

### NOTES:

Dimensions and weights tables refer to basic valves.

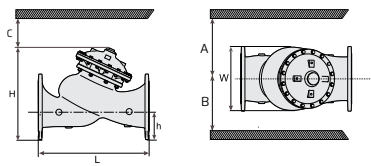
Envelope dimensions vary according to valve model.

Control loop and control accessories adds approximately 2.5 kg to the weight of a basic valve.

## SI Metric

### Flanged

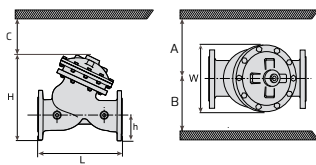
#### 700-ES Y Pattern



DN	40	50	65	80	100	125	150	200	250	300	400	500	600	
PN 10 ; 16 ; 25	L	230	230	290	310	350	400	480	600	730	850	1,100	1,250	1,450
	W	150	165	185	200	235	270	300	360	425	530	626	838	845
	h	80	90	100	105	125	142	155	190	220	250	320	385	435
	H	240	250	250	260	320	375	420	510	605	725	895	1,185	1,235
	Weight (Kg)	10	10.8	13.2	15	26	40	55	95	148	255	436	1,062	1,173

C = Half of H      A, B = Twice of W

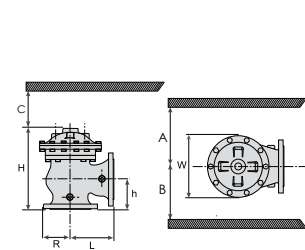
#### 700-EN Y Pattern



DN	50	80	100	150	200	250	300	
PN 10 ; 16 ; 25	L	230	310	350	480	600	730	850
	W	165	200	235	320	390	480	550
	h	82.5	100	118	150	180	213	243
	H	244	305	369	500	592	733	841
	Weight (Kg)	9.7	21	31	70	115	198	337

C = Half of H      A, B = Twice of W

#### 700 Angle Pattern

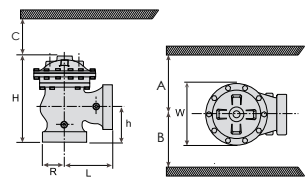


DN	40	50	65	80	100	150	200	250	300	350	400	450	
PN 10 ; 16	L	124	124	149	152	190	225	265	320	396	400	450	450
	W	155	155	178	200	222	320	390	480	550	550	740	740
	R	78	83	95	100	115	143	172	204	248	264	299	320
	h	85	85	109	102	127	152	203	219	273	279	369	370
	H	227	227	251	281	342	441	545	633	777	781	1,082	1,082
	Weight (Kg)	9.5	10	12	21.5	35	71	118	205	350	370	800	820
PN 25	L	124	124	149	159	200	234	277	336	415	419	467	467
	W	165	165	185	207	250	320	390	480	550	550	740	740
	R	78	85	95	105	127	159	191	223	261	293	325	358
	h	85	85	109	109	135	165	216	236	294	299	386	386
	H	227	227	251	287	350	454	558	649	796	801	1,099	1,099
	Weight (Kg)	11	11.5	13.5	23	41	81	138	233	390	425	855	870

C = Half of H      A, B = Twice of W

### Threaded

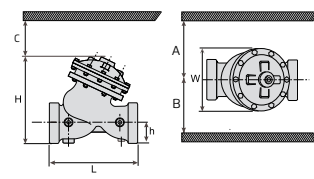
#### 700 Angle Pattern



DN	50	65	80	
BSP ; NPT	L	121	140	159
	W	122	122	163
	R	40	48	55
	h	83	102	115
	H	225	242	294
	Weight (Kg)	5.5	7	15

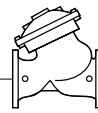
C = Half of H      A, B = Twice of W

#### 700 Y Pattern



DN	40	50	65	80	
BSP ; NPT	L	155	155	212	250
	W	122	122	122	163
	h	40	40	48	56
	H	201	202	209	264
	Weight (Kg)	5.5	5.5	8	17

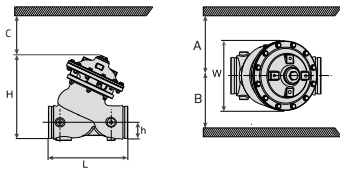
C = Half of H      A, B = Twice of W



SI Metric

## Grooved

### 700 Y Pattern

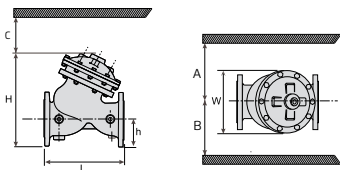


DN	40	50	65	80	100	150	200
L	205	210	215	250	320	415	500
W	122	122	122	153	200	285	390
h	33	33	39.5	60	74	95	125
H	194	200	201	265	325	441	535
Weight (Kg)	6	6.2	6.5	17	29	58	102

C = Half of H      A, B = Twice of W

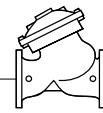
## Flanged

### 700 Y Pattern



DN		40	50	65	80	100	150	200	250	300	350	400	450	500	600
PN 10 ; 16	L (mm)	205	210	222	250	320	415	500	605	725	733	990	1,000	1,100	1,450
	W (mm)	155	165	178	200	223	320	390	480	550	550	740	740	740	845
	h (mm)	78	83	95	100	115	143	172	204	242	268	300	319	358	470
	H (mm)	239	244	457	305	366	492	584	724	840	866	1,108	1,127	1,167	1,279
	Weight (Kg)	9.1	10.6	43	22	37	75	125	217	370	381	846	945	962	1,290
PN 25	L (mm)	205	210	22	264	355	433	524	637	762	767	1,024	1,030	1,136	1,500
	W (mm)	155	165	185	207	250	320	390	480	550	570	740	740	750	845
	h (mm)	78	83	95	105	127	159	191	223	261	295	325	357	389	470
	H (mm)	239	244	257	214	278	508	602	742	859	893	1,133	1,165	1,197	1,279
	Weight (Kg)	10	12.2	15	25	43	85	146	245	410	434	900	967	986	1,492

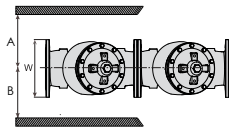
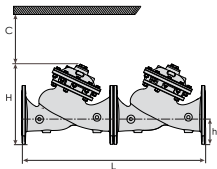
C = Half of H      A, B = Twice of W



**SI** Metric

### Flanged

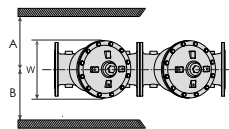
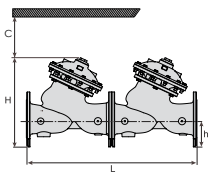
#### 72S-ES



DN	40	50	65	80	100	150	200	250	300
L	460	460	580	620	700	960	1,200	1,460	1,700
W	150	165	185	200	235	300	360	425	530
h	80	90	100	105	125	155	190	220	250
H	240	250	250	260	320	420	510	605	725
Weight (Kg)	20	22	26	30	52	110	190	296	510

