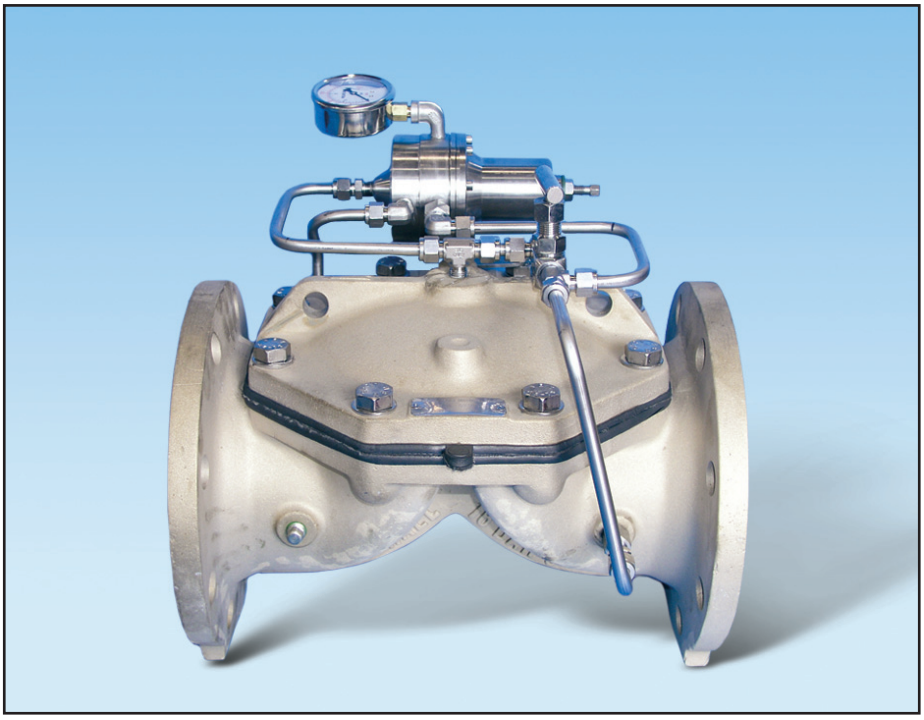
Raphael

RAF-M – High Performance Diaphragm Hydraulic Control Valve for Mining.

- Only three main valve parts: body, cover and diaphragm.
- Patented self-contained reinforced "springless" diaphragm design, eliminates the need for a retaining spring inside the valve and guarantees uniform pressure distribution on sealing area preventing diaphragm deformation and ensuring long time maintenance free service.
- No metal moving parts - virtually maintenance free valve. Lowest cost of ownership.
- Smooth valve operation and unique diaphragm shape allow stable control at a wide flow rates, low noise operation and reduced water hammer.
- Drip tight shut-off.
- Extremely high cycling capability.
- Can be actuated without additional power source by the line pressure or alternatively by separated hydraulic water pressure or compressed air.
- High flow capacity and non clogging design.
- Wide range of applications
  - Pressure Reducing
  - Pressure Sustaining
  - Surge Anticipating
  - Remote Electric shutoff
  - Combined functions



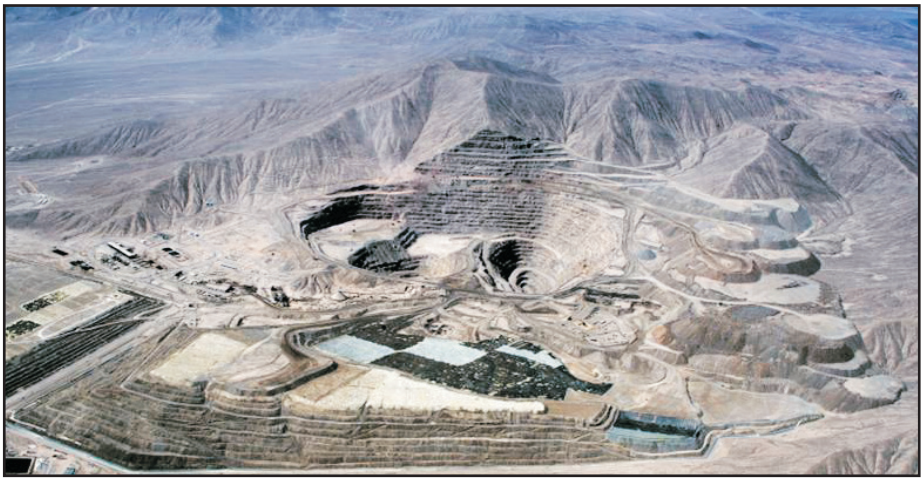
Patented Hydraulic Control Valve designed for mining applications. Actuated without additional power source by the line pressure or alternatively by separated hydraulic water pressure or compressed air.

