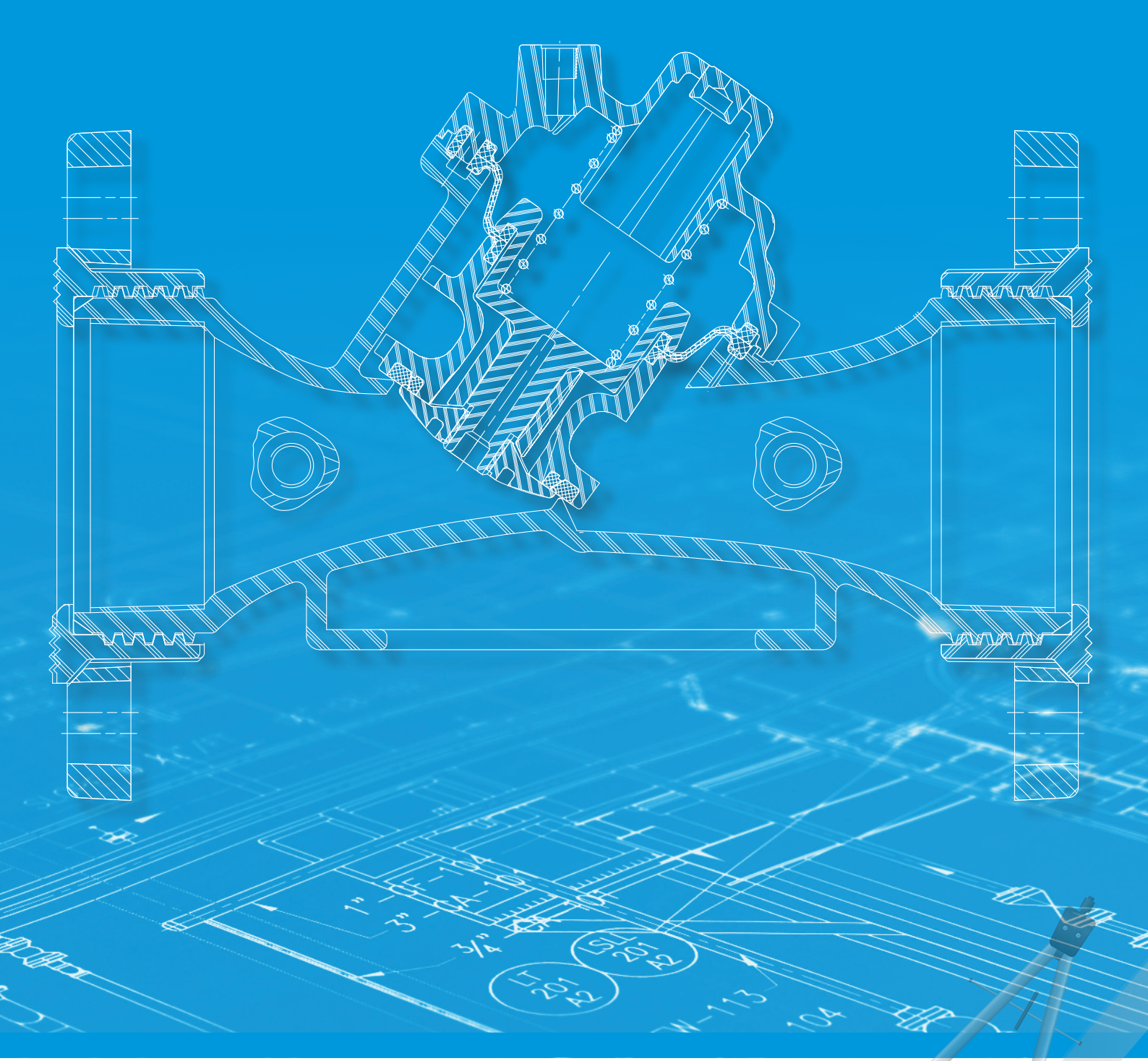