C = Half of H      A, B = Twice of W

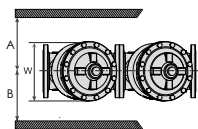
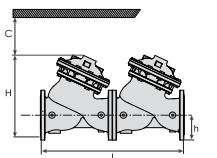
#### 72S-EN



DN	40	50	65	80	100	150	200	250	300
L		460		620	700	960	1,200	1,460	1,700
W		165		200	235	320	390	480	550
h		82		100	118	150	180	213	243
H		244		305	369	500	592	733	841
Weight (Kg)		19		42	62	140	230	396	674

C = Half of H      A, B = Twice of W

#### 72S

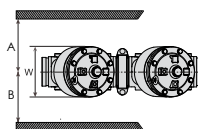
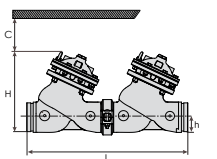


DN	40	50	65	80	100	150	200	250	300
L	410	420	444	500	640	830	1,000	1,210	1,450
W	155	165	178	200	223	320	390	480	550
h	78	83	95	100	115	143	172	204	242
H	239	244	257	305	366	492	584	724	840
Weight (Kg)	18	21	26	44	74	150	250	434	740

C = Half of H      A, B = Twice of W

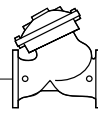
### Grooved

#### 72S



DN	40	50	65	80	100	150	200
L	412	423	433	503	643	833	1003
W	122	122	122	153	200	285	390
h	33	33	39.5	60	74	95	125
H	194	200	201	265	325	441	535
Weight (Kg)	12	12.4	13	34	58	116	204

C = Half of H      A, B = Twice of W



SI Metric

		DN	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
700 Y-Pattern Flat Disc		Kv	42	50	55	115	200	N/A	460	815	1,250	1,850	1,990	3,310	3,430	3,550	3,550
		K	2.3	3.9	9.2	4.9	3.9	N/A	3.7	3.8	3.9	3.7	5.9	3.7	5.5	7.8	7.8
		Leq - m	4.3	10.3	33.4	21.6	23	N/A	37.5	53.9	70	85.6	159.9	112.7	204.8	323.8	323.8
700 Y-Pattern V-Port		Kv	36	43	47	98	170	N/A	391	693	1,063	1,573	1,692	2,814	2,916	3,018	3,018
		K	3.1	5.4	12.8	6.7	5.4	N/A	5.2	5.2	5.4	5.1	8.2	5.1	7.6	10.8	10.8
		Leq - m	6	14.3	46.2	29.9	31.9	N/A	51.9	74.6	96.8	118.4	221.3	155.9	283.5	448.1	448.1
700-ES Y-Pattern Flat Disc		Kv	54	57	60	65	145	215	395	610	905	1,520	N/A	2,250	N/A	4,070	4,275
		K	1.4	3.0	7.8	15.2	7.5	8.3	5.1	6.7	7.5	5.5	N/A	7.9	N/A	5.9	
		Leq - m	2.8	7.5	25.3	60.8	37.3	51.7	38.1	96.3	138.4	126.8	N/A	253.6	N/A	246.3	
700-ES Y-Pattern V-Port		Kv	46	48	51	55	123	183	336	519	769	1,292	N/A	2,027	N/A	3,460	3,634
		K	1.9	4.3	10.8	21.2	10.4	11.4	7.0	9.3	10.4	7.6	N/A	9.8	N/A	8.2	
		Leq - m	3.8	10.6	34.9	84.9	51.8	71.4	52.7	133.0	191.7	175.5	N/A	312.4	N/A	340.8	
700 Angle Flat Disc		Kv	46	55	61	127	220	N/A	506	897	1,375	2,035	2,189	3,641	3,773	N/A	N/A
		K	1.9	3.2	7.6	4	3.2	N/A	3.1	3.1	3.2	3.1	4.9	3	4.5	N/A	N/A
		Leq - m	3.6	8.5	27.6	17.8	19	N/A	31	44.6	57.8	70.7	132.1	93.1	169.3	N/A	N/A
700 Angle V-Port		Kv	39	47	51	108	187	N/A	430	762	1,169	1,730	1,861	3,095	3,207	N/A	N/A
		K	2.6	4.5	10.6	5.6	4.5	N/A	4.3	4.3	4.5	4.2	6.8	4.2	6.2	N/A	N/A
		Leq - m	5	11.8	38.2	24.7	26.4	N/A	42.9	61.7	80	97.9	182.9	128.9	234.3	N/A	N/A

## Differential Pressure Calculation

Valve flow coefficient, Kv or Cv

$$Kv(Cv) = Q \sqrt{\frac{Gf}{\Delta P}}$$

Where:

Kv = Valve flow coefficient (flow in m<sup>3</sup>/h at 1bar ΔP)

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

(Cv = 1.155 Kv)

Q = Flow rate (m<sup>3</sup>/h ; gpm)

ΔP = Differential pressure (bar ; psi)

Gf = Liquid specific gravity (Water = 1.0)

Practical formulas for water:

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

Flow resistance or Head loss coefficient,

$$K = \Delta H \frac{2g}{V^2}$$

Where:

K = Flow resistance or Head loss coefficient (dimensionless)

ΔH = Head loss (m ; feet)

V = Nominal size flow velocity (m/sec ; feet/sec.)

g = Acceleration of gravity (9.81 m/sec<sup>2</sup> ; 32.18 feet/sec<sup>2</sup>)

Practical formula:

$$\Delta H = K \frac{V^2}{2g}$$

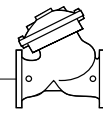
## Equivalent Pipe Length - Leq

In order to simplify system head loss calculation, add the Leq value to the pipe length of the relevant size

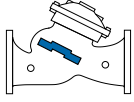
Note:

The Leq values given are for general consideration only.