General Applications in mining:

- Dust Suppression
- Heap Leaching Automation
- Leaching Sequence and Lateral Flushing

Technical Data:

Size Range: ..... 1.5"-12" / DN 40 - DN 300
MAWP: ..... 250 psig / 17 Barg
Max temperature: ..... -29° - 248°F / -29° -120°
Process Connections: .... Flanged ANSI/DIN/BS



tyco Flow Control

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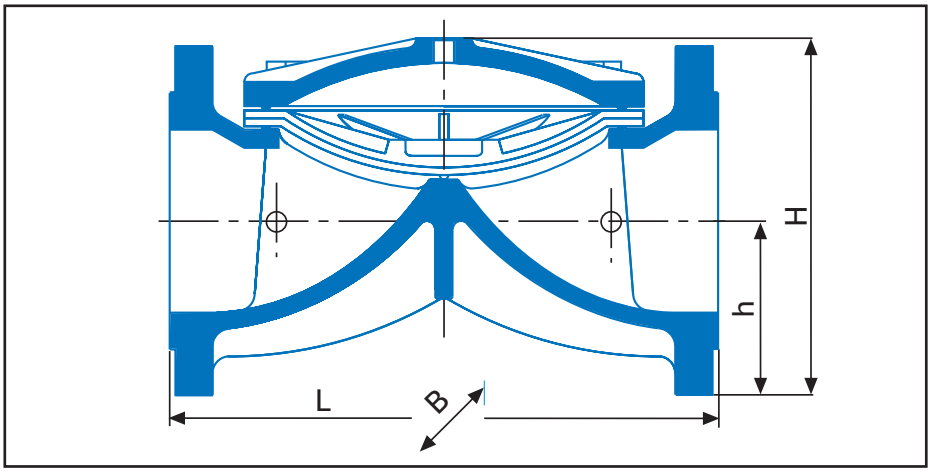
Overall Dimensions -Main Valve



Size Inch	Size mm	L		H		B		h		Weight	
		Inch	mm	Inch	mm	Inch	mm	Inch	mm	Lb	Kg
1.5″	40	6.26	159	3.15	80	3.78	96	1.14	29	4	1.8
2″	50	7.42	190	6.26	159	6.50	165	2.99	76	17.6	8
2.5″	65	8.5	216	6.81	173	7.28	185	3.15	80	22	10
3″	80	11.14	283	7.87	200	7.87	200	3.98	100	38.5	17.5
4″	100	12	305	8.16	220	9.05	230	3.90	99	56.1	25.5
6″	150	15.98	406	11.61	295	11.81	300	5.59	142	79.2	36
8″	200	18.50	470	15.08	383	13.94	354	6.30	160	156.2	71
10″	250	25	635	16.93	430	18.27	464	7.75	197	239.8	109
12″	300	29.5	749	18.66	474	18.90	480	19.21	234	308	140
14″	350	29.5	749	20.47	520	20.47	520	10.24	260	389.4	177

Operating Conditions

Size in	Size mm	Inlet Pressure psig/barg		Cv/Kv	Control Chamber size	
		Min.	Max		Oz	L
1.5″	40	12/0.8	250/17	46/39	2.0	0.06
2″	50	10/0.7	250/17	81/69	2.7	0.08
2.5″	65	10/0.7	250/17	116/99	5.4	0.16
3″	80	9/0.6	250/17	197/70	10.14	0.3
4″	100	6/0.6	250/17	336/287	23.70	0.7
6″	150	6/0.4	250/17	567485	50.70	1.5
8″	200	6/0.4	250/17	915/783	118.3	3.5
10″	250	5/0.35	250/17	1650/1412	256.90	7.6
12″	300	5/0.35	250/17	2100/1800	256.90	7.6
14″	350	5/0.35	250/17	2700/2310	256.90	7.6