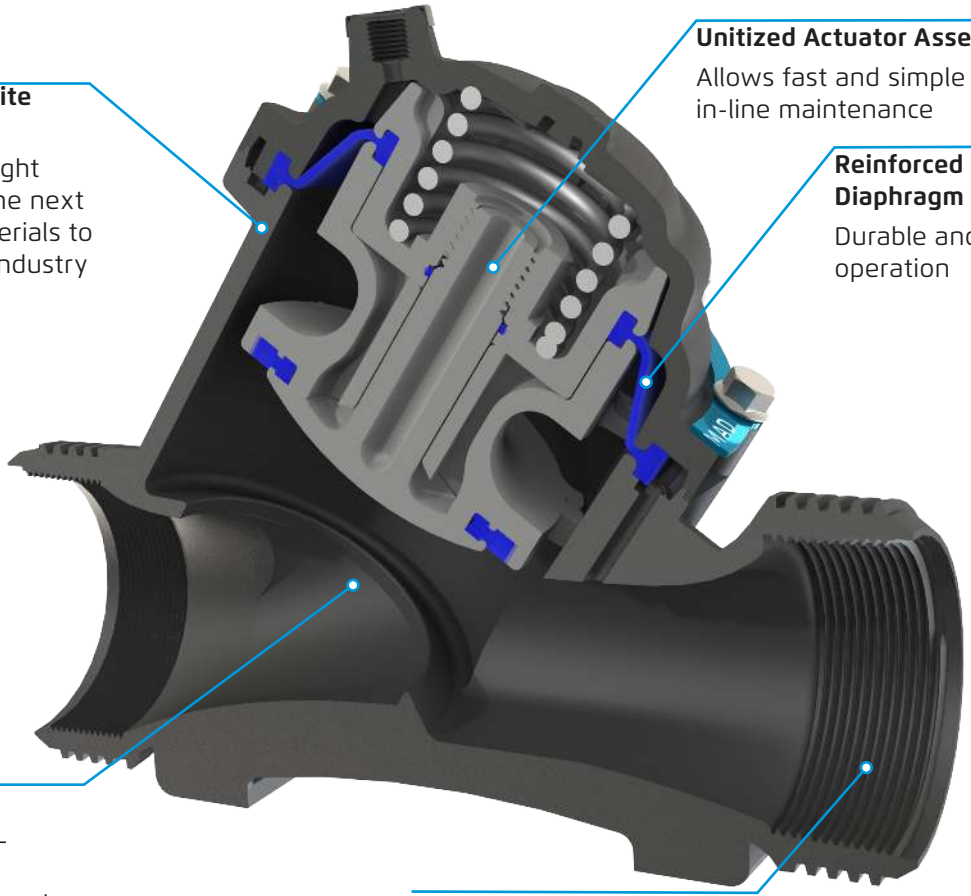


