

Technical Bulletin 0208-BE/BSA



**World Class Performance
in Abrasive, Scaling and
Corrosive Slurries, Sludge,
Liquids, and Bulk Solids**

RF VALVE® aiRFlex®



RF Technologies' mission is to solve valve problems. We achieve this by providing valves that offer the lowest cost of ownership and operation, highest reliability and minimum maintenance.

Simple and rugged patented construction throughout sets RF valves apart in the most severe service and process control applications.



RF Manual Valves



RF Pneumatic Valves

On/Off and Control Valves

The RF Family of Elastomer Tubes

- RF's patented non-stretch tube design features expansion arches that flex rather than stretch when closing. This gives RF valves remarkable wear resistance and cycle life superiority over conventional pinch valves. In addition, the tube arches and positive opening tags ensure tube stability under low or fluctuating line pressures and vacuum conditions. Full port and reduced port tubes permit precise throttling control.
- RF tubes are available in a wide range of wear- and chemical-resistant elastomers. KEVLAR® reinforcing cords add unsurpassed performance under high loads and temperatures, and VITON® withstands even the most chemically corrosive process conditions.

Wear-Sensing Monitor

- A patented SMART Valve™ Wear Monitoring Sensor is available and molded between the inner thick wear resistant elastomer and the outer reinforcing cords of each tube. If the inner lining wears sufficiently to disturb the sensor wire, it will trigger a signal that can be displayed at the valve or looped into a DCS. This provides for the first time a reliable tool to tell when a tube needs replacement, thus reducing downtime, outage costs and unexpected valve failures.



World Class Performance



RF Electric Valves



RF Control Valves



aiRFlex Pinch Valves

1" - 60" ID, full port, Standard ASME/ANSI B16.10, DIN 3205 F5/F15, and ISO 5752 face-to-face dimensions, working pressures 15 to 600 psi, temperatures -50° to 250° F, pH 1-13

Fugitive Emission Control

Fugitive Emission Control RF valves are built without valve stems, packings, and seals that can leak. Their seamless elastomer tube design, incorporating the wear sensor wire inside, offers two levels of protection. A third level of emission containment is provided by the sealed body feature.

Note: HON Rule Method 21 emission monitoring occurs inside a sealed valve body isolated from weather and harsh external operating environments, automating compliance process.

Technical Advantages

- Standard full- or reduced-port designs, centerline closure and Class VI shut-off provide outstanding elastomer wear life as well as precise, repeatable linear flow control.
- The self-cleaning, flexing action of the elastomer tubes prevents build-up of scaling deposits and thus guarantees that the valve will not jam or seize, even in high solids.
- High pressure molded elastomer tube insert outperforms more expensive 316, stellite, or alloy ball, plug, globe, diaphragm and conventional pinch valves in abrasive, scaling or corrosive services.
- Interchangeable with most standard ASME or DIN face-to-face dimensions for ball, plug, butterfly, globe and diaphragm valves. Versatile retrofit valve for plant upgrade and modernization projects.
- Elastomer tube is the only wear part in contact with process stream. Tube replacement, when required, is accomplished in-line without complicated tools, components, or specialized skills; maintenance costs are reduced up to 70 percent
- Seamless flange-to-flange tube construction and sealed body



Control Valve Performance

Because of their unique design characteristics, RF Control Valves® are recommended when...

- ...abrasion and corrosion result in high maintenance,
- ...turbulent flow causes valves or pipes to wear,
- ...scaling causes valves to seize, and...
- ...fibers or other materials have a tendency to plug the valves.