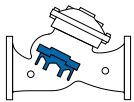
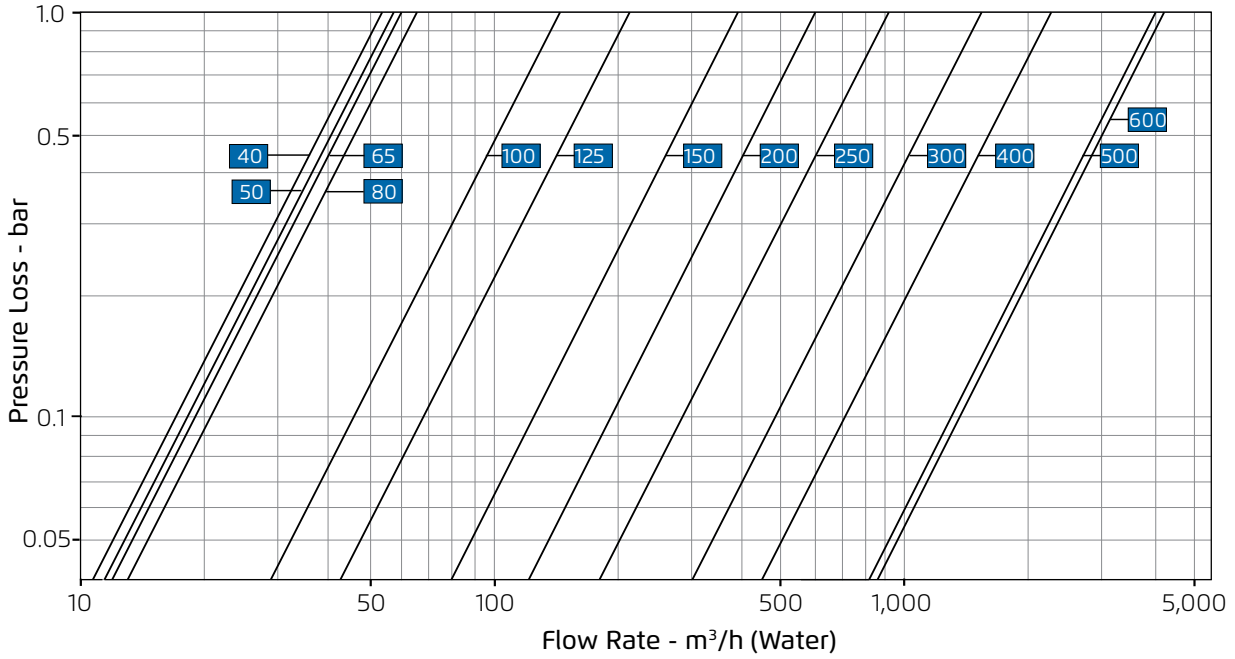
Actual Leq may vary somewhat with each of the valve sizes.



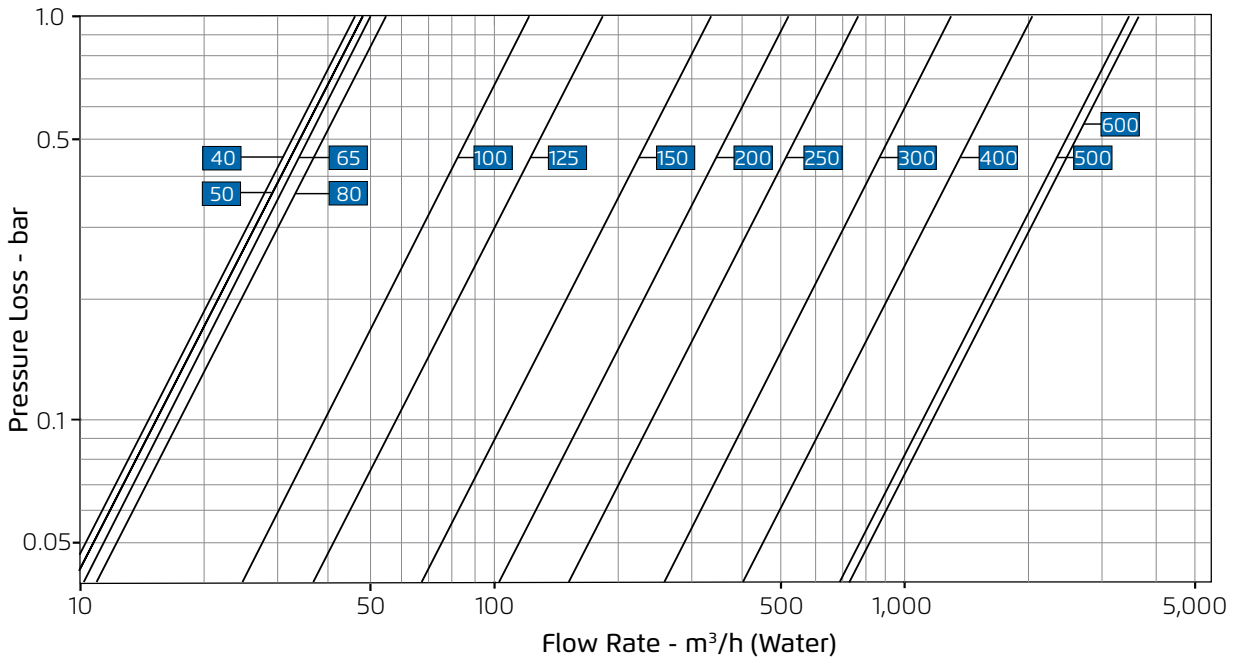
**SI** Metric

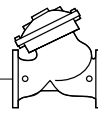


**700-ES "Y" Pattern, Flat Disc**

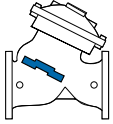


**700-ES "Y" Pattern, Throttling Plug (V-Port)**

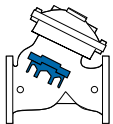
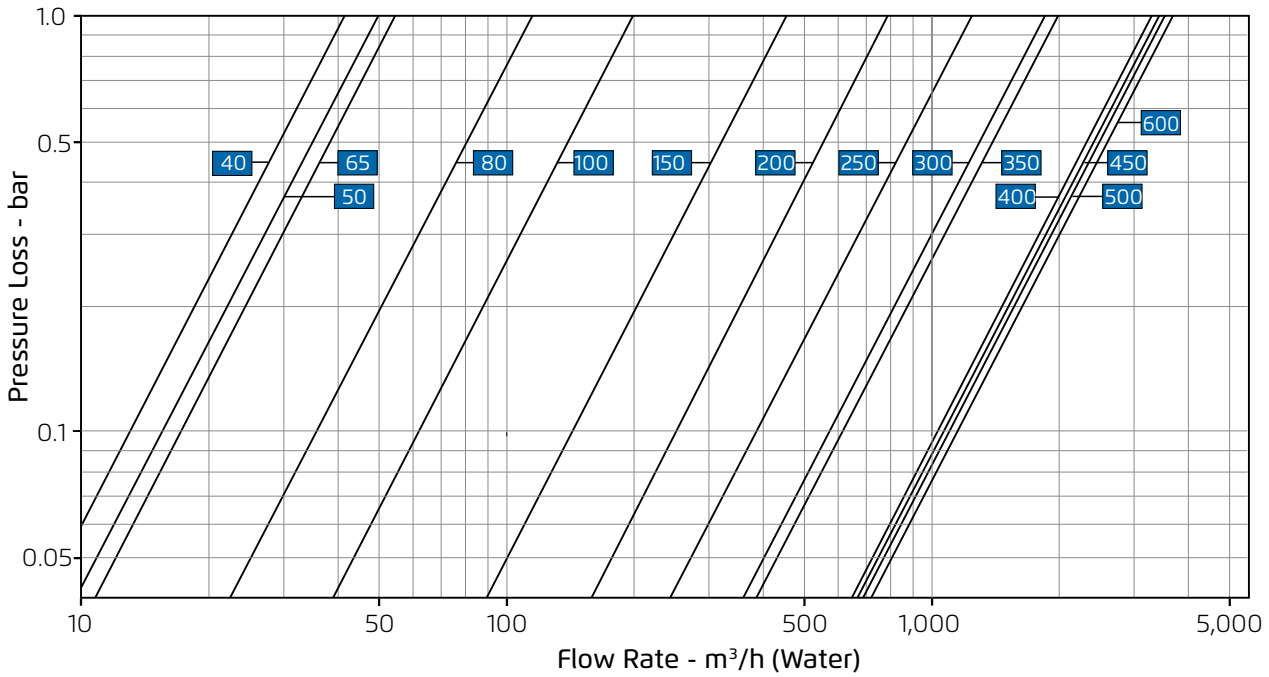




