



BERMAD 700 Large Size Series

Model: 700-M5, 700-M5M, 700-M5L

- Large scale pumping systems
- National and municipal water networks
- Reservoir and dam water level control
- Industrial water systems

The BERMAD 700 Series large size control valves are hydraulically operated, diaphragm actuated type. Unique hydro-dynamic globe valve design with a special open plug provides high flow capabilities. The valves are available in the standard configuration or with an Independent Flow Check code "2S". These valves are designed for large flow applications (On-off valve, pressure reducing, pressure sustaining, pump control, level control, check valve, flow control, burst control, emergency shut-off valve etc.), where precise control is needed.



Features and Options

- Hydrodynamic wide globe valve body provides:
 - Higher flow (Kv; Cv) than standard globe valves
 - Higher resistance to cavitation damage
- In-line serviceable
- Compatible with hydraulic, electric, and pneumatic commands.
- Self-operated valves - function without an external power source.
- Wide range of options and accessories:
 - One-way or two-way flow direction
 - Visual position indicator
 - Limit switches
 - Analog opening output
 - Large selection of control accessories
 - Large inspection and service ports (700-M5M, 700-M5L)



Technical Data

Valve Pattern: Globe

Size Range: DN 500-900; 20"-36"

Pressure Rating: PN10, 16 & 25

ANSI Class #150;

ANSI Class #300 (Consult Factory)

End Connections: Flanged

Temperature: Water up to 80°C; 180°F

For temperature above 60°C; 140°F consult factory.

Standard Materials:

Body & Cover: Ductile Iron

Bolting: Stainless Steel

Internals: Epoxy coated Ductile Iron, Stainless Steel & Tin Bronze

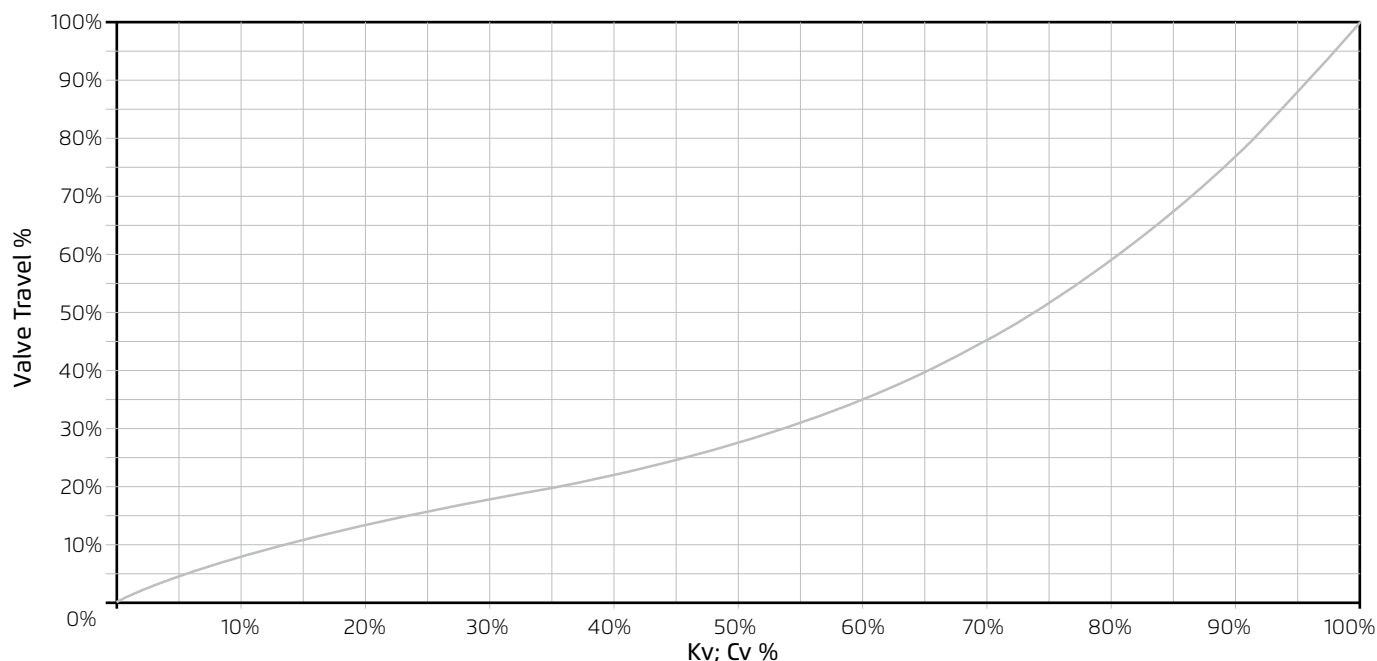
Diaphragm: Fabric-reinforced synthetic rubber