Full Port



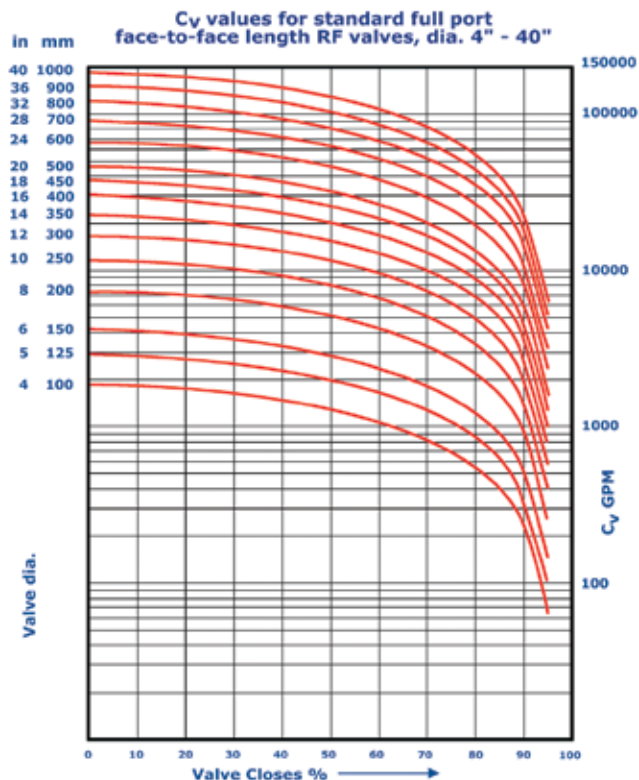
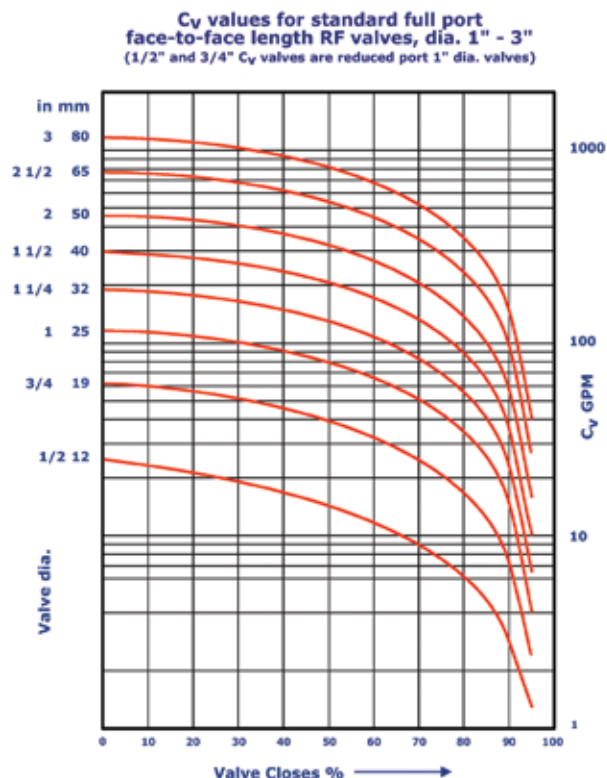
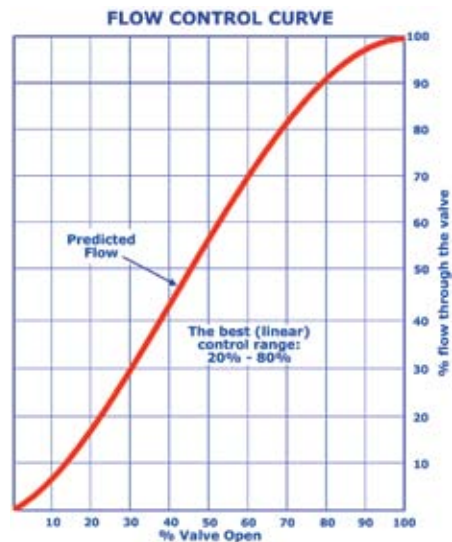
Reduced Port

The inherently high C_v values of RF Control Valves ensure superior cost-vs.-capacity ratios. Control performance is also enhanced, as each valve is uniquely characterized to flow requirements with either full- or reduced-port designs, thus reducing the turbulence and cavitation found in other valve designs.

The self-cleaning, flexing elastomer action loosens deposits (*Fig. 2, opp. page*) and eliminates most problems associated with stiction, overshoot, and conventional control valve irregularities.

When zero-leakage shut-off is a must, RF Control Valves® outperform most others, even against abrasive and scaling-prone slurries and liquids.

The RF Valve® and aiRFlex® are offered with a wide variety of positioners for modulating control and operating under most protocols, such as Hart, Foundation Fieldbus, Profibus and others.