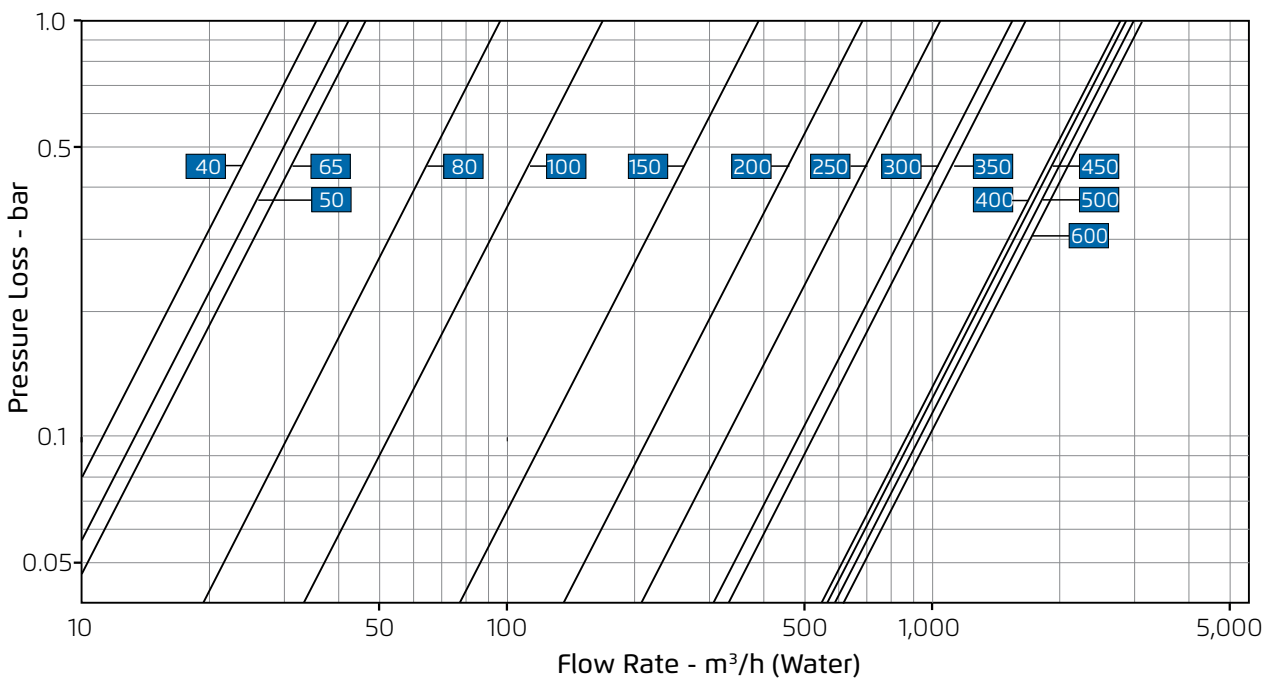
SI Metric

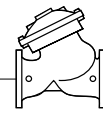


700 Y Pattern, Flat Disc

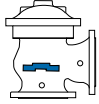


700 Y Pattern, Throttling Plug (V-Port)

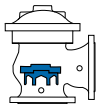
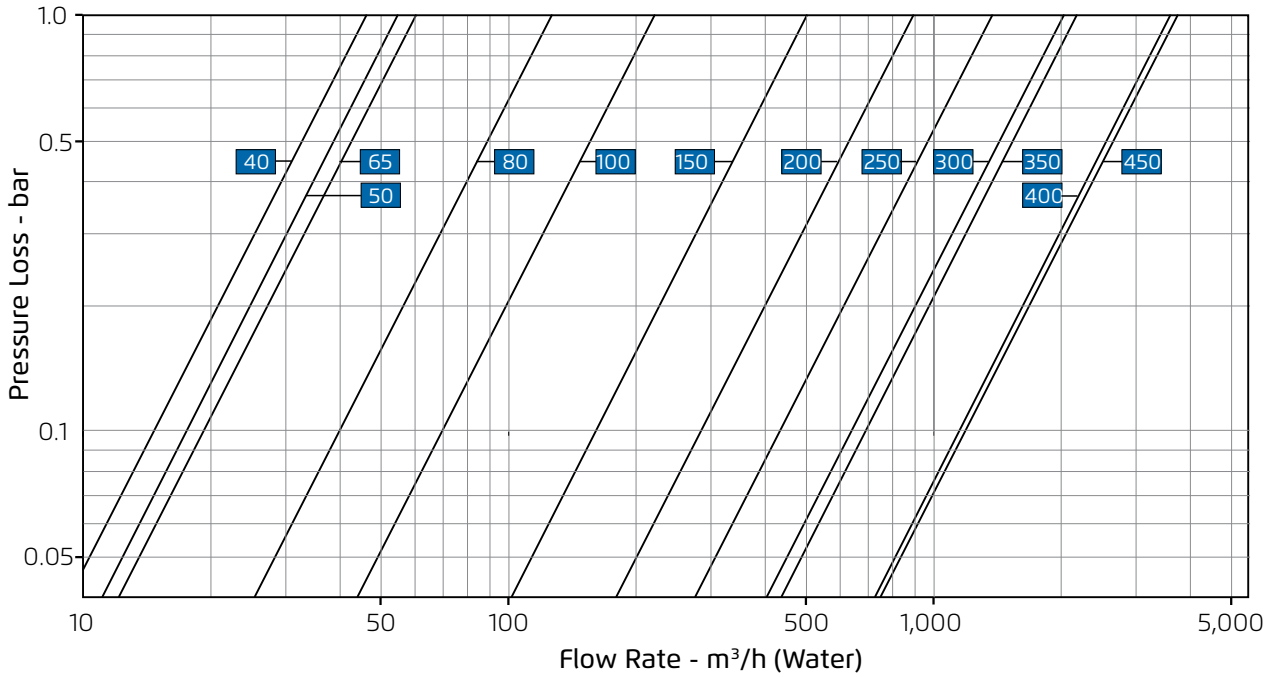