Seals: Synthetic rubber

Coating: Dark blue fusion bonded epoxy, certified for drinking water applications, outside UV protection

Valve Travel Characteristics

Kv; Cv to Valve Travel Graph



SI

Valve Travel

Type	M5	M5M	M5L
mm	167	200	250

US

Type	M5	M5M	M5L
Inch	6.57	7.87	9.84

Flow Factors

Type	M5	M5M	M5L
Kv	5,020	6,850	11,150

Type	M5	M5M	M5L
Cv	5,798	7,878	12,878

Differential Pressure & Flow Calculation

Valve flow coefficient, $K_v = Q \sqrt{\frac{G_f}{\Delta P}}$

Where:

K_v = Valve flow coefficient (flow in m³/h at 1bar ΔP)

Q = Flow rate (m³/h)

ΔP = Differential pressure (bar)

G_f = Liquid specific gravity (Water = 1.0)

Practical formulas for water:

$$Q = K_v \sqrt{\Delta P} \quad \Delta P = \left(\frac{Q}{K_v}\right)^2$$

Valve flow coefficient, $C_v = Q \sqrt{\frac{G_f}{\Delta P}}$

Where:

C_v = Valve flow coefficient (flow in gpm at 1psi ΔP)

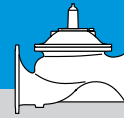
Q = Flow rate (gpm)

ΔP = Differential pressure (psi)

G_f = Liquid specific gravity (Water = 1.0)

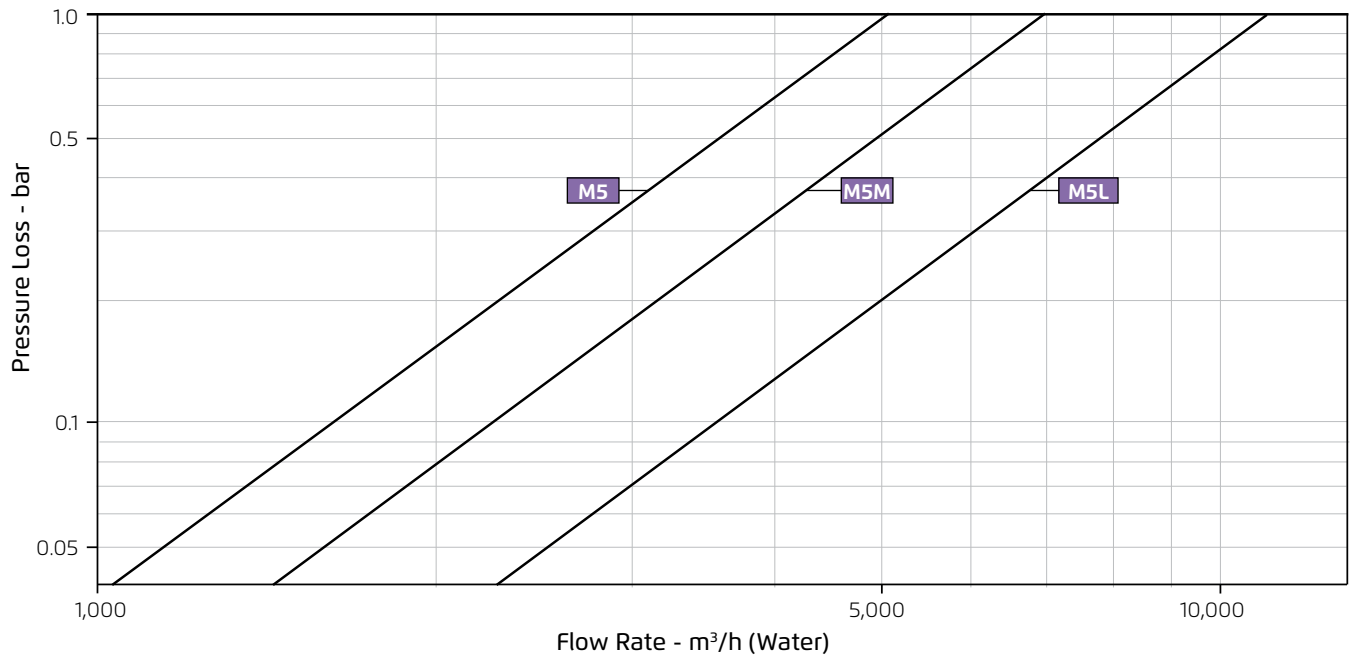
Practical formulas for water:

