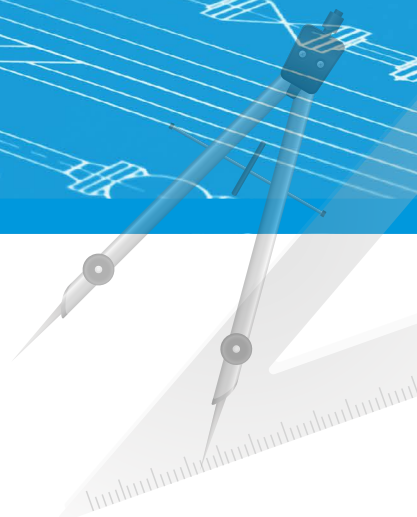


1000 COMPOSITE SERIES

ENGINEERING DATA



Main Benefits

Advanced Composite Polymer Material

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

Unitized Plug 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.



The product complies with the NSF/ ANSI 61 Std. – Valves for Water Supply and NSF 372 low lead



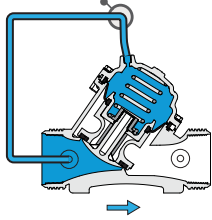
The product complies with the Water Regulation Advisory Scheme of UK and BS 6920



ISO 9001-2015 Certified Quality Assurance System

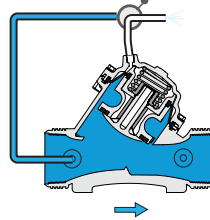
Principle of Operation

On-Off Modes



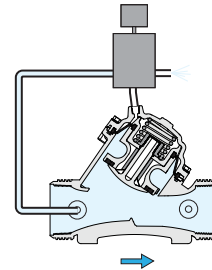
Closed Position

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

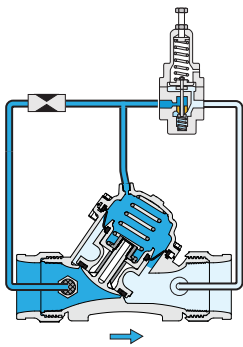
Discharging the pressure in the control chamber to atmosphere or some other lower pressure zone causes the line pressure acting on the plug to move the valve to the open position.



Solenoid Control

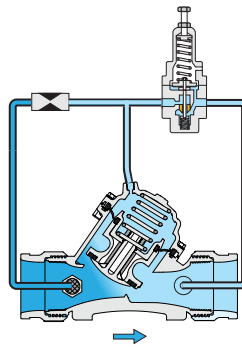
Line pressure can be applied or discharge from the valve control chamber by controlling the position of the solenoid, allowing to control the valve position remotely.

2-Way Modulating Mode - Pressure Reducing



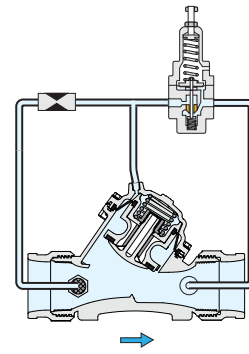
Closed Position

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

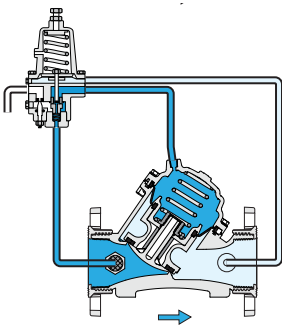
The pilot valve senses line pressure changes and opens or closes accordingly. It controls the accumulated pressure in the valve control chamber, causing main valve to modulate to an intermediate position and maintain the preset pressure value.



Open Position

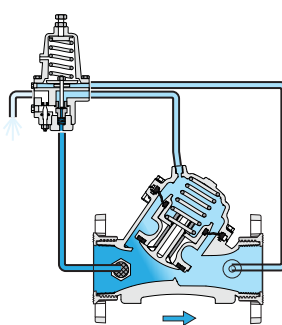
The open pilot valve releases line pressure from the upper control chamber. The line pressure acting on both the diaphragm and the plug moves the valve to the open position.