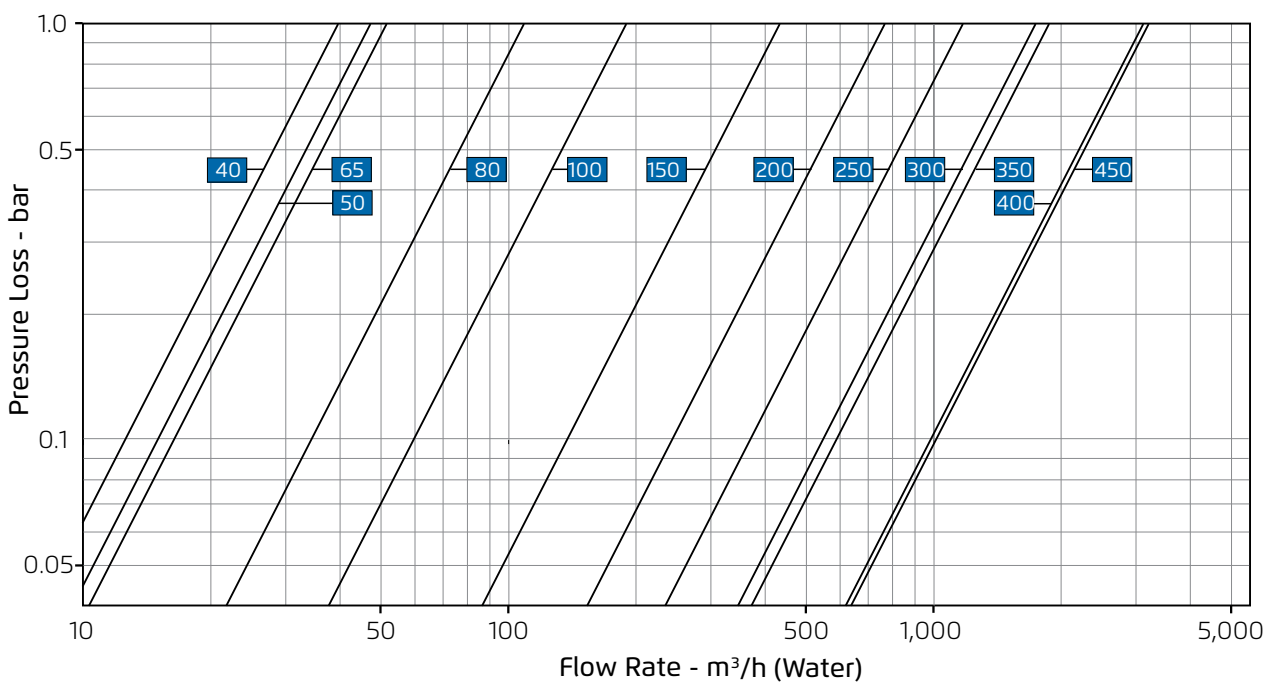
**SI** Metric

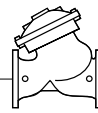


## 700 Angle Pattern, Flat Disc



## 700 Angle Pattern, Throttling Plug (V-Port)





**US**

US/Imperial

**Notes:**

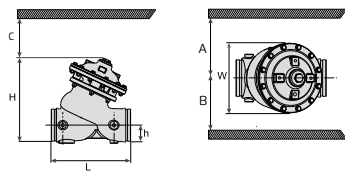
Dimensions and weights tables refer to basic valves.

Envelope dimensions vary according to valve model.

Control loop and control accessories adds approximately 5 lb to the weight of a basic valve.

### Grooved

#### 700 Y Pattern

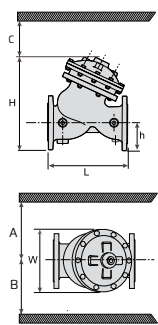


	inch	1½"	2"	2½"	3"	4"	6"	8"
L		8.07	8.07	8.46	9.84	12.60	16.34	19.69
W		4.80	4.80	4.80	6.02	7.87	11.22	15.35
h		1.30	1.30	1.56	2.36	2.91	3.74	4.92
H		7.64	7.87	7.91	10.43	12.80	17.36	21.06
Weight (lb)		13	14	14	37	64	128	225

C = Half of H      A, B = Twice of W

### Flanged

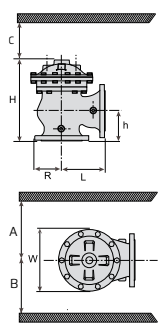
#### 700 Y Pattern



		inch	1½"	2"	2½"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
ANSI 150	L	8.08	8.27	8.75	9.85	12.61	16.35	19.70	23.84	28.57	28.88	39.01	39.40	43.34	57.13	
	W	6.11	6.50	7.01	7.88	8.79	12.61	15.37	18.91	21.67	29.16	29.16	29.16	29.16	33.29	
	h	3.07	3.27	3.74	3.94	4.53	5.63	6.78	8.04	9.53	10.56	11.82	12.57	13.91	18.52	
	H	9.42	9.61	18.01	12.02	14.42	19.38	23.01	28.53	33.10	34.12	43.66	44.40	45.98	50.39	
	Weight (lb)	20	23	29	49	82	165	276	478	816	840	1,865	2,083	2,121	2,844	
ANSI 300	L	8.08	8.27	8.75	10.40	13.99	17.06	20.65	25.10	30.02	30.22	40.35	40.58	44.76	59.10	
	W	6.11	6.50	7.29	8.16	9.85	12.61	15.37	18.91	21.67	22.46	29.16	29.16	29.55	33.29	
	h	3.07	3.27	3.74	4.14	5.00	6.26	7.53	8.79	10.28	11.62	12.81	14.07	15.33	18.52	
	H	9.42	9.61	10.13	8.43	10.95	20.02	23.72	29.23	33.84	35.18	44.64	45.90	47.16	50.39	
	Weight (lb)	22	27	33	55	95	187	322	540	904	957	1,984	2,132	2,174	3,289	

C = Half of H      A, B = Twice of W

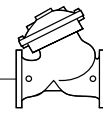
#### 700 Angle Pattern



		inch	1½"	2"	2½"	3"	4"	6"	8"	10"	12"	14"	16"	18"
ANSI 150	L	4.89	4.89	5.87	5.99	7.49	8.87	10.44	12.61	15.60	15.76	17.73	17.73	
	W	6.11	6.11	7.01	7.88	8.75	12.61	15.37	18.91	21.67	21.67	29.16	29.16	
	R	3.07	3.27	3.74	3.94	4.53	5.63	6.78	8.04	9.77	10.40	11.78	12.61	
	h	3.35	3.35	4.29	4.02	5.00	5.99	8.00	8.63	10.76	10.99	14.54	14.58	
	H	8.94	8.94	9.89	11.07	13.47	17.38	21.47	24.94	30.61	30.77	42.63	42.63	
Weight (lb)	21	22	27	44	77	157	260	452	772	816	1,764	1,808		
ANSI 300	L	4.89	4.89	5.87	6.26	7.88	9.22	10.91	13.24	16.35	16.51	18.40	18.40	
	W	6.50	6.50	7.29	8.16	9.85	12.61	15.37	18.91	21.67	21.67	29.16	29.16	
	R	3.07	3.35	3.74	4.14	5.00	6.26	7.53	8.79	10.28	11.54	12.81	14.11	
	h	3.35	3.35	4.29	4.29	5.32	6.50	8.51	9.30	11.58	11.78	15.21	15.21	
	H	8.94	8.94	9.89	11.31	13.79	17.89	21.99	25.57	31.36	31.56	43.30	43.30	
Weight (lb)	24	25	30	51	90	18	304	514	860	937	1,885	1,918		