1000 COMPOSITE SERIES

ENGINEERING DATA

version 01 - October 2020

Main Benefits



Advanced Composite Polymer Material

Strong, inert and light weight; bringing the next generation of materials to the water supply industry

Unitized Actuator Assembly

Allows fast and simple in-line maintenance

Reinforced Rolling Diaphragm

Durable and flexible operation

Unobstructed Flow

High capacity semi-straight flow for exceptionally low head loss

Internal Threads or Adaptors

Flexible option for Threaded, Groove or Flange connection

The BERMAD 1000 Composite Series is at the leading edge of control valve design, providing a valve that is free of the typical limitations associated with standard control valves.

Superior Performance

A unitized flexible super-travel diaphragm & guided plug provide a significantly 'look through' passage resulting in accurate & stable regulation and ultra-high flow capacity.

Easy Maintenance

Simple single unit actuator provide ease of maintenance with minimal downtime and no need of special tools or heavy lifting.

Flexible Installation

The 1000 unique body design allows on-site adaption to a wide range of end connection types and sizes. Its articulated flange connections isolate the valve from pipeline bending & pressure stresses.

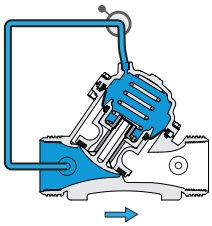
– IQNet –

ISO 9001-2015 Certified Quality Assurance System

BERMAD valves comply with a wide range of international standards.
Please consult with BERMAD about the compliance of a required model to a specific standard

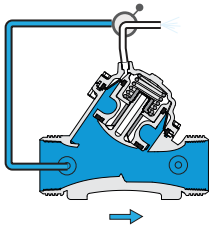
Principle of Operation

On-Off Modes



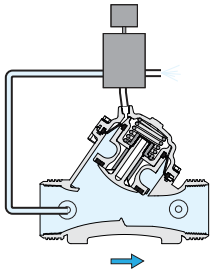
Closed Position

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



Open Position

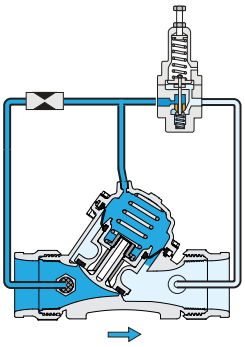
Discharging the pressure in the control chamber to atmosphere or some other lower pressure zone causes the line pressure acting on the plug to move the valve to the open position.



Solenoid Control

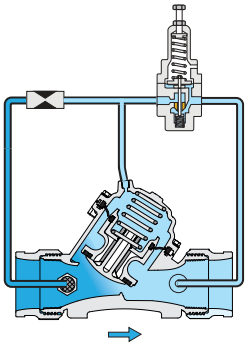
Line pressure can be applied or discharge from the valve control chamber by controlling the position of the solenoid, allowing to control the valve position remotely.

2-Way Modulating Mode - Pressure Reducing



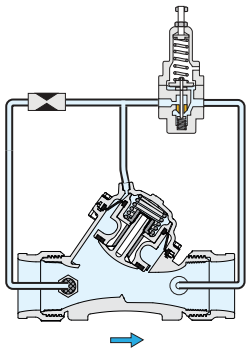
Closed Position

The closed adjustable pilot valve traps line pressure in the upper control chamber. The resulting superior force moves the valve to the fully closed position and provides drip-tight sealing.



Modulating Position

The pilot valve senses line pressure changes and opens or closes accordingly. It controls the accumulated pressure in the valve control chamber, causing main valve to modulate to an intermediate position and maintain the preset pressure value.

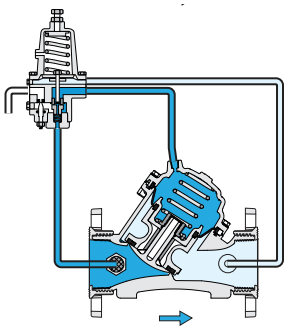


Open Position

The open pilot valve releases line pressure from the upper control chamber.

The line pressure acting on both the diaphragm and the plug moves the valve to the open position.

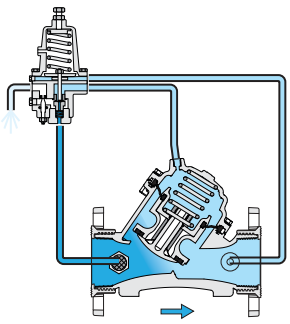
3-Way Modulating Mode - Pressure Reducing



Closed Position

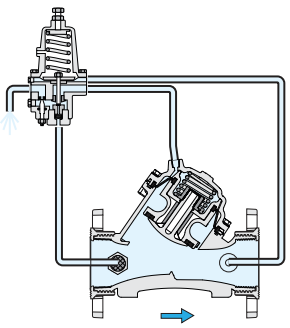
The pilot responds to high downstream pressure and introduces upstream pressure to the upper control chamber.

The valve plug move to close or is sealing drip-tight.



Modulating Position

When the downstream pressure is equal to setting, the plunger in the pilot valve moves to block all passages and freezes the valve. The pilot valve responds to downstream pressure changes and moves the valve to maintain the setting by either venting or pressurizing the control chamber.