$$Q = C_v \sqrt{\Delta P} \quad \Delta P = \left(\frac{Q}{C_v}\right)^2$$

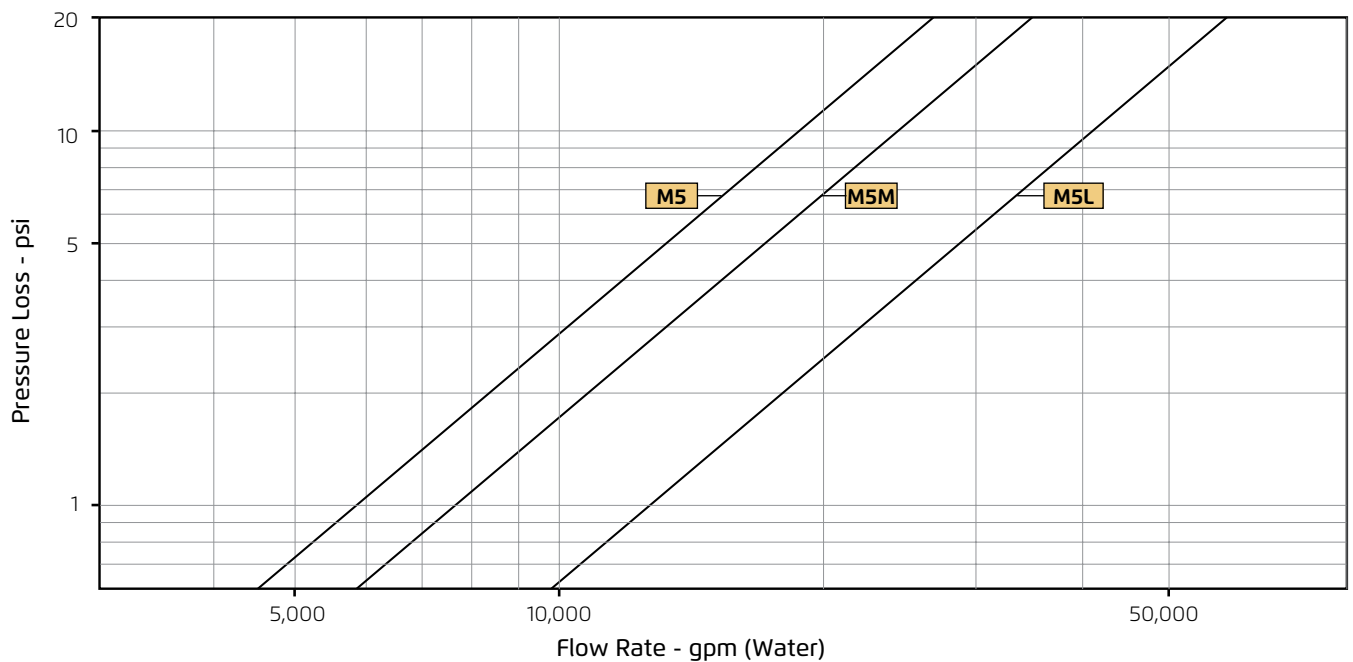


Flow Charts

SI Metric



US English



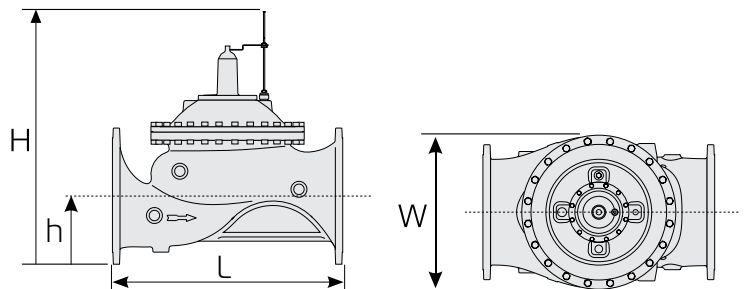
Dimensions Tables

SI

Metric (mm; kg)

Type	Inch DN	20"	24"	28"	30"	32"	36"
		500	600	700	750	800	900
M5	L	1250	1450	1650	1750	1850	-
	W	965	965	965	965	965	-
	h	385	435	500	530	560	-
	H	1364	1414	1479	1509	1539	-
	Weight	1450	1614	1645	1933	2159	-
M5M	L	-	1450	1650	1750	1850	-
	W	-	1130	1130	1130	1130	-
	h	-	450	500	530	560	-
	H	-	1561	1611	1641	1671	-
	Weight	-	1949	2236	2355	2521	-
M5L	L	-	-	-	Consult factory		
	W	-	-	-	1425	1425	1425