C = Half of H      A, B = Twice of W

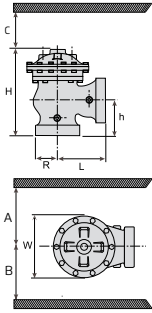




**US** US/Imperial

### Threaded

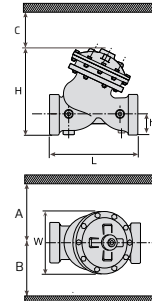
#### 700 Angle Pattern



	inch	2"	2½"	3"
BSP, NPT	L	4.77	5.52	6.26
	W	4.81	4.81	6.42
	R	1.58	1.89	2.17
	h	3.27	4.02	4.53
	H	8.87	9.53	11.58
	Weight (lb)	12	15	33

C = Half of H      A, B = Twice of W

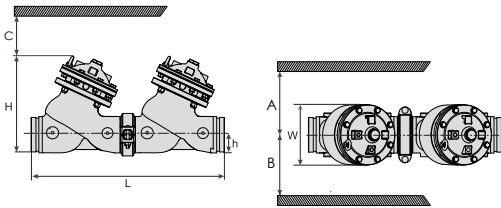
#### 700 Y Pattern



	inch	1½"	2"	2½"	3"
BSP, NPT	L	6.11	6.11	8.35	9.85
	W	4.81	4.81	4.81	6.42
	h	1.58	1.58	1.89	2.21
	H	7.92	7.96	8.23	10.40
	Weight (lb)	12	12	18	37

C = Half of H      A, B = Twice of W

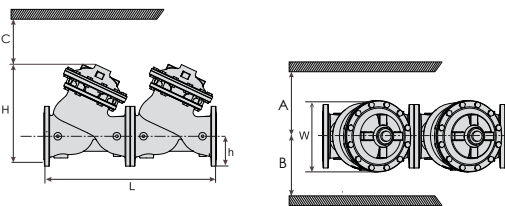
#### 725 Grooved



inch	1½	2	2½	3	4	6	8
L	16.20	16.66	17.05	19.81	25.32	32.80	39.50
W	4.80	4.80	4.80	6.02	7.87	11.22	15.35
h	1.30	1.30	1.56	2.36	2.91	3.74	4.92
H	7.64	7.87	7.91	10.43	12.80	17.36	21.06
Weight (lb)	26	27	29	75	128	256	450

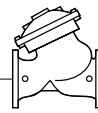
C = Half of H      A, B = Twice of W

#### 725 Flanged







inch	1½	2	2½	3	4	6	8	10	12
L	16.14	16.54	17.48	16.69	25.20	32.68	39.37	47.64	57.09
W	6.10	6.50	7.01	7.87	8.78	12.60	15.35	18.90	21.65
h	3.07	3.27	3.74	3.94	4.53	5.63	6.78	8.04	9.53
H	9.41	9.61	10.12	12.01	14.41	19.37	22.99	28.50	33.07
Weight (lb)	40	47	57	97	163	331	551	957	1,631

C = Half of H      A, B = Twice of W



**US** US/Imperial

		inch	1½"	2"	2½"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
700 Y-Pattern Flat Disc 	Cv	49	58	64	133	230	530	940	1,440	2,140	2,300	3,820	3,960	4,100	4,100	
	K	2.3	3.9	9.2	4.9	3.9	3.7	3.8	3.9	3.7	5.9	3.7	5.5	7.8	7.8	
	Leq-feet	14.2	33.8	109.5	70.8	75.6	123.0	176.9	229.5	280.8	524.5	369.6	671.9	1,062.3	1,062.3	
700 Y-Pattern V-Port 	Cv	41	49	54	113	200	450	800	1,230	1,820	1,950	3,250	3,370	3,490	3,490	
	K	3.1	5.4	12.8	6.7	5.4	5.2	5.2	5.4	5.1	8.2	5.1	7.6	10.8	10.8	
	Leq-feet	19.7	46.8	151.6	97.9	104.6	170.2	244.8	317.6	388.6	725.9	511.6	930.0	1,470.3	1,470.3	
700 Angle Pattern Flat Disc 	Cv	53	64	70	146	250	580	1,040	1,590	2,350	2,530	4,210	4,360	N/A	N/A	
	K	1.9	3.2	7.6	4.0	3.2	3.1	3.1	3.2	3.1	4.9	3.0	4.5	N/A	N/A	
	Leq-feet	11.7	28.0	90.5	58.5	62.5	101.6	146.2	189.7	232.0	433.4	305.5	555.3	N/A	N/A	
700 Angle Pattern V-Port 	Cv	45	54	59	124	220	500	880	1,350	2,000	2,150	3,580	3,710	N/A	N/A	
	K	2.6	4.5	10.6	5.6	4.5	4.3	4.3	4.5	4.2	6.8	4.2	6.2	N/A	N/A	
	Leq-feet	16.3	38.7	125.3	80.9	86.5	140.7	202.4	262.5	321.2	599.9	422.8	768.6	N/A	N/A	

## Differential Pressure Calculation

Valve flow coefficient, Kv or Cv  $Kv(Cv) = Q \sqrt{\frac{Gf}{\Delta P}}$   
 Where:

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

Cv = Valve flow coefficient (flow in gpm at 1psi ΔP)  
 (Cv = 1.155 Kv)

Q = Flow rate (m³/h ; gpm)

ΔP = Differential pressure (bar ; psi)

Gf = Liquid specific gravity (Water = 1.0)

Practical formulas for water:

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

Flow resistance or Head loss coefficient,  $K = \Delta H \frac{2g}{V^2}$   
 Where:

K = Flow resistance or Head loss coefficient (dimensionless)

ΔH = Head loss (m ; feet)

V = Nominal size flow velocity (m/sec ; feet/sec.)

g = Acceleration of gravity (9.81 m/sec² ; 32.18 feet/sec²)

Practical formula:

$$\Delta H = K \frac{V^2}{2g}$$

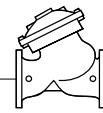
## Equivalent Pipe Length - Leq

In order to simplify system head loss calculation, add the Leq value to the pipe length of the relevant size

Note:

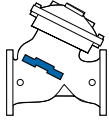
The Leq values given are for general consideration only.

Actual Leq may vary somewhat with each of the valve sizes.

