

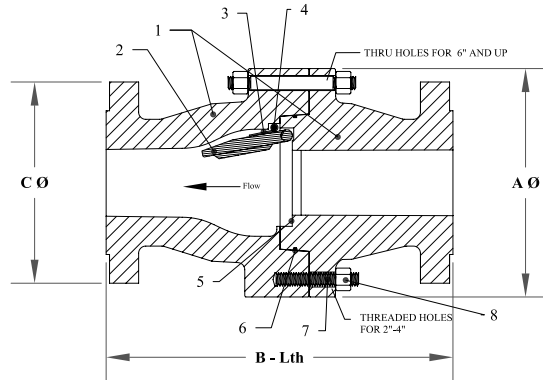
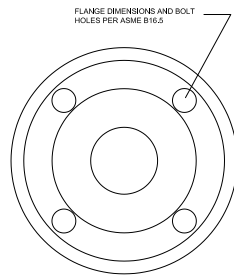


PRECISION ENGINEERED CHECK VALVES

SERIES H FLANGED END CHECK VALVE



NO EXTERNAL HOLES
INTEGRAL DISC/SHAFT
SPRING ASSISTED
CLOSURE FOR
INSTANT SEALING



Pressure/Temperature rating to ASME B16.34

PARTS LIST

ITEM	PART NAME
1	BODY
2	FLAPPER
3	SPRING
4	SPRING PIN
5	SEAT SEAL
6	INSERT RING
7	STUDS
8	NUTS

Series H Flanged Installation Dimensions per ASME B16.10

SIZE	ASME CLASS	A-Dia		B-LTH				WEIGHT	
		inch	mm	RF		RTJ		lbs.	kg.
				inch	mm	inch	mm		
2" 50mm	150	8	203	8	203	8-1/2	216	31	314
	300	9	229	10-1/2	267	11-1/8	283	43	20
	600	9	229	11-1/2	292	11-5/8	295	46	21
	900	11	279	14-1/2	368	14-5/8	371	108	49
	1500	11	279	14-1/2	368	14-5/8	371	108	49
	2500	13	330	17-3/4	451	17-7/8	454	162	74
2-1/2" 65mm	150	9	229	8-1/2	216	9	229	43	20
	300	10	254	11-1/2	292	12-1/8	308	63	829
	600	10	254	13	330	13-1/8	333	68	31
	900	11	279	16-1/2	419	16-5/8	422	145	66
	1500	11	279	16-1/2	419	16-5/8	422	145	66
	2500	12	305	20	508	20-1/4	514	249	113
3" 80mm	150	9	229	9-1/2	241	10	254	55	25
	300	10	254	12-1/2	318	13-1/8	333	82	37
	600	10	254	14	356	14-1/8	358	88	40
	900	11	279	15	381	15-1/8	384	131	60
	1500	12	305	18-1/2	470	18-5/8	473	212	96
	2500	13-1/2	343	22-3/4	578	23	584	346	157
4" 100mm	150	10-1/2	267	11-1/2	292	12	305	147	67
	300	11-1/2	292	14	356	14-5/8	371	127	58
	600	13	330	17	432	17-1/8	435	184	84
	900	14	356	18	457	18-1/8	460	262	119
	1500	15	381	21-1/2	546	21-5/8	549	364	165
	2500	16-1/2	419	26-1/2	673	26-7/8	683	595	270

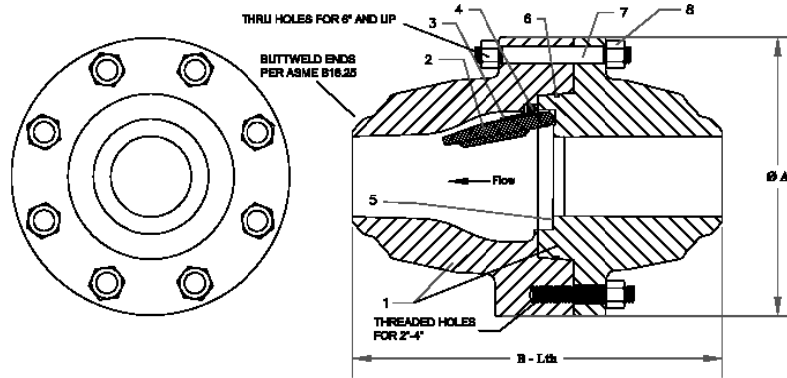
Series H Flanged Installation Dimensions
per ASME B16.10