Open Position

When downstream pressure is lower than the setting, the plunger in the pilot valve moves to vent the pressure from the control chamber, allowing the valve to fully open. This minimizes pressure loss and ensures maximum possible downstream pressure.

Technical Specification

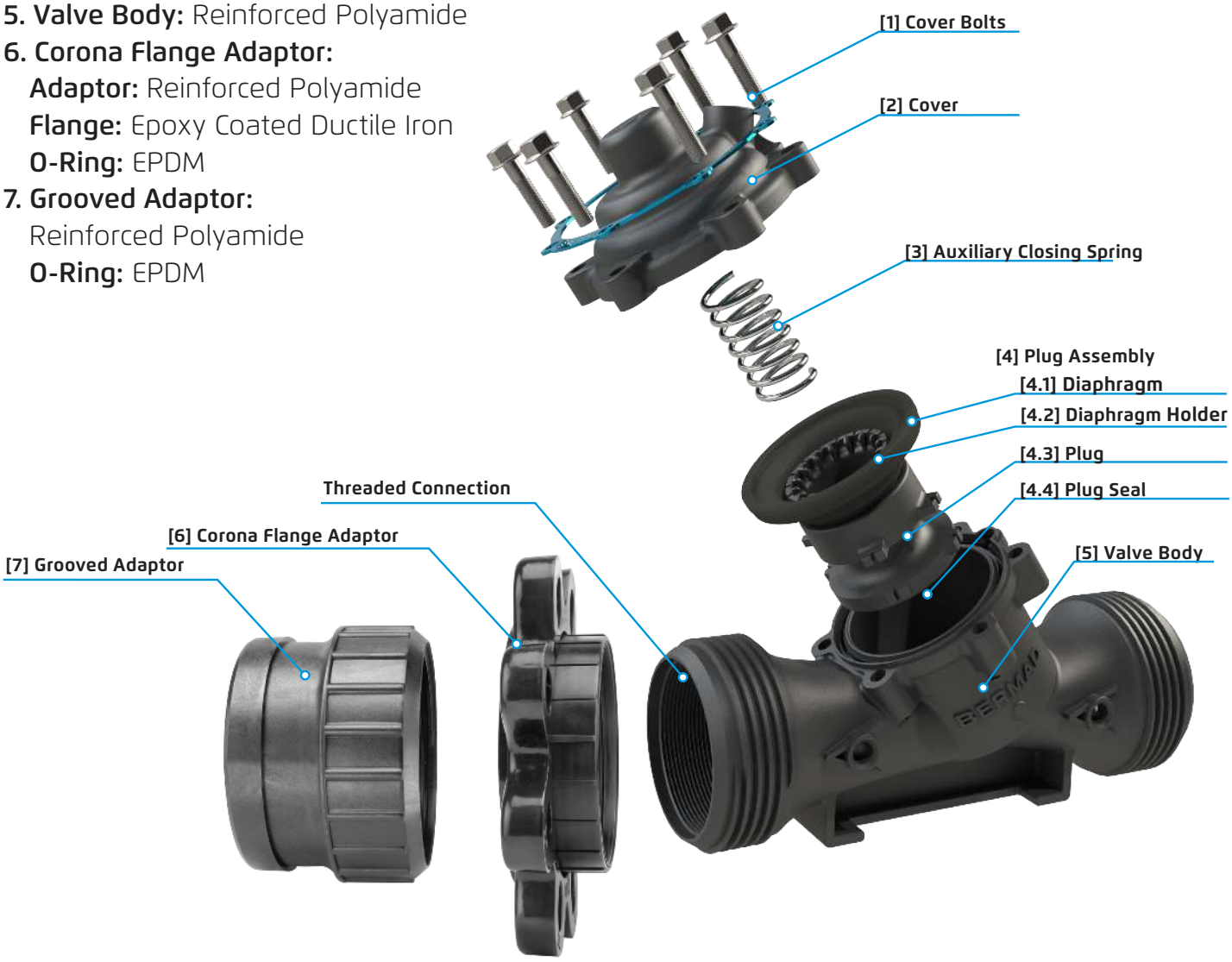
Maximum Working Pressure:
1½"EN-4"ES: 250 psi / PN16
Valve Pattern: Y (Oblique)
Temperature: for Cold Water Applications
For Hot Water Applications Consult Bermad.