	h	-	-	-	507	545	600
	H	-	-	-	1825	1863	1918
	Weight	-	-	-	3465	3611	4268

Notes: Length according to ISO 5752-1
Weight calculated for the heaviest flange



Weight and height with a transportation cradle

Type	Inch DN	20"	24"	28"	30"	32"	36"
		500	600	700	750	800	900
M5	Height	1594	1644	1709	1739	1769	-
	Weight	1596	1766	1804	2145	2376	-
M5M	Height	-	1791	1841	1871	1901	-
	Weight	-	2101	2395	2567	2738	-
M5L	Height	-	-	-	2055	2093	2148
	Weight	-	-	-	3694	3851	4520

Control Chamber Water Displacement

Model	M5	M5M	M5L
Liter	60	117	230

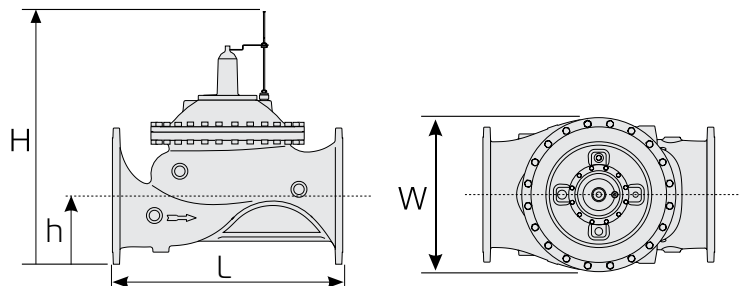
Dimensions Tables

US

English (inch ; lb)