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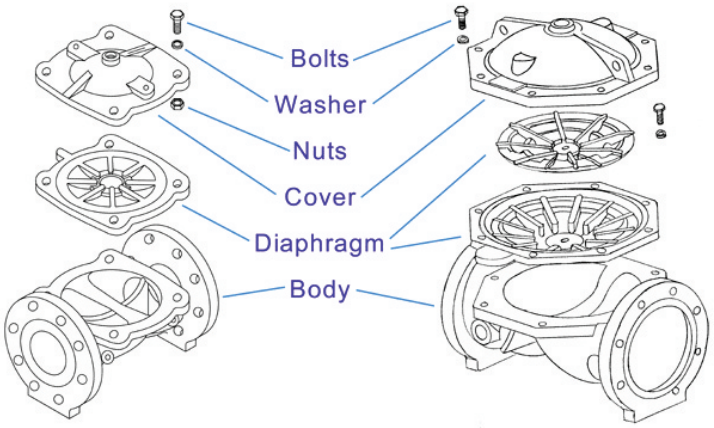
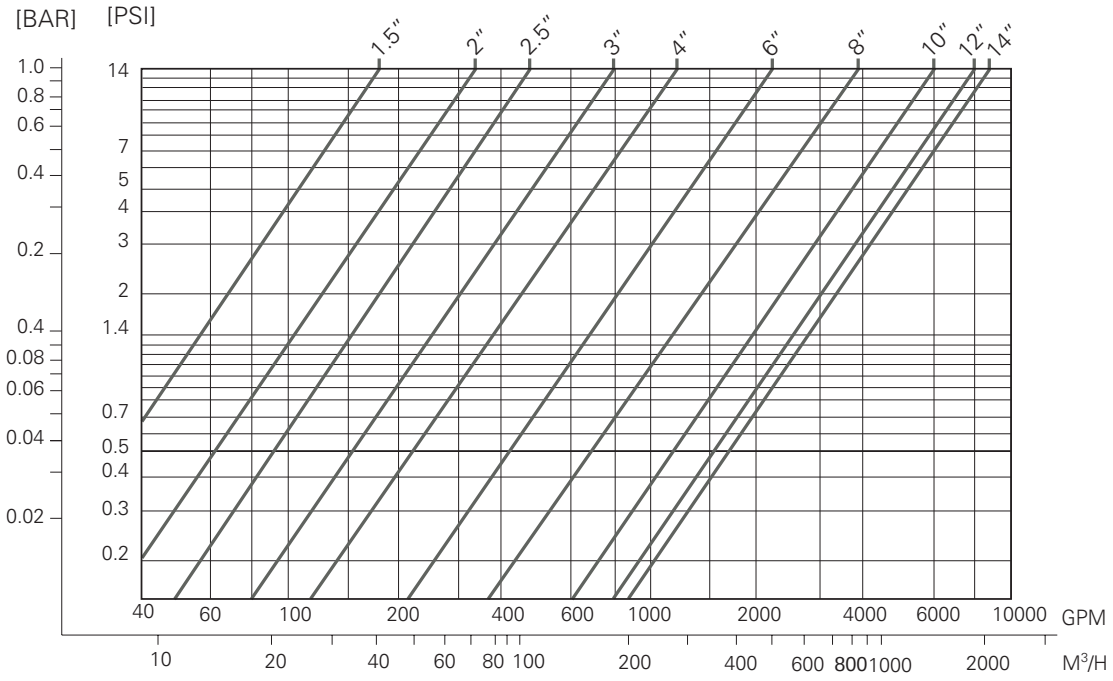


