

Raphael Valves

Cast Iron and Plastic

Cast Iron Valves

Streamlined, low friction hydraulic performance.



Valves are used for general water supply and irrigation. The valves are made of three parts each of which is made with durable materials. This provides quiet flow in both directions, low head-loss and minimal wear.

Valves operate with patented reinforced diaphragm and spring combination which eliminates the need for the old fashioned metal spring. The special elastic design enables gradual and precise opening or closing of the valve.

By eliminating the antiquated metal spring, the Raphael valve is virtually maintenance free.

Product Features

- Designed for high flow and low pressure loss
- Body and cover are cast iron Rilsan coated
- Patented reinforced diaphragm/spring combination
- Easy maintenance
- Valve functions can easily be changed with simple pilot circuit modifications



Cast Iron Valves Specifications

Cast Iron Angle Valves

Diameter	Connection	Flow Requirements (gpm)				Low pressure Diaphragm (psi)	High pressure Diaphragm (psi)
		Nominal flow on/off $\Delta P = 3$ psi	Nominal flow Regulating $\Delta P = 10$ psi	Max flow $\Delta P = 15$ psi	CV (gpm)		
2"	Th, GR	125	228	279	82	7 - 145	10 - 230
3/23"	Th, GR	125	228	279	82	7 - 145	10 - 230
3"	Th, GR	312	569	697	199	7 - 145	10 - 230

$\Delta P = (Q/Cv)^2$ Q = Flow Rate (gpm), ΔP = Head loss across the valve (psi)
 Cv = Flow rate in gpm that creates a pressure drop of 1 psi

Cast Iron Inline Valves

Diameter	Connection	Flow Requirements gpm				Low pressure Diaphragm (psi)	High pressure Diaphragm (psi)
		Nominal flow on/off $\Delta P = 3$ psi	Nominal flow Regulating $\Delta P = 10$ psi	Max flow $\Delta P = 15$ psi	CV (gpm)		
1"	Th	64	117	143	37	7 - 145	12 - 230
1.5"	Th	80	145	178	47	7 - 145	12 - 230
2"	Th,	140	256	314	82	7 - 145	10 - 230
3/23"	Th, GR, FL	145	266	325	82	7 - 145	10 - 230
3"	Th, GR, FL	341	623	763	199	7 - 145	10 - 230
4"	GR, FL	582	1063	1301	339	5 - 145	6 - 230
6"	GR, FL	984	1796	2200	573	NA	6 - 230
8"	FL	1587	2897	3548	924	NA	6 - 230
10"	FL	2813	5136	6290	1638	NA	6 - 230
12"	FL	3617	6603	8087	2106	NA	5 - 230
14"	FL	3617	6603	8087	2106	NA	5 - 230

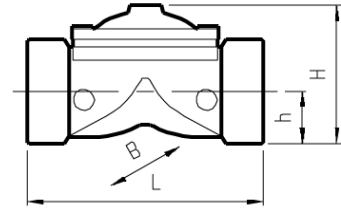
$\Delta P = (Q/Cv)^2$ Q = Flow Rate (gpm), ΔP = Head loss across the valve (psi)
 Cv = Flow rate in gpm that creates a pressure drop of 1 psi



Cast Iron Dimensions & Weights

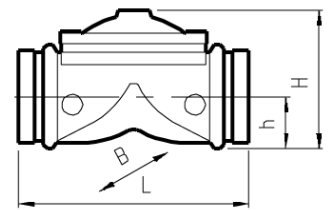
High Flow Iron Inline – Threaded

Nominal Diameter	L	H	B	h	Weight
(in)	(in)	(in)	(in)	(in)	(lbs)
1	6.5	2.8	3.7	0.8	3.3
1.5	6.3	3.1	3.8	1.1	4.4
2	7.5	3.9	4.9	1.5	7.7
323	9.1	4.9	4.9	2.0	11.0
3	11.4	5.4	7.9	2.0	24.3