Type	Size	20"	24"	28"	30"	32"	36"
M5	L	49.21	57.09	64.96	68.90	72.83	-
	W	37.99	37.99	37.99	37.99	37.99	-
	h	15.16	17.13	19.69	20.87	22.05	-
	H	53.70	55.67	58.23	59.41	60.59	-
	Weight	3197	3558	3627	4262	4760	-
M5M	L	-	57.09	64.96	68.90	72.83	-
	W	-	44.49	44.49	44.49	44.49	-
	h	-	17.72	19.69	20.87	22.05	-
	H	-	61.46	63.43	64.61	65.79	-
	Weight	-	4297	4930	5192	5558	-
M5L	L	-	-	-	Consult factory		
	W	-	-	-	56.10	56.10	56.10
	h	-	-	-	19.96	21.46	23.62
	H	-	-	-	71.85	73.35	75.51
	Weight	-	-	-	7639	7961	9409

Notes: weight calculated for the heaviest flange



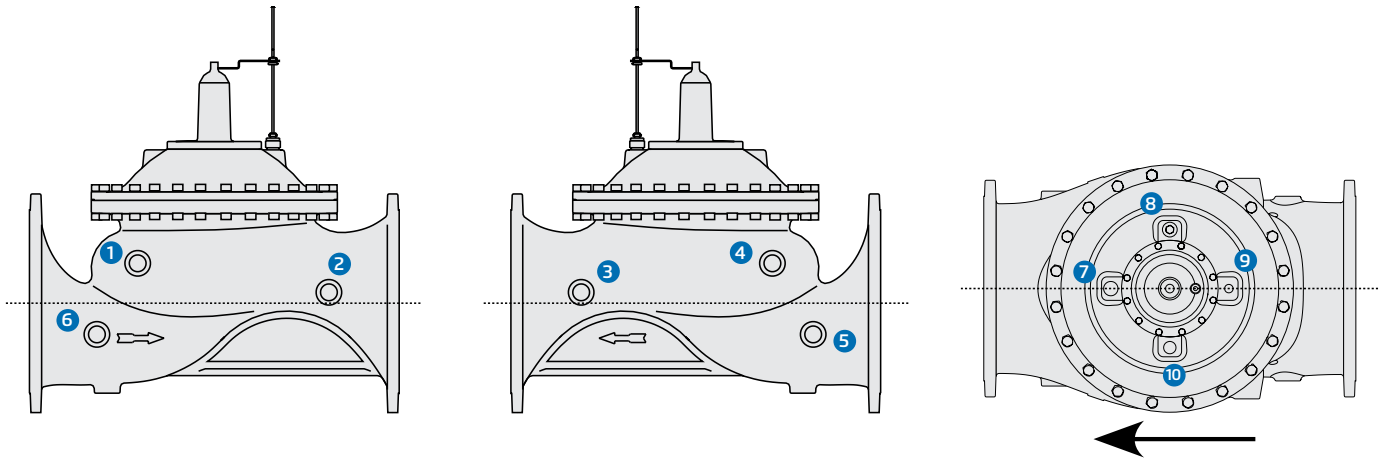
Weight and height with a transportation cradle

US		20"	24"	28"	30"	32"	36"
M5	Height	62.76	64.72	67.28	68.46	68.65	-
	Weight	3519	3893	3977	4729	5238	-
M5M	Height	-	70.51	72.48	73.66	74.84	-
	Weight	-	4632	5280	5659	6036	-
M5L	Height	-	-	-	80.91	82.40	84.57
	Weight	-	-	-	8144	8490	9965