Valve Parts and Construction Materials

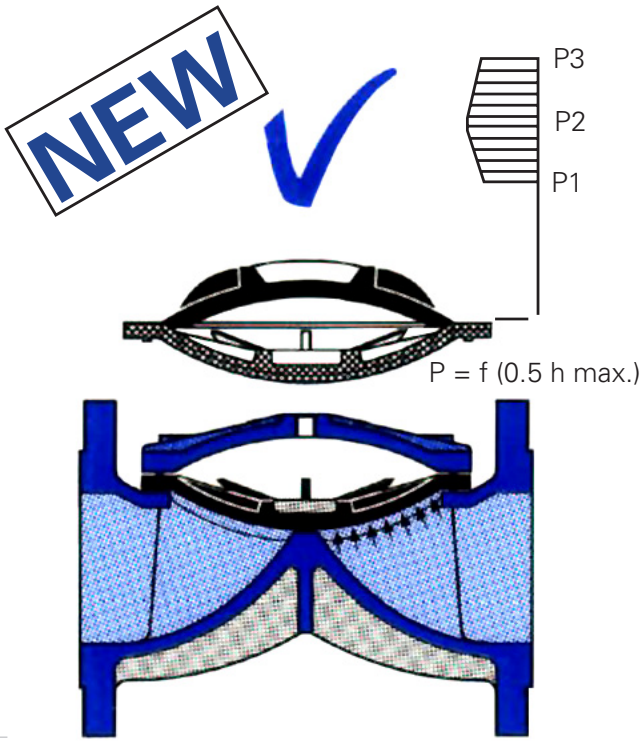
Part	Material
Screw	Stainless Steel
Washer	Stainless Steel
Cover	Cast Iron, Cast Steel, Stainless Steel, A/Bz, Duplex
Diaphragm	Natural Rubber, EPDM, Neoprene, NBR, Fluoroelastomer
Body	Cast Iron, Cast Steel, Stainless Steel, A/Bz, Duplex

PRESSURE-LOSS CHART FOR VALVES TYPE RAF IN LINE

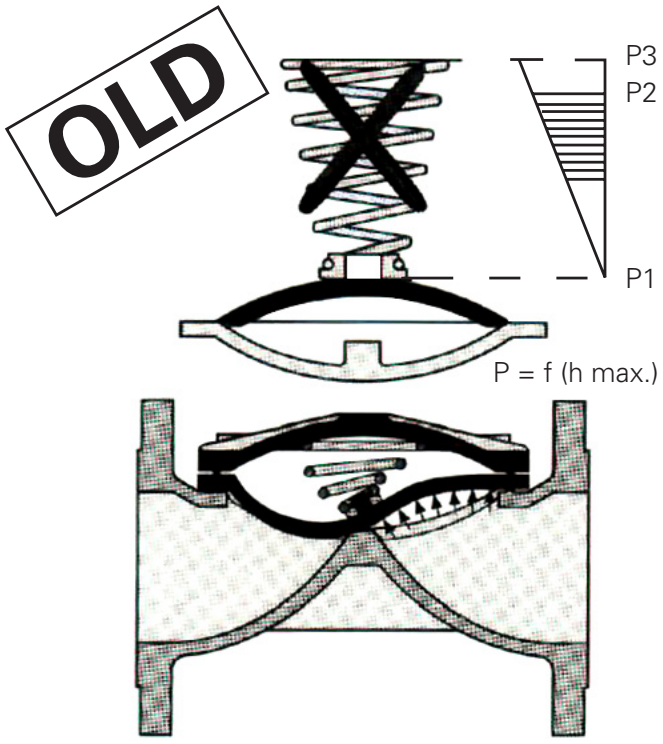
Flow - chart



RAF Hydraulic Control Valve

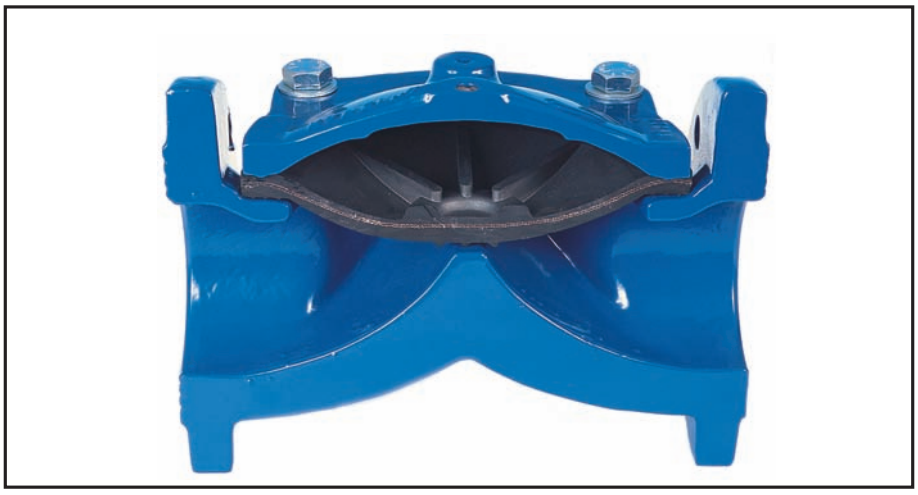


"RAF" valve with rubber diaphragm and sides which function as a spring.