3-Way Modulating Mode - Pressure Reducing



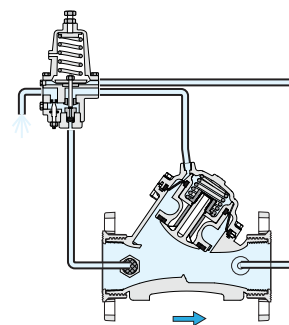
Closed Position

The pilot responds to high downstream pressure and introduces upstream pressure to the upper control chamber. The valve plug moves 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: 250 psi / PN16

Valve Pattern: Y (Oblique)

Temperature: for Cold Water Applications

End Connections:

Threaded: Female BSPT (Rc-7) or NPT

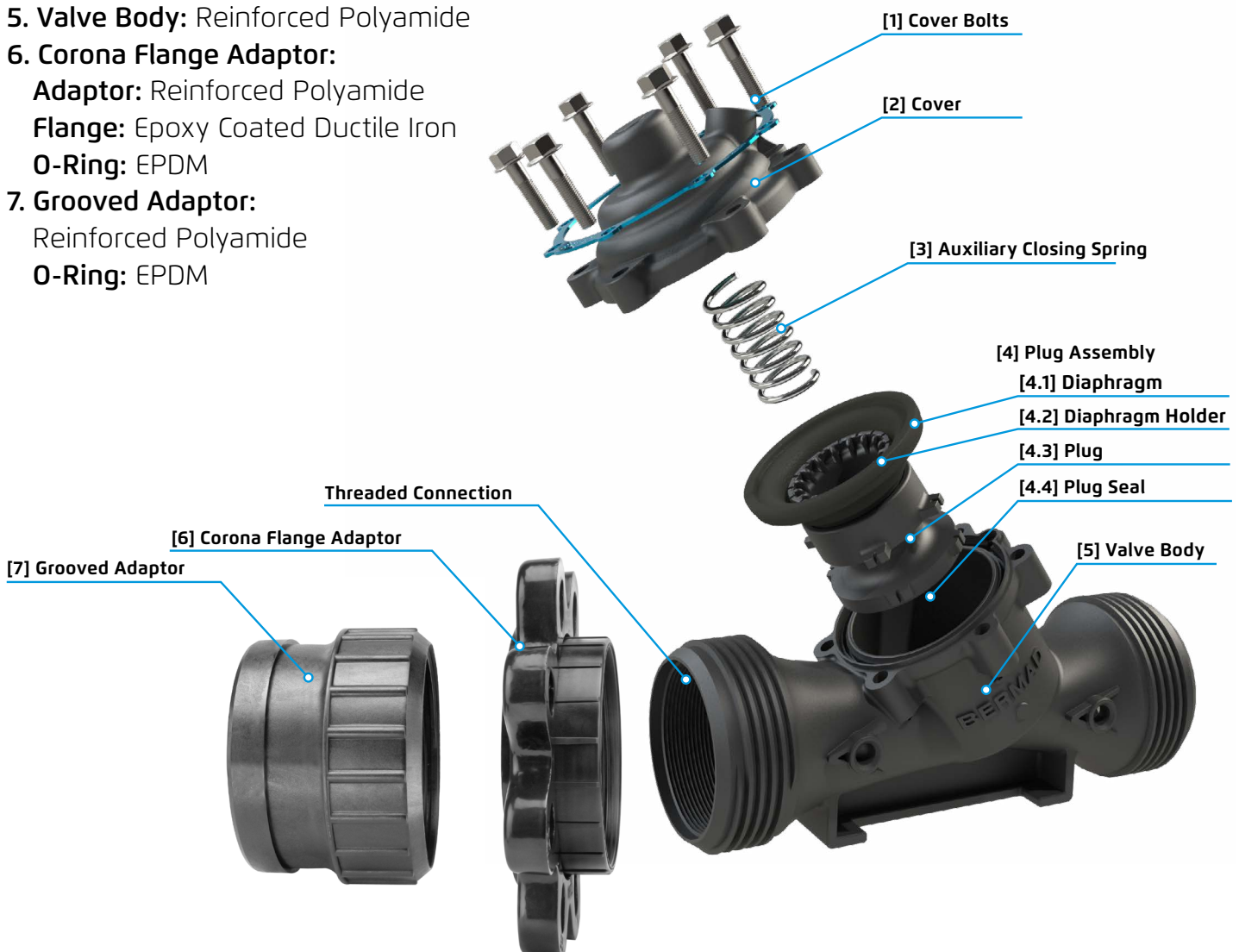
Grooved: According to ISO-6182-12

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:**

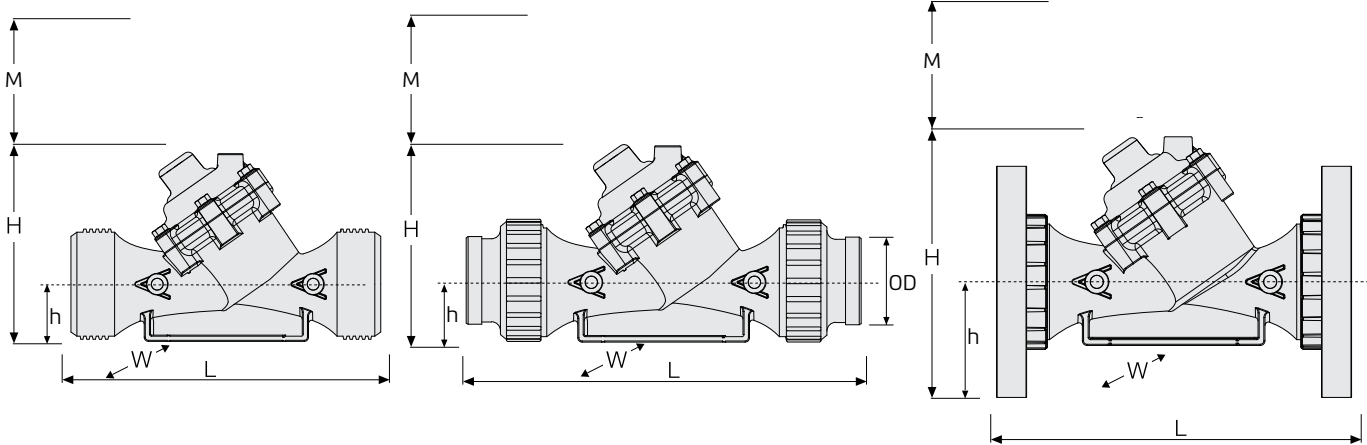
Adaptor: Reinforced Polyamide
Flange: Epoxy Coated Ductile Iron
O-Ring: EPDM
7. **Grooved Adaptor:** Reinforced Polyamide
O-Ring: EPDM



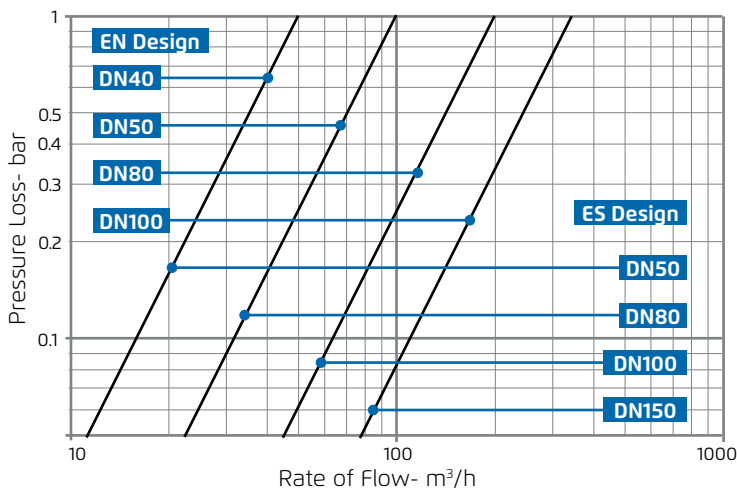


Dimensions and Weights - Y Pattern

Nominal Diameter		EN - High Flow Capacity						ES - Normal Flow Capacity			