Control Chamber Water Displacement

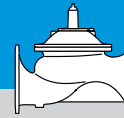
Model	M5	M5M	M5L
US Gal.	16	31	61

Control Ports

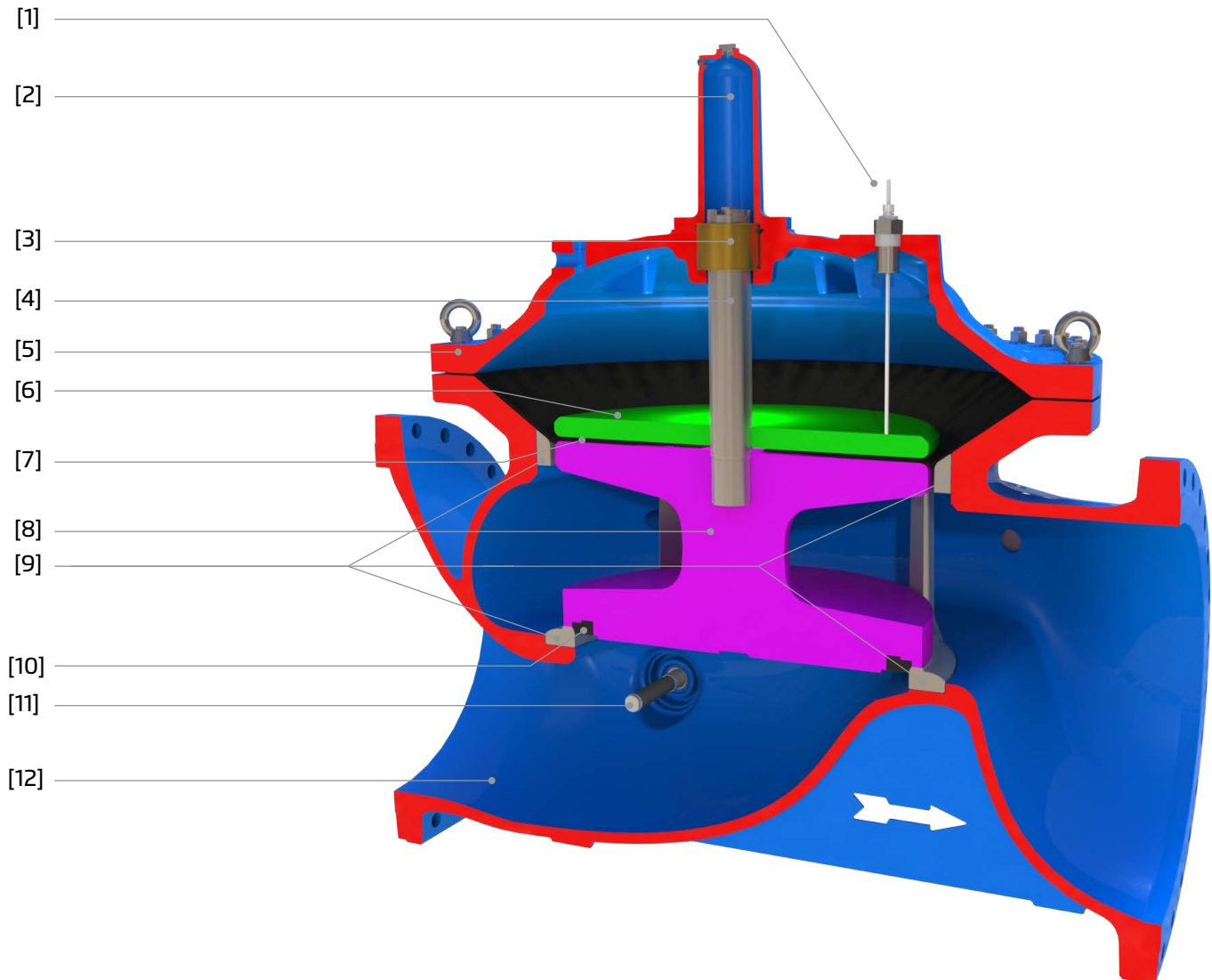


Hubs	M5	M5M	M5L
1	2" Rc	1.5" Rc	2" Rc
2	2" Rc	1.5" Rc	2" Rc
3	2" Rc	1.5" Rc	2" Rc
4	2" Rc	1.5" Rc	2" Rc
5	2" Rc	2" Rc	Service port 150 mm / 6"
6	2" Rc	Service port 120 mm / 4.7"	Service port 150 mm / 6" (2" Rc)
7	1" Rc	1" Rc	1" Rc
8	1.5" Rc	1.5" Rc	1.5" Rc
9	1.5" Rc	1.5" Rc	1.5" Rc
10		Service port 120 mm / 4.7"	Service port 120 mm / 4.7"