World Class Performance



PATENTED NO-STRETCH TUBE FOLDS

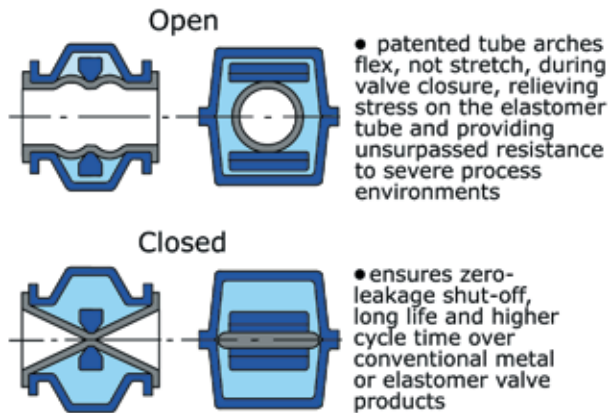


Figure 1

- Replaceable elastomer tube will not jam or seize; eliminates "throw away" valves (Figure 2).
- Smart Valve™ monitoring system reduces maintenance costs and unscheduled outages (Figure 3).
- Elastomer tube, when worn, is quickly replaced in line without special tools (Figure 4).

TROUBLE-FREE OPERATION

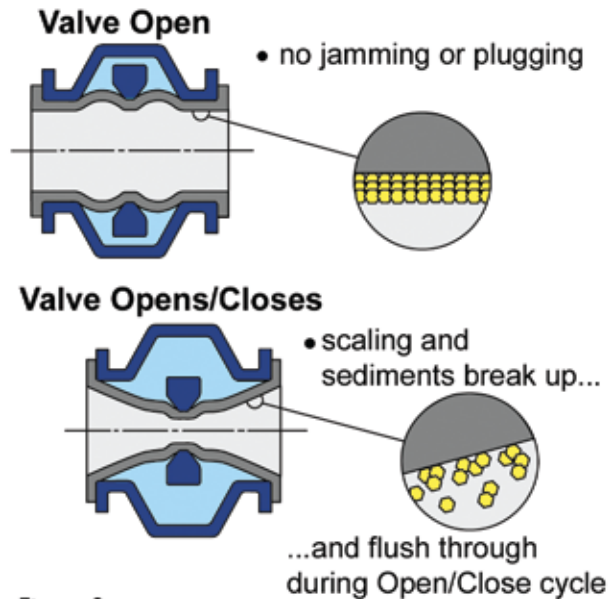


Figure 2

SMART VALVE™ MONITORING SYSTEM

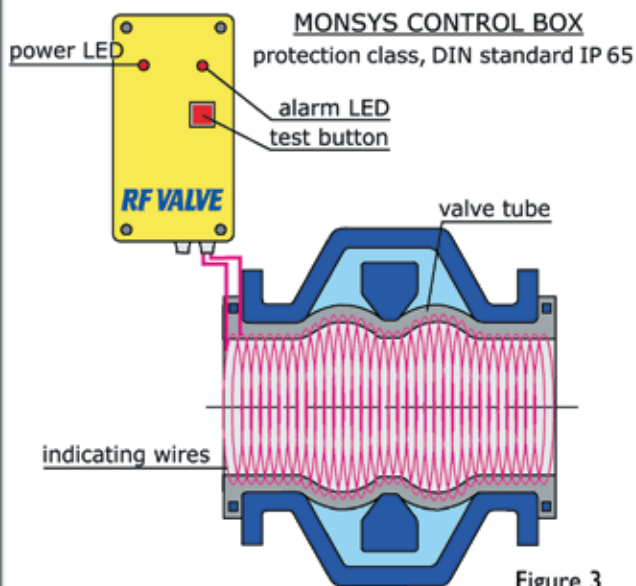


Figure 3

QUICK AND SIMPLE TUBE CHANGE

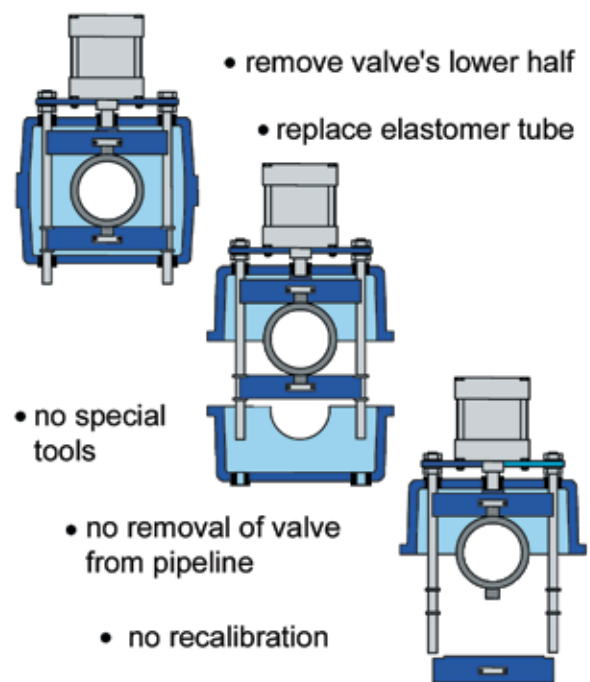


Figure 4



Specifications

RF Valve specifications are given at right; aiRFlex specifications are shown below.

aiRFlex™

Patented tube folds prevent tube from stretching when air is introduced between valve body and tube to close the valve. The folds and reinforcing cords insure full opening when actuating air is exhausted.



DN 25-350, full port, on/off and control services, standard ASME/ANSI B16.10 face-to-face dimensions, temperatures up to 105°C, pH 1-13, working pressure 2 bar below available plant air with minimum 3 bar plant air needed to close the valve.

Valve DN mm	A F-F mm	B Wid. mm	C Ht. mm	Weight Cast Iron	Kg Cast Alum.
25	128	128	108	2,7	1,6
40	165	150	127	5,0	2,3
50	178	205	185	7,7	3,2
80	203	258	200	12,3	6,4
100	229	295	229	17	7,7
150	350	385	285	40	28
200	457	484	340	69	35
250	533	618	406		70
300	610	718	483		93
350	686	709	681		129

General Accessories

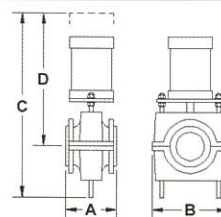