End Connections:

Threaded: Female BSP.T (Rc-7) or NPT
Grooved: According to ISO-6182-12
Flanged - Universal Corona Adaptor:
ISO-10/16, ANSI 125/150, BST-D, JIS-10K

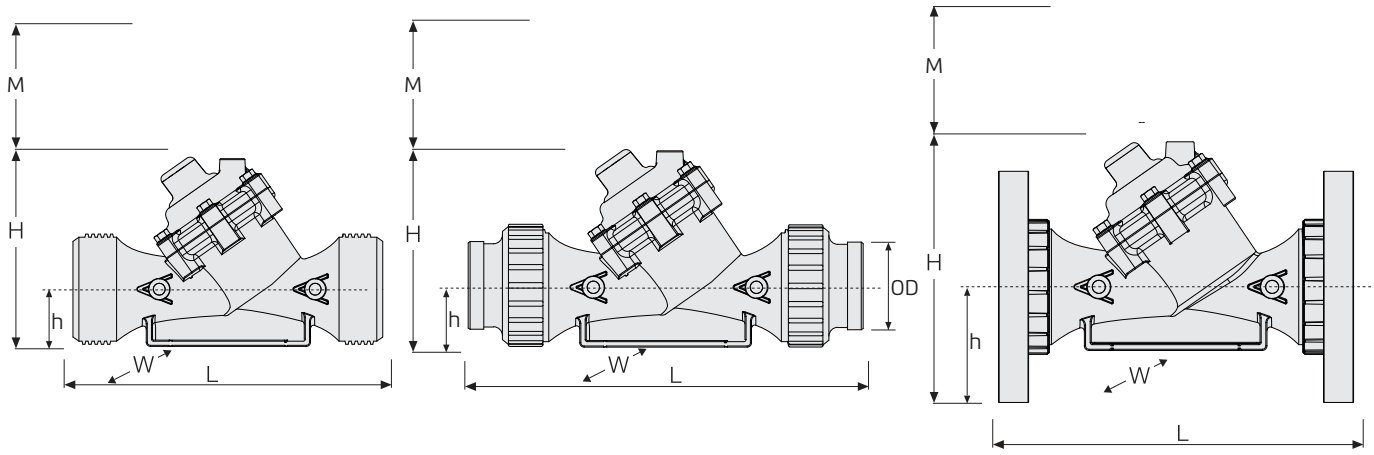
Construction Materials:

1. **Cover Bolts:** Stainless Steel
2. **Cover:** Reinforced Polyamide
3. **Closing Spring:** Stainless Steel
4. **Plug Assembly:**
   - **4.1. Diaphragm:** EPDM
   - **4.2. Diaphragm Holder:** Reinforced Polyamide
   - **4.3. Plug:** Reinforced Polyamide
   - **4.4. Plug Seal:** EPDM
5. **Valve Body:** Reinforced Polyamide
6. **Corona Flange Adaptor:**
   Adaptor: Reinforced Polyamide
   Flange: Epoxy Coated Ductile Iron
   O-Ring: EPDM
7. **Grooved Adaptor:**
   Reinforced Polyamide
   O-Ring: EPDM