Rc = BSPT



Material Specifications 700-M5 / 700-M5M / 700-M5L



Item Number	Description	Material
1	Visual Opening Indicator	
2	Top Guide Cover	Fusion bonded Epoxy Coated Ductile Iron, EN 1563 or ASTM A-536
3	Top Bearing	Tin Bronze
4	Top Guide	Stainless Steel
5	Valve Cover	Fusion bonded Epoxy Coated Ductile Iron, EN 1563 or ASTM A-536
6	Diaphragm Top Washer	Stainless Steel
7	Diaphragm	Synthetic Rubber Nylon, Fabric Reinforced
8	Valve Plug	Fusion bonded Epoxy Coated Ductile Iron, EN 1563 or ASTM A-536
9	Valve Seat Cage	Stainless Steel
10	Closure Seal	Synthetic Rubber
11	Self Flushing Control Filter	Stainless Steel
12	Valve Body	Fusion bonded Epoxy Coated Ductile Iron, EN 1563 or ASTM A-536

Independent Check Feature

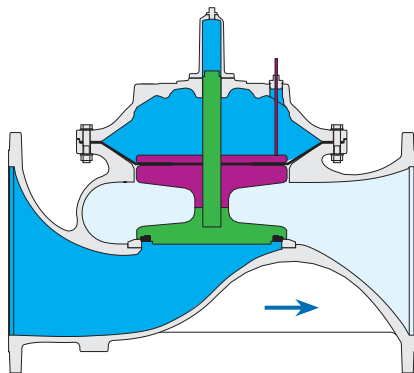
Additional feature code 25

The Independent Check Feature is an integral, lift type, non slam check mechanism that opens to allow flow in the required direction and smoothly closes drip tight to prevent back flow.

The Independent Check Feature is used on various system applications such as:

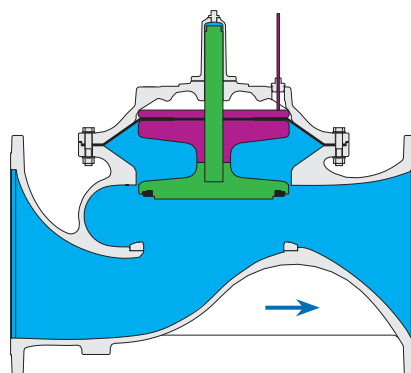
- Pump control valves
- One-way level control valves
- One-way zone backup valves
- Pressure regulating valves

Principal of Operation



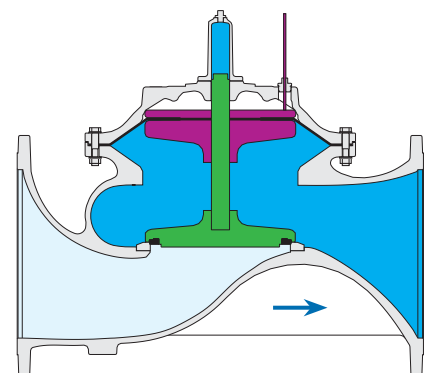
Closed Valve

Line pressure applied to the upper control chamber of the valve creates a superior force that moves the valve to the closed position and provides drip tight sealing.



Fully Open Valve

Discharging the pressure from the upper control chamber to atmosphere or some other lower pressure zone, causes the line pressure acting on the seal disk to move the valve to the open position.



Independent Check Closed

The independent seal disc assembly closes as soon as differential pressure force across the valve is lower than the valve plug weight, preventing reverse flow through the valve regardless of control chamber pressure and the position of the diaphragm.