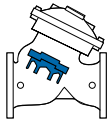
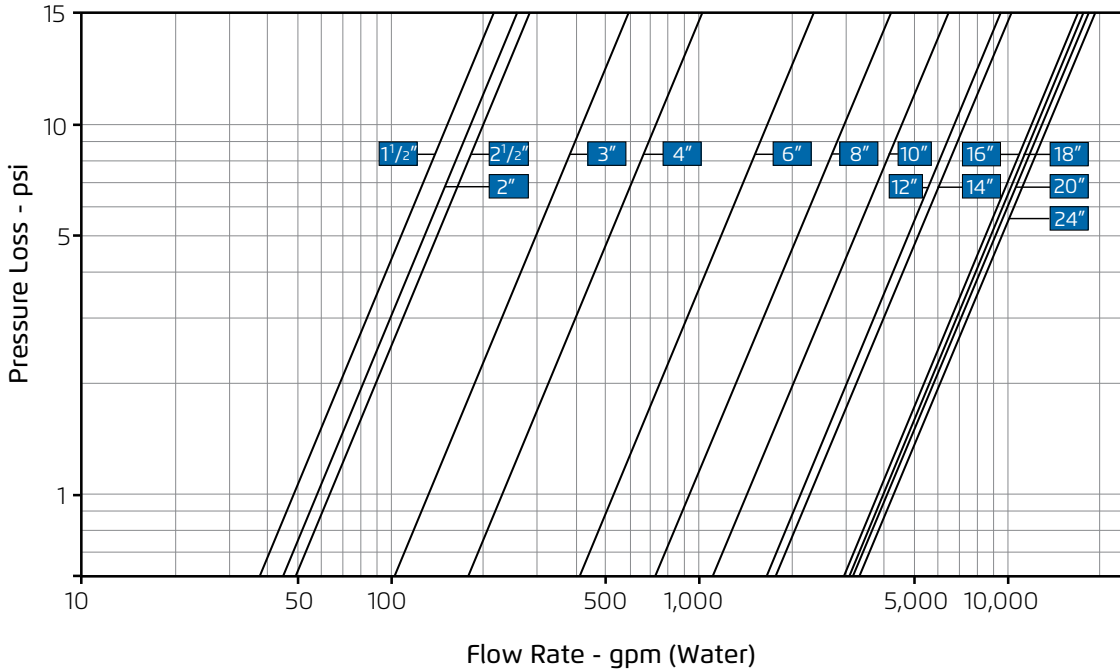


US

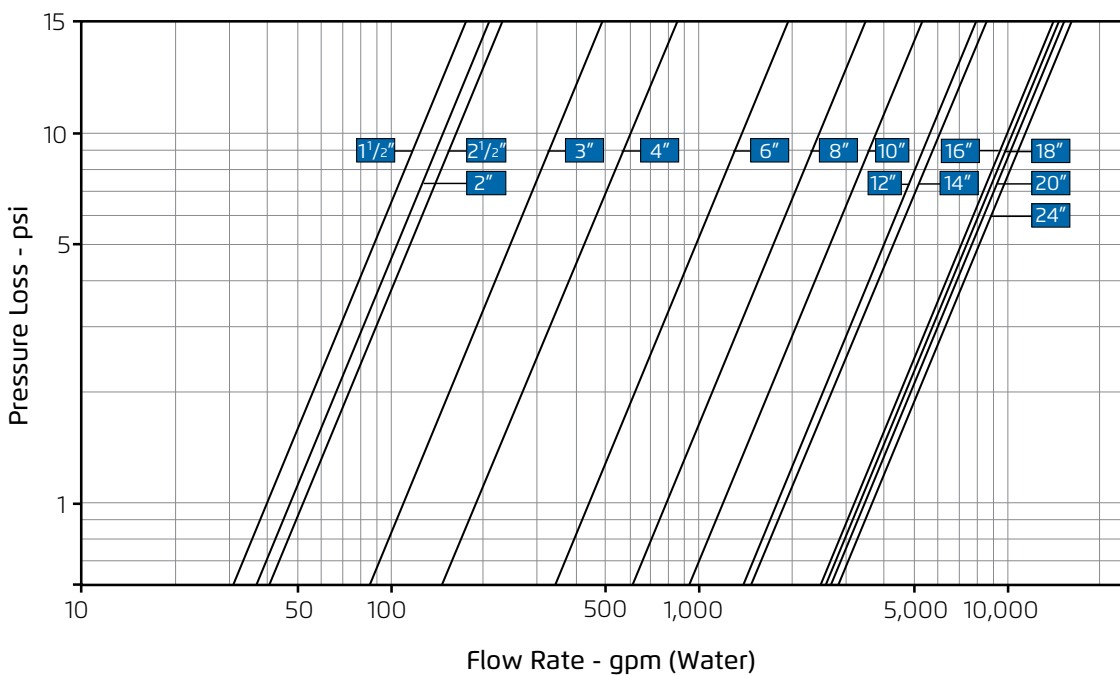
US/Imperial

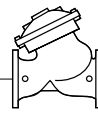


## 700 Y Pattern, Flat Disc

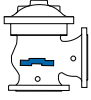


## 700 Y Pattern, Throttling Plug (V-Port)

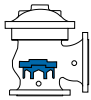
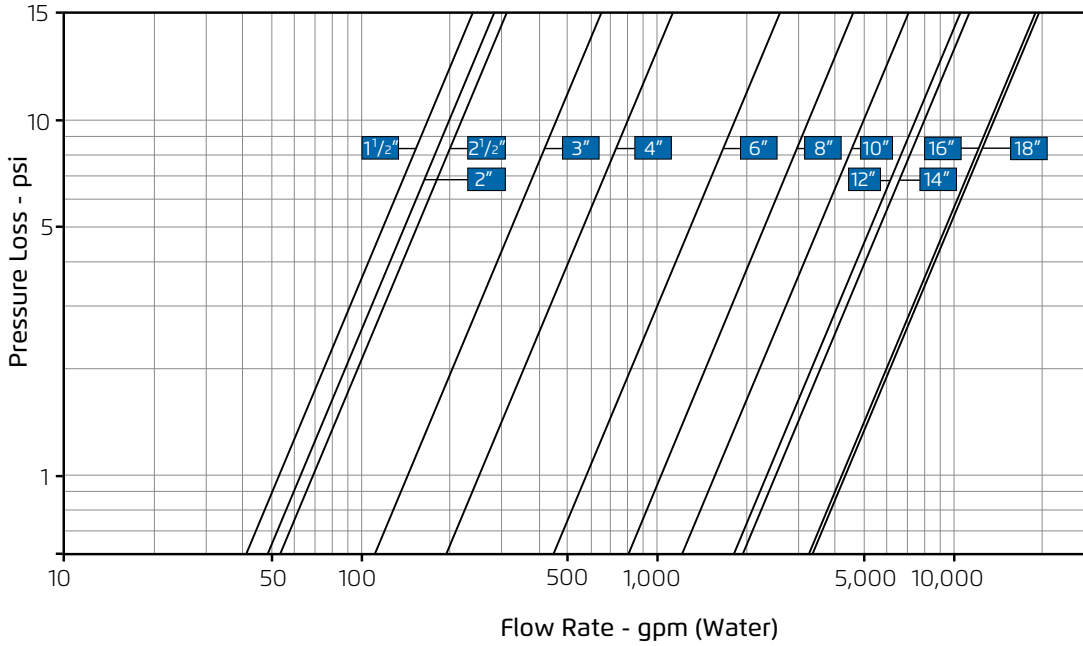