		inch	1½"	2"	3"	4"	2"	3"	4"	6"	
		mm	40	50	80	100	50	80	100	150	
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	114.3	60.3	88.9	114.3	-	
	L	mm	-	284	384	400	284	384	384	-	
	W	mm	-	135	168	226	97	135	168	-	
	h	mm	-	43	62	84	40	62	62	-	
	H	mm	-	169	245	313	172	188	245	-	
	Weight	kg	-	1.7	3.4	9.5	1.4	1.9	4.1	-	
Flanged	L	mm	-	-	310	442	-	308	350	470	
	W	mm	-	-	200	226	-	200	224	287	
	h	mm	-	-	100	112	-	100	112	149	
	H	mm	-	-	282	340	-	226	294	377	
	Weight	kg	-	-	6.1	7.7	-	4.6	7.8	18.2	
M - Maintenance space	mm	80	100	145	195	80	100	145	195		
Control Chamber Volume	liters	0.12	0.15	0.62	1.15	0.12	0.15	0.62	1.15		
Pressure Rating	PN	16	16	16	16	16	16	16	16		
Kv	m³/h/bar	50	100	200	340	50	100	200	340		
K	-	1.6	1.0	1.6	1.4	3.9	6.4	3.9	6.9		



Flow Chart



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

Q=Flow rate (m³/h)

ΔP=Differential pressure (bar)