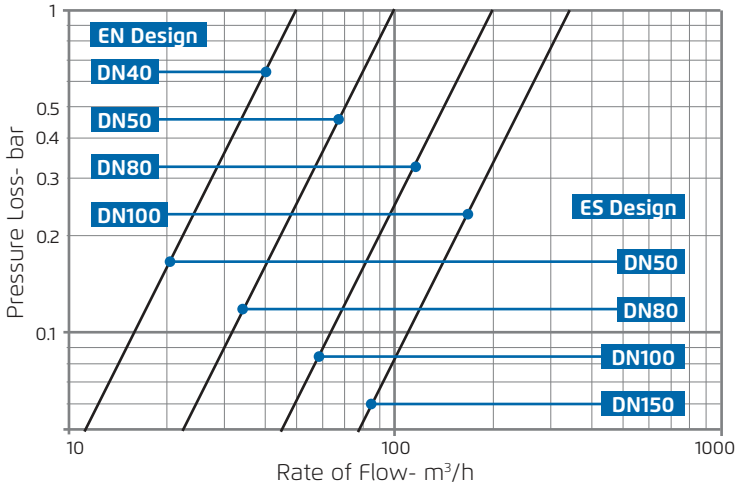


Dimensions and Weights - Y Pattern

Nominal Diameter		inch	EN - High Flow Capacity 1½"	2"	3"	ES - Normal Flow Capacity 2"	3"	4"
		mm	40	50	80	50	80	100
Threaded	L	mm	200	230	298	230	298	-
	W	mm	97	135	168	97	135	-
	h	mm	40	43	60	40	55	-
	H	mm	172	169	243	172	181	-
	Weight	kg	1.2	1.6	3.3	1.3	1.8	-
Grooved	OD	mm	-	60.3	88.9	60.3	88.9	114.3
	L	mm	-	284	384	284	384	384
	W	mm	-	135	168	97	135	168
	h	mm	-	43	62	40	62	62
	H	mm	-	169	245	172	188	245
	Weight	kg	-	1.7	3.4	1.4	1.9	4.1
Flanged	L	mm	-	-	310	-	308	350
	W	mm	-	-	200	-	200	224
	h	mm	-	-	100	-	100	112
	H	mm	-	-	282	-	226	294
	Weight	kg	-	-	4.7	-	4.6	7.8
M - Maintenance space		mm	80	100	145	80	100	145
Control Chamber Volume		liters	0.12	0.15	0.62	0.12	0.15	0.62
Pressure Rating		PN	16	16	16	16	16	16
Kv		m³/h/bar	50	100	200	50	100	200
K		-	1.6	1.0	1.6	3.9	6.4	3.9



Flow Chart



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

Q=Flow rate (m³/h)

ΔP=Differential pressure (bar)

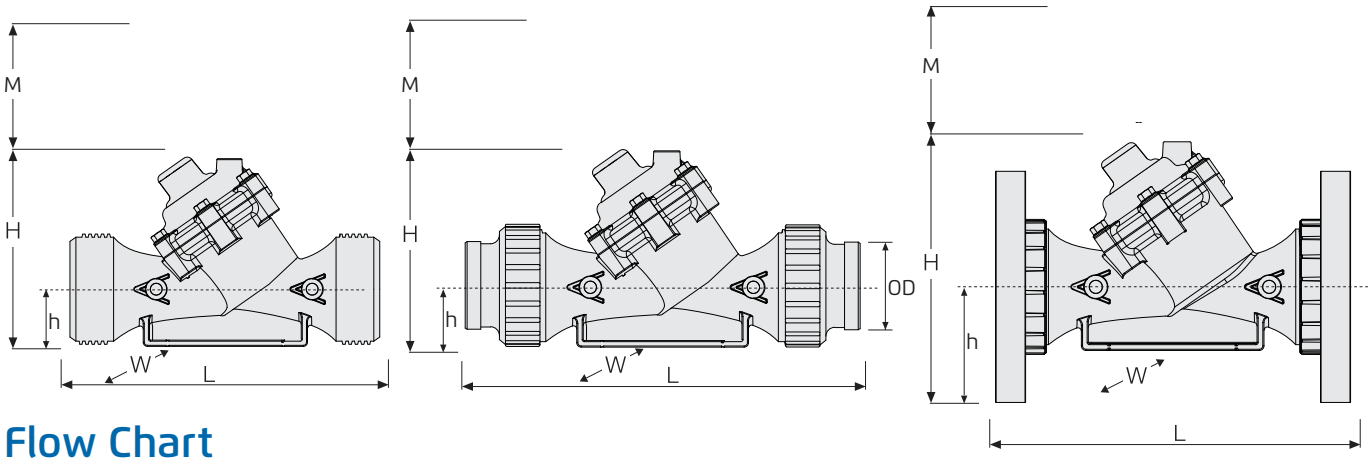
$$\Delta P=\left(\frac{Q}{Kv}\right)^2$$