RF Technologies' complete line of valve accessories ensures optimum field performance:

- On/off limit switches
- Fail Close systems
- Air operated hydraulic power packs
- Manual overrides
- Positive opening tags
- Hand wheel lockout
- SMART Valve™ Monsys Alarm Box
- Positioners
- Solenoid and air valves

RF VALVE®

DIN / ASME
Standard-Valves

Dimensions = mm
Weight = kg
Pressure = bar



PNEUMATIC

Actuator, Line Pressure			P1	P6	P10
DN		Weight	9	9	10
25	A = 127 B = 180	C D	415 310	415 310	422 317
		Weight	10	10	11
32	A = 140 B = 190	C D	437 324	437 324	444 331
		Weight	12	12	14
40	A = 165 B = 205	C D	438 318	469 350	469 350
		Weight	20	24	24
50	A = 178 B = 242	C D	508 368	553 413	553 413
		Weight	25	27	30
65	A = 190 B = 248	C D	552 398	597 443	621 467
		Weight	30	35	44
80	A = 203 B = 282	C D	602 430	636 464	691 419
		Weight	47	56	62
100	A = 300 B = 316	C D	708 498	699 489	787 577
		Weight	60	68	75
125	A = 325 B = 342	C D	808 573	841 606	841 606
		Weight	86	96	115
150	A = 350 B = 400	C D	912 642	945 675	963 693
		Weight	152	165	194
200	A = 400 B = 516	C D	1105 773	1115 779	1188 852
		Weight	175	208	240
250	A = 450 B = 580	C D	1246 869	1290 913	1310 829
		Weight	190	270	320
300	A = 500 B = 720	C D	1438 991	1541 1100	1620 1150
		Weight	362	400	
350	A = 550 B = 840	C D	1813 1208	1850 1250	
		Weight	420		
400	A = 750 B = 1080	C D	1938 1298		
		Weight	490		
450	A = 810 B = 1180	C D	2276 1546		
		Weight	620		
500	A = 880 B = 1280	C D	2426 1646		
		Weight	925		
600	A = 1000 B = 1350	C D	2910 1970		
		Weight	1025		
700	A = 1130 B = 1500	C D	3225 2180		