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

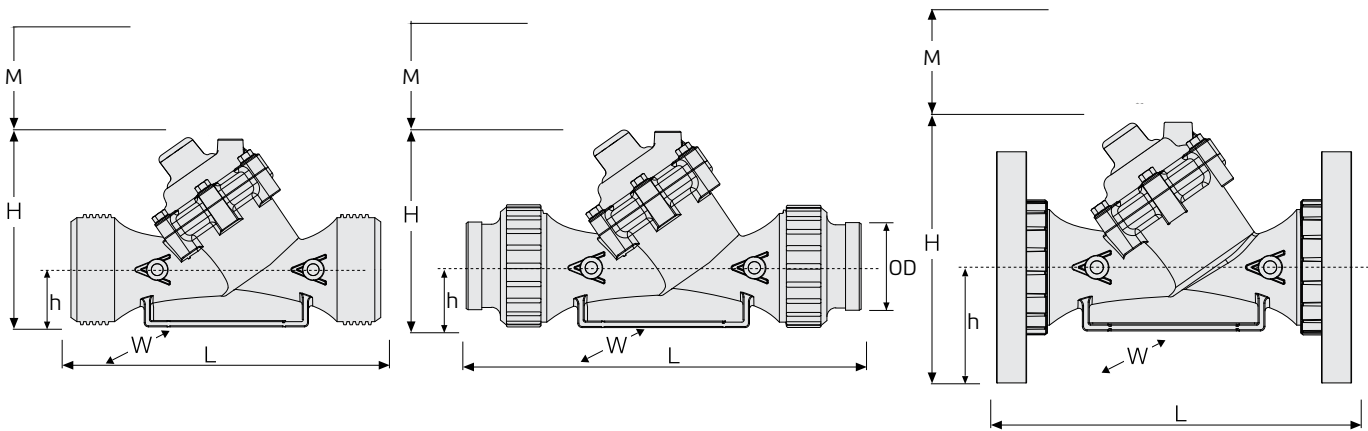
$$Q = Kv \cdot \sqrt{\Delta P}$$

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

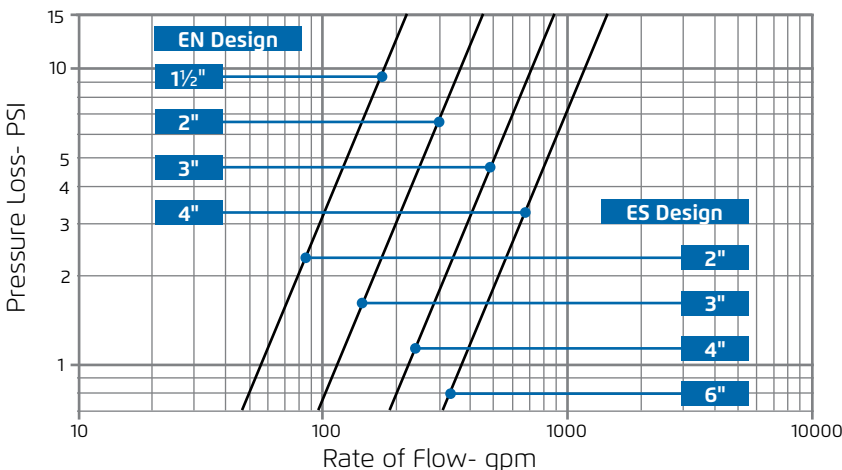


Dimensions and Weights - Y Pattern

Nominal Diameter		EN - High Flow Capacity					ES - Normal Flow Capacity			
		inch	1½"	2"	3"	4"	2"	3"	4"	6"
		mm	40	50	80	100	50	80	100	150
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	4.50	2.37	3.50	4.50	-
	L	inch	-	11.18	15.12	15.75	11.18	15.12	15.12	-
	W	inch	-	5.31	6.61	8.90	3.82	5.31	6.61	-
	h	inch	-	1.69	2.44	3.31	1.57	2.44	2.44	-
	H	inch	-	6.65	9.65	12.32	6.77	7.40	9.65	-
	Weight	lbs	-	3.8	7.5	20.9	3.1	4.1	9.0	-
Flanged	L	inch	-	-	12.13	17.40	-	12.13	13.78	18.50
	W	inch	-	-	7.87	8.90	-	7.87	8.82	11.30
	h	inch	-	-	3.94	4.41	-	3.94	4.41	5.87
	H	inch	-	-	11.10	13.39	-	8.90	11.57	14.84
	Weight	lbs	-	-	13.5	17.0	-	10.0	17.2	40.1
M - Maintenance space	inch		3.15	3.94	5.71	13.5	3.15	3.94	5.71	13.5
Control Chamber Volume	gallons		0.026	0.033	0.136	0.253	0.026	0.033	0.136	0.253
Pressure Rating	psi		250	250	250	250	250	250	250	250
Cv	gpm/psi		58	116	231	393	58	116	231	393
K	-		1.6	1.0	1.6	1.4	3.9	6.4	3.9	6.9



Flow Chart



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

Q=Flow rate (gpm)

ΔP=Differential pressure (psi)

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

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

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