A valve with rubber diaphragm and metal spring.

RAF is a state of the art hydraulic valve designed with a patented reinforced diaphragm which eliminates the need for a retaining metal spring, spring guide, support washers etc.
Line pressure works equally on the whole diaphragm area, preventing diaphragm deformation and allowing most smooth, gradual operation and precise opening. Robust reinforced diaphragm designed for high cycling and most demanding applications. Due to its construction simplicity RAF valve is almost maintenance free. A diaphragm is easily field replaceable without dismantling the valve body from a pipeline.



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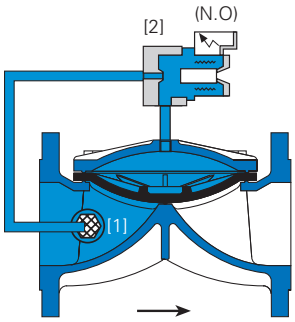
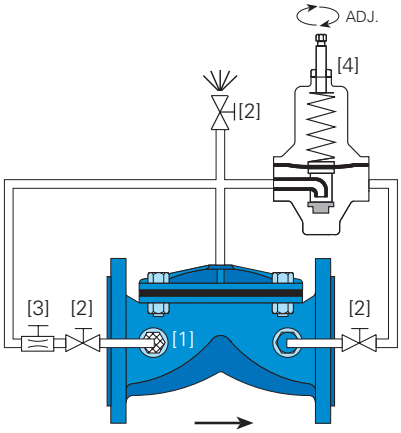
RAF Hydraulic Control Valve



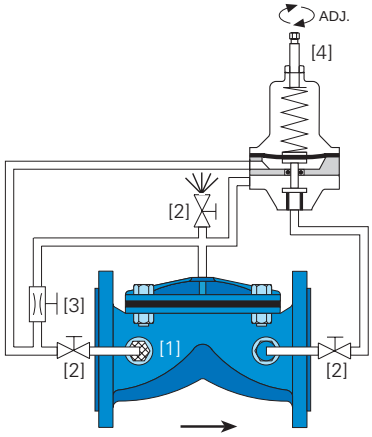
RAF-31 Electric On/Off Valve.

This valve is a hydraulic "on-off" control valve that can be operated manually or by electric remote control. The valve can be "normally closed" (NC) or "normally open" (NO), as required. "Normally" means the state of the valve when the solenoid is de-energized.



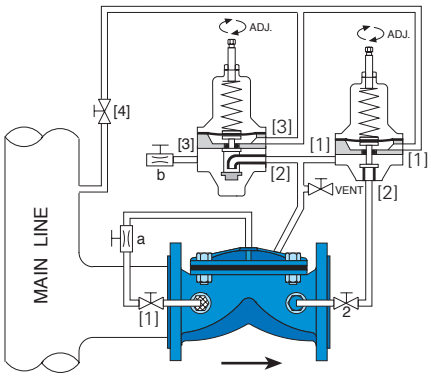
RAF-60 Pressure Reducing Valve.

This pressure-reducing valve is an automatic control valve designed to reduce a higher upstream pressure into a preset lower downstream pressure, and to maintain this pressure constantly regardless of flow-rate or upstream pressure fluctuations



RAF-80 Pressure Sustaining Valve.

This pressure-sustaining valve is an automatic control valve designed to sustain a minimum upstream pressure as determined by the operator and relieve excess pressure to the downstream system (or to the atmosphere if required).



RAF-88 Surge Anticipating Valve

This surge anticipating valve is an automatic control valve designed to eliminate pressure surges typical for water hammer conditions. The valve opens when the line pressure drops or rises from a set pressure value in anticipation for the following surge, and remains open until the fluctuation subside.

*Other applications available on request
**Standard trim material SS316, other materials available on request

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