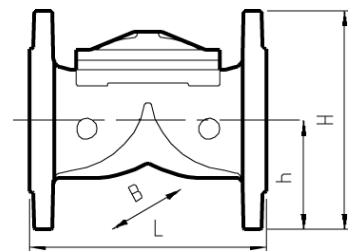
High Flow Iron Inline – Grooved

Nominal Diameter	L	H	B	h	Weight
(in)	(in)	(in)	(in)	(in)	(lbs)
323	9.1	4.9	4.9	2.0	10.6
3	11.4	5.4	7.9	2.0	23.8
4	13.6	8.7	9.1	2.4	39.7
6	16.2	9.5	11.8	3.5	72.8



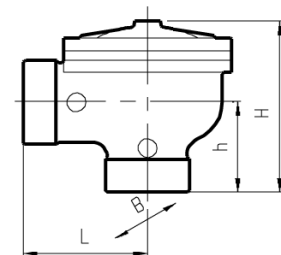
High Flow Iron Inline – Flanged

Nominal Diameter	L	H	B	h	Weight
(in)	(in)	(in)	(in)	(in)	(lbs)
4	13.6	8.7	9.1	3.9	57.3
6	16.2	11.6	11.8	5.6	101.4
8	18.5	15.1	13.9	6.3	148.8
10	25.0	16.9	18.3	7.8	244.7
12	29.5	18.7	18.9	9.2	332.9
14	29.5	20.5	20.5	10.2	390.2



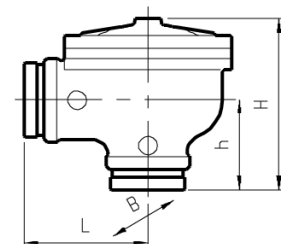
High Flow Iron Angle – Threaded

Nominal Diameter	L	H	B	h	Weight
(in)	(in)	(in)	(in)	(in)	(lbs)
2	3.5	5.9	4.9	3.2	0.2
323	4.3	5.7	4.9	2.8	0.2
3	5.8	8.1	7.9	4.2	0.5