DN	25	32	40	50	65	80
PN 10	127	140	165	178	190	203
ANSI 150	ASME B16 /ISO 5752, Table 6 DIN 3202 F5 din 3202 F15					
PN 25/40	165	178	190	216	241	283
ANSI 300/600						



100	125	150	200	250	300	350	400	450	500	600	700	800	900	1000
229	254	267	292		ASME B16 short/ISO 5752, Tabelle 6									
			457	533	610	686	762	864	914	1067	1270	1448	1524	1723
300	325	350	400	450	500	550								
							750	810	880	1000	1130	1250	1380	1500
305	381	403	502	568	648	838	914	991	1092	1143				
RF VALVES - Standard face to face lenghts														

ELASTOMER QUALITIES SELECTION

Elastomer Type	Natural Rubber	Styrene Butadiene Rubber	Chloro-Butyl Rubber	Nitrile Rubber	Chloro-prene Rubber	Fluoro-Carbon Rubber	Chloro-Sulfonated Polyethylene	Ethylene Propylene
Designation	NR	SBR	IIR	NBR	N	FPM	CSM	EPDM
Tadename ⁽¹⁾				Buna-N	Neoprene	Viton®	Hypalon®	Nordel®
Properties								
Temperature of application:								
- Maximum °C	80	115	135	120	115	120	125	120
- Contin. Operating Temp. +	85-70	70-95	115-120	100-105	100-105	100-105	100-105	100-105
- Minimum °C	-55	-50	-52	-40	-40	-20	-40	-52
Elasticity	5	5	2	3.4	3.4	2	3.4	3.4
Resistance								
- Weather & Ozone	1.2	1.2	4	1.2	3.4	5	5	5
- Acids	2.3	2.3	4	3	3	3.4	4	3.4
- Alkaline	2.3	2.3	4	2.3	3	1.3	4	3.4
- Oils, aliphatic	1	1	1	4	2.3	4	2.3	1
- Oils, aromatic	1	1	1	3	1.2	4	1	1
- Water	5	3.4	3.4	5	3	4	3.4	5
- Wear	4.5	4	2.3	3.4	3.4	3	3	3
- Flame	1	1	1	1.2	3.4	4	3	1
- Electrical	4	4	4.5	1.2	3	3	3.4	4
Gas Impermeability	3	2.3	5	2.3	2.3	4	4	2.3

5 = Excellent, 4 = Very Good, 3 = Good, 2 = Fair, 1 = Not Recommended

* FPM HT and EPDM HT available for temperatures up to 150 °C

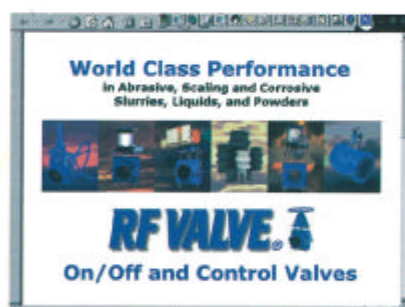
Elastomer tube is also available with a TEFLON liner

Food Grade elastomers are available in NBR, N, and EPDM

White elastomers (Ti O₂ filled) are available in N and EPDM

+ Based on Nylon/Rayon cords; Kevlar cords are specified for high temperatures

⁽¹⁾ Viton®, Nordel®, and Hypalon® are registered trademarks of DuPont Dow Elastomers.



Be sure to visit our Website
<http://www.rfvalve.com>
 for latest industry updates.

We provide the world's most advanced line of pinch valves in standard ASME/ANSI B16, DIN and ISO face-to-face dimensions from DN 25 - 1000!

With manufacturing facilities in the US and Finland — and with sales and support facilities in North and South America, Europe, Australia and the Pacific Rim — RF Technologies supplies the pulp and paper, mining, industrial minerals, chemical, power generation, and waste treatment industries around the globe. Wherever your business is located, RF Technologies is dedicated to providing you with the world's most advanced line of pinch valves in standard ASME/ANSI B16, DIN and ISO face-to-face dimensions from DN 25 - 1000!



RF TEK Oy
 Koulukatu 19
 FIN-53100 Lappeenranta, FINLAND
 Tel: +358 5 415 0382, Fax: +358 5 415 0342
 Email: rfvalves@rftek.fi
<http://www.rfvalve.com>