$$Q=Kv*\sqrt{\Delta P}$$

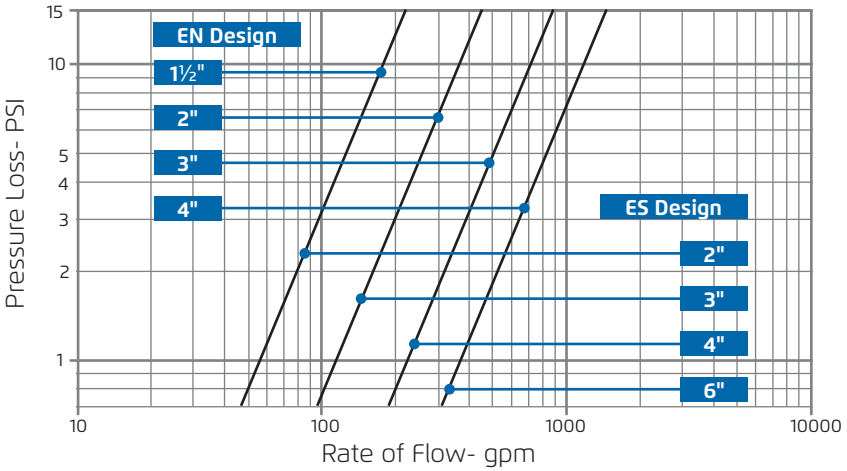
$$Kv=\frac{Q}{\sqrt{\Delta P}}$$

Dimensions and Weights - Y Pattern

Nominal Diameter		inch	EN - High Flow Capacity 1½"	2"	3"	ES - Normal Flow Capacity 2"	3"	4"
		mm	40	50	80	50	80	100
Threaded	L	inch	7.87	9.06	11.73	9.06	11.73	-
	W	inch	3.82	5.31	6.61	3.82	5.31	-
	h	inch	1.57	1.69	2.36	1.57	2.17	-
	H	inch	6.77	6.65	9.57	6.77	7.13	-
	Weight	lbs	2.6	3.6	7.3	2.9	3.9	-
Grooved	OD	inch	-	2.37	3.50	2.37	3.50	4.50
	L	inch	-	11.18	15.12	11.18	15.12	15.12
	W	inch	-	5.31	6.61	3.82	5.31	6.61
	h	inch	-	1.69	2.44	1.57	2.44	2.44
	H	inch	-	6.65	9.65	6.77	7.40	9.65
	Weight	lbs	-	3.8	7.5	3.1	4.1	9.0
Flanged	L	inch	-	-	12.13	-	12.13	13.78
	W	inch	-	-	7.87	-	7.87	8.82
	h	inch	-	-	3.94	-	3.94	4.41
	H	inch	-	-	11.10	-	8.90	11.57
	Weight	lbs	-	-	8.4	-	10.0	17.2
M - Maintenance space		inch	3.15	3.94	5.71	3.15	3.94	5.71
Control Chamber Volume		gallons	0.026	0.033	0.136	0.026	0.033	0.136
Pressure Rating		psi	250	250	250	250	250	250
Cv		gpm/psi	58	116	231	58	116	231
K		-	1.6	1.0	1.6	3.9	6.4	3.9



Flow Chart



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

Q=Flow rate (gpm)

ΔP=Differential pressure (psi)

$$\Delta P=\left(\frac{Q}{Cv}\right)^2$$

$$Q=Cv*\sqrt{\Delta P}$$

$$Cv=\frac{Q}{\sqrt{\Delta P}}$$