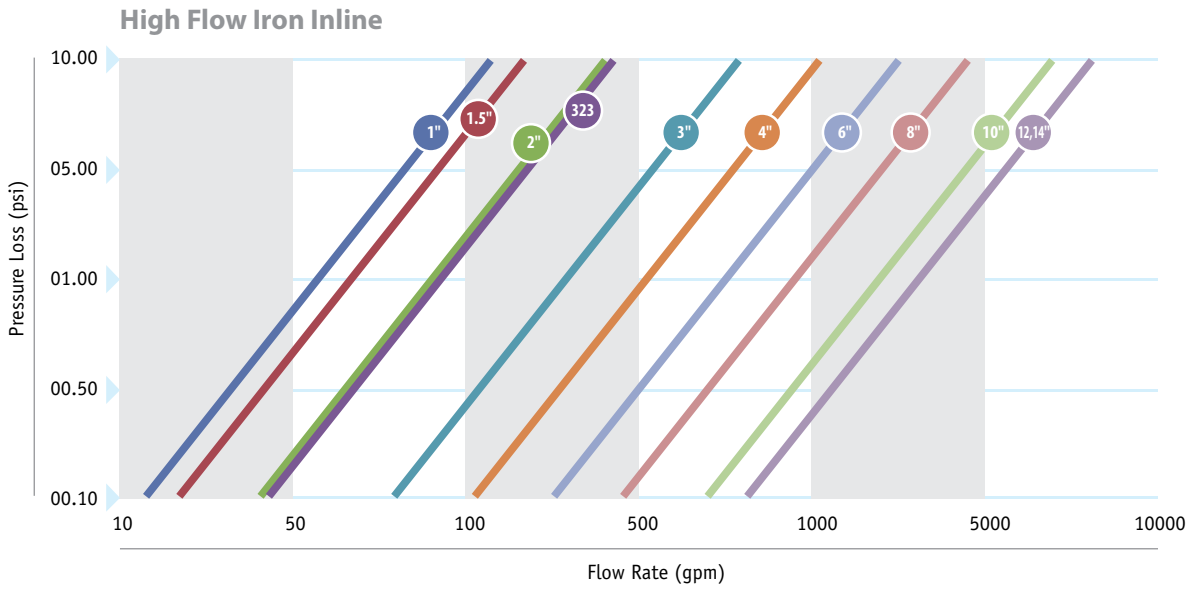
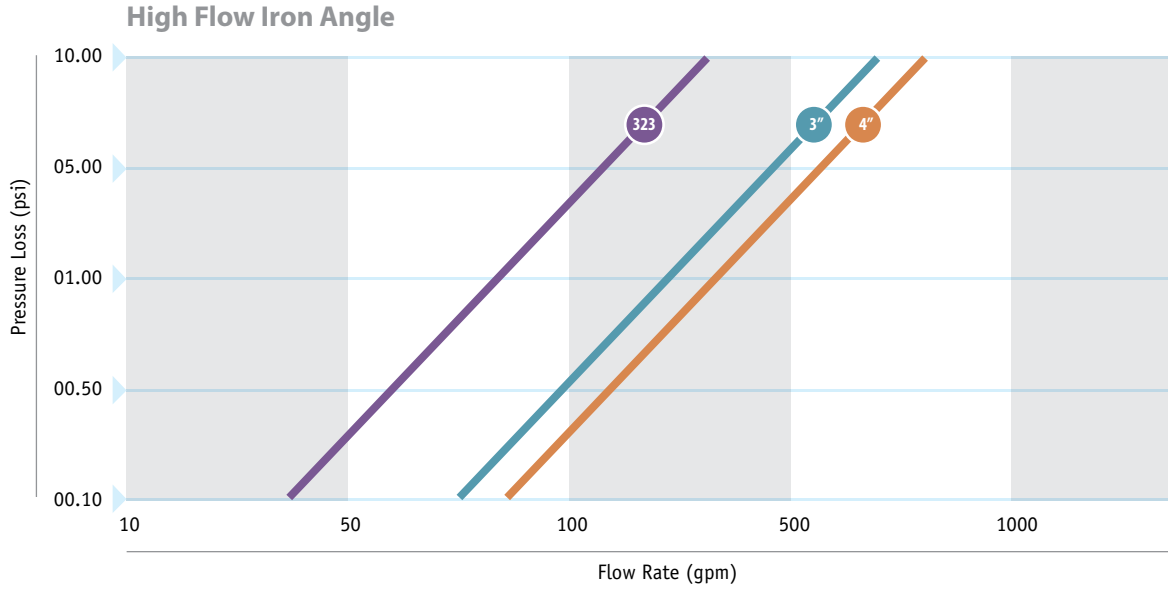


High Flow Iron Angle – Grooved

Nominal Diameter	L	H	B	h	Weight
(in)	(in)	(in)	(in)	(in)	(lbs)
2	3.5	5.9	4.9	3.2	8.8
323	4.3	5.7	4.9	2.8	10.4
3	5.8	8.1	7.9	4.2	24.3



Cast Iron Flow Rate vs. Pressure Loss



Plastic Valves

Best corrosion resistance available in plastic technology.



Product Features

- Glass reinforced Nylon body and cover.
- Stream lined flow with minimum head loss
- Simple and reliable 3 parts valve, featuring body, cover and unique patented diaphragm.
 - Uniform pressure distribution on sealing area
 - Prevents diaphragm deformation and ensure maintenance free performance
- Smoothly operates in wide range of pressure and flow, prevents noise vibrations.
- Very low opening and drip tight closing line pressure.

Raphael plastic valves are recommended for irrigation and turf applications. Entirely manufactured from durable plastic materials, with a state-of-the-art patented diaphragm. These plastic valves offer the best corrosion resistance available in plastic technology with the streamlined hydraulic performance of metal valves.

Raphael valves operate with the patented reinforced diaphragm, which eliminates the need for a metal spring.

The special elastic design enables gradual and precise opening and closing of the valve, ideal for regulating purposes.