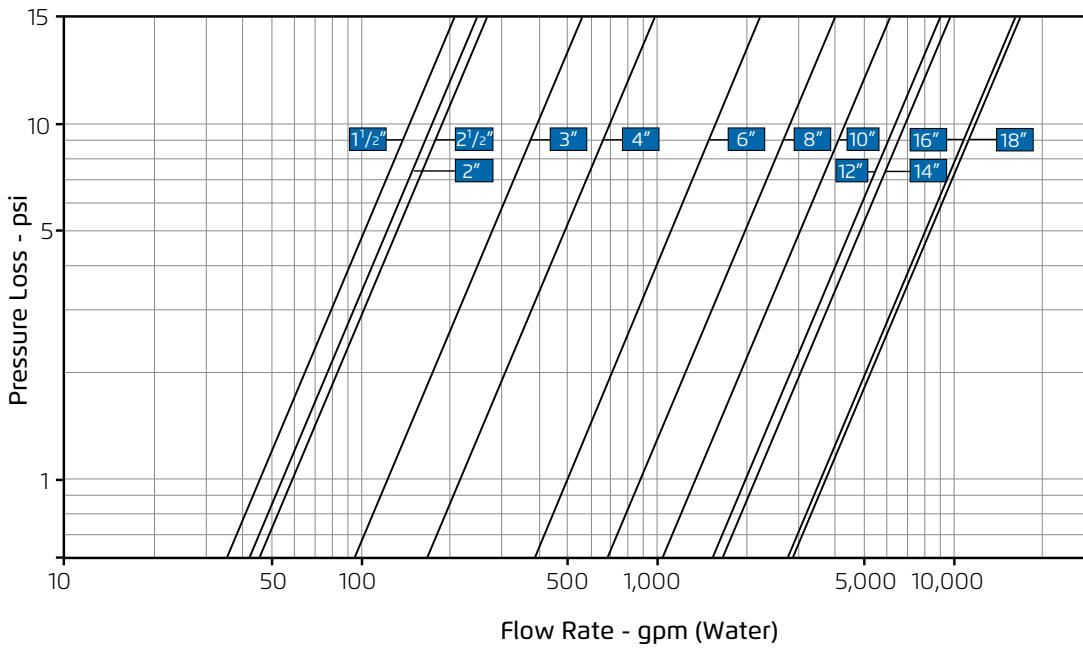
**US** US/Imperial

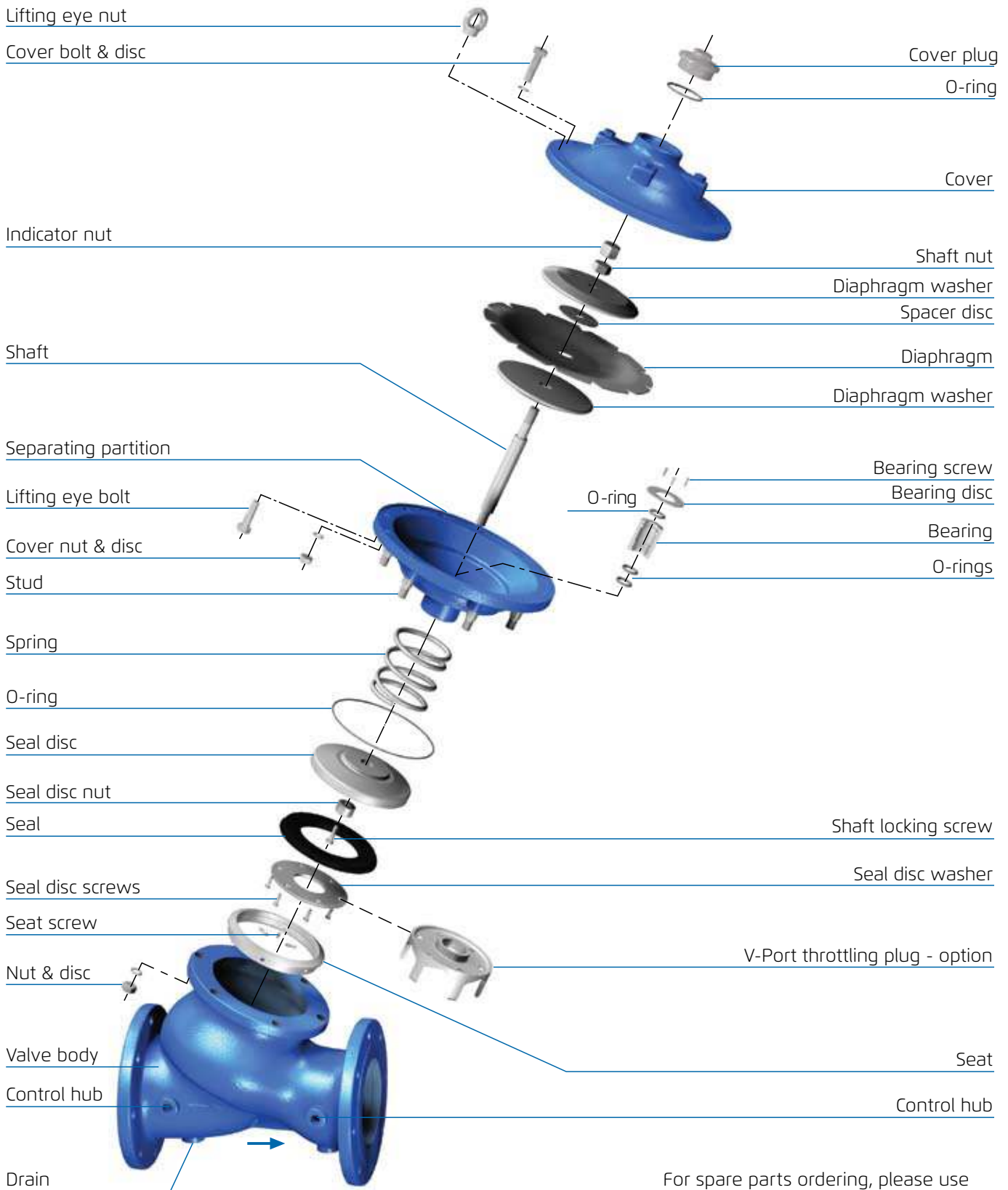
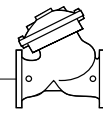


## 700 Angle Pattern, Flat Disc



## 700 Angle Pattern, Throttling Plug (V-Port)





For spare parts ordering, please use BERMAD "Spare Parts Ordering Guide."

