dense material is spared of voids and air pockets.



10,000X magnification shows minimal voids or air pockets.



- > Dense material creates effective barrier to chemical migration and cold flowing.



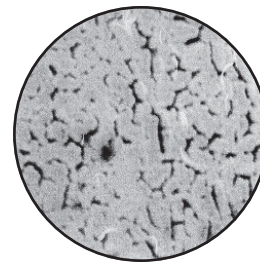
Cross-section of PFA material.

PTFE MATERIAL

- > Starts as powder.



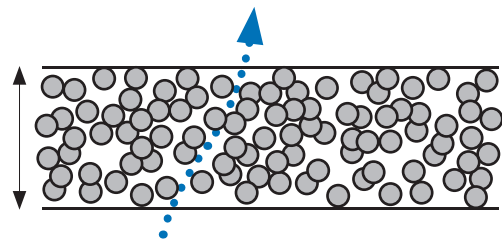
- > Mechanically formed (sintered), not melted.
 - > Porous material is filled with air channels and pockets.



10,000X magnification shows significant voids and air pockets.



- > Porous material creates less effective barrier to chemical migration and cold flowing.



Cross-section of PTFE material.

AMRESIST ACRIS[®] RESULTS

- > PFA liner is inherently more flexible than PTFE & Modified PTFE.
- > Flexible PFA liner will never take a permanent set.
- > Maintains tight shutoff.

COMPETITOR RESULTS

- > PTFE & Modified PTFE liners are thick and rigid.
- > Rigid liners will take a permanent set impression from the disc edge.
- > Less effective shutoff.

**AMRESIST ACRIS®
PFA LINED BUTTERFLY VALVES**

ACTUATORS BY AMRESIST



**C SERIES
Hard Anodized**

SPECIFICATIONS

Torque Output Range (Double Acting)
55 to 115,250 lbf-in
6 to 13,022 N m



**B SERIES
Hard Anodized (Larger Sizes)**

SPECIFICATIONS

Torque Output Range (Double Acting)
13,506 to 1,565,201 lbf-in
1,526 to 176,844 N m



**AA SERIES
Stainless Steel Body**

SPECIFICATIONS

Torque Output Range (Double Acting)
55 to 55,883 lbf-in
6 to 6,314 N m

CONTROL ACCESSORIES BY AMRESIST



VALVE STATUS MONITORS
Sentinel VPT

CONTROL ACCESSORIES BY BRAY



POSITIONERS
Series 6A



POSITIONERS
Series V200 P/E



PROXIMITY SENSORS
Series 54



GEAR OPERATORS
Series XHW



VALVE STATUS MONITORS
Series 5A, 5B, 5C

DISCOVER HOW ACRIS® VALVES INCREASE RELIABILITY AND REDUCE TOTAL COST OF OWNERSHIP FOR YOUR CRITICAL APPLICATIONS.

VISIT [AMRESIST.COM](https://www.amresist.com) TO LEARN MORE ABOUT PRODUCTS AND LOCATIONS NEAR YOU.

HEADQUARTERS

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As members of the Chlorine Institute, Amresist is committed to promoting best practices for safe production, handling, and distribution of chlorine and related products.

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