By eliminating the metal spring, the plastic valve is virtually maintenance free.

Plastic Inline Valves

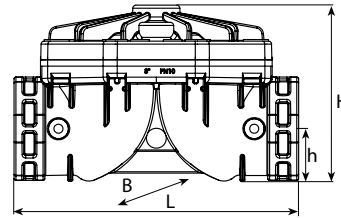
Diameter	Connection	Flow Requirements (gpm)				Low pressure Diaphragm (psi)
		Nominal flow on/off $\Delta P = 3$ psi	Nominal flow Regulating $\Delta P = 10$ psi	Max flow $\Delta P = 15$ psi	CV (gpm)	
1.5"	Th	111	202	248	64	7 - 145
2"	Th	121	221	271	70	7 - 145
2.5"	Th	161	294	360	93	4 - 145
3"	Th	180	329	403	104	4 - 145
3.5"	Th	362	661	809	209	4 - 145
4"	Th	402	734	899	232	4 - 145

$\Delta P = (Q/Cv)^2$ Q = Flow Rate (gpm), ΔP = Head loss across the valve (psi)
Cv = Flow rate in gpm that creates a pressure drop of 1 psi

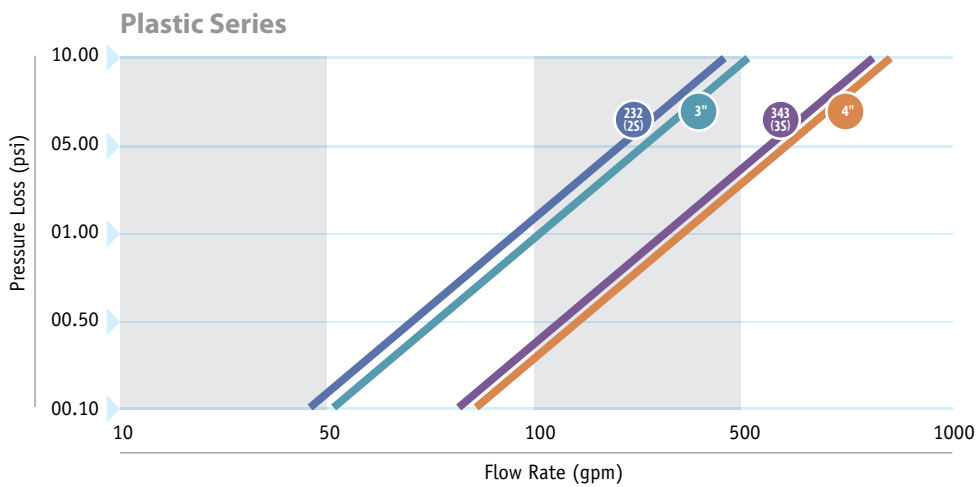
Plastic Valves Dimensions & Weights

Plastic Series – Threaded

Nominal Diameter	L	H	B	h	Weight
(in)	(in)	(in)	(in)	(in)	(lbs)
1.5	7.3	4.1	4.9	1.3	1.5
2	7.6	4.3	4.9	1.5	1.8
3	9.4	6	6.3	2.3	3.1
3S	12.4	7.5	9.9	2.4	9.9
4	12.6	7.5	9.9	2.6	10.1



Plastic Valves Flow Rate vs. Pressure Loss



Plastic - PC

3-W Pressure Pilot Control

The Plastic PC, 3-W pressure pilot, is used in pressure reducing and pressure sustaining/relief applications. Two pilot valves can be combined together on single valve to form a dual-function valve. Combining pressure reducing and pressure sustaining functions is used to prevent excess water flow during pipeline filling. The pressure regulating model is available in normal pressure or low pressure configurations. The pilot valve body is made of high quality reinforced plastic. Calibration may be performed by means of an adjusting screw located on the top of the valve.



Product Features

- Pressure Rating: Standard (145 psi)
- Max Temperature: 158°F
- Weight 0.7 lbs

Spring Selection (psi)

Grey (std)	Green	Blue
36-102	14-36	7-22



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