SIZE	ASME CLASS	A-Dia		B-LTH				WEIGHT	
				RF		RTJ			
		inch	mm	inch	mm	inch	mm	lbs.	kg.
6" 150mm	150	13	330	14	356	14-1/2	368	167	76
	300	15	381	17-1/2	445	18-1/8	460	295	134
	600	18	457	22	559	22-1/8	562	501	228
	900	19	483	24	610	24-1/8	613	590	268
	1500	20	508	27-3/4	705	28	711	725	330
8" 200mm	150	16	406	19-1/2	495	20	508	337	153
	300	17	432	21	533	21-5/8	549	480	218
	600	19	483	26	660	26-1/8	664	710	323
	900	22	559	29	737	29-1/8	740	1040	473
	1500	24	610	32-3/4	832	33-1/8	841	1090	495
10" 250mm	150	18	457	24-1/2	622	25	635	595	270
	300	20	508	24-1/2	622	25-1/8	638	730	332
	600	23	584	31	787	31-1/8	791	1320	600
	900	26	660	33	838	33-1/8	841	1848	840
12" 300mm	150	21	533	27-1/2	699	28	711	941	428
	300	23	584	28	711	28-5/8	727	1180	536
	600	25	635	33	838	33-1/8	841	1811	823
	900	28	711	38	965	38-1/8	968	2253	1024
14" 350mm	150	23	584	31	787	31-1/2	800	1280	582
	300	26	660	33	838	33-5/8	854	1929	877
	600	27	686	35	889	35-1/8	892	2000	909
	900	29	737	40-1/2	1029	40-7/8	1038	2305	1048
16" 400mm	150	26	660	34	864	34-1/2	876	1664	756
	300	28	711	34	864	34-5/8	879	2627	1194
	600	31	787	39	991	39-1/8	994	3953	1797
18" 450mm	150	28	711	38-1/2	978	39	991	2231	1014
	300	31	787	38-1/2	978	39-1/8	994	3379	1536
20" 500mm	150	31	787	38-1/2	978	39	991	2828	1285
	300	34	864	40	1016	40-3/4	1035	4105	1866
24" 600mm	150	35	889	51	1295	51-1/2	1308	4475	2034
	300	39	991	53	1346	53-7/8	1368	6309	2868

Consult HY-GRADE for sizes/classes not shown



NO EXTERNAL HOLES
INTEGRAL DISC/SHAFT
SPRING ASSISTED
CLOSURE FOR
INSTANT SEALING



Pressure/Temperature rating to ASME B16.34

PARTS LIST

ITEM	PART NAME
1	BODY
2	FLAPPER
3	SPRING
4	SPRING PIN
5	SEAT SEAL
6	INSERT RING
7	STUDS
8	NUTS

Series H Buttweld Installation Dimensions
per ASME B16.10

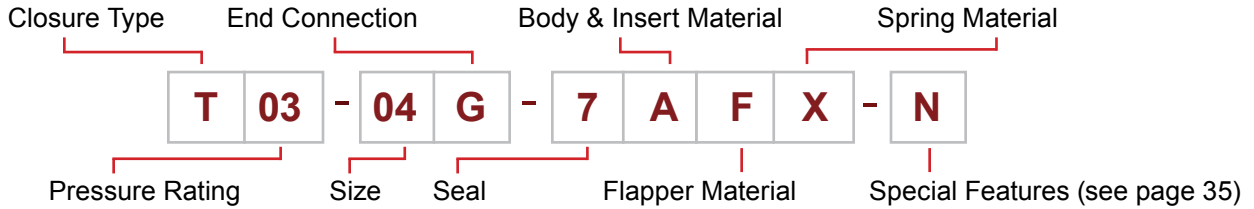
SIZE	ASME CLASS	A-Dia		B-LTH		WEIGHT	
		inch	mm	inch	mm	lbs.	kg.
2" 50mm	150	8	203	8	203	51	23
	300	9	229	10-1/2	267	35	16
	600	9	229	11-1/2	292	55	25
	900	11	279	14-1/2	368	157	71
	1500	11	279	14-1/2	368	132	60
	2500	13	330	11	279	126	57
2 1/2" 65mm	150	9	229	8-1/2	216	36	16
	300	10	254	11-1/2	292	59	27
	600	10	254	13	330	69	31
	900	11	279	10	254	110	50
	1500	11	279	10	254	110	50
	2500	12	305	13	330	148	67
3" 80mm	150	9	229	9-1/2	241	76	34
	300	10	254	12-1/2	318	57	26
	600	10	254	10	254	40	18
	900	11	279	12	305	172	78
	1500	12	305	12	305	132	60
	2500	13-1/2	343	14-1/2	368	161	73
4" 100mm	150	10-1/2	267	11-1/2	292	71	32
	300	11-1/2	292	14	356	177	80
	600	13	330	12	305	180	82
	900	14	356	14	356	140	64
	1500	15	381	16	406	183	83
	2500	16-1/2	419	18	457	293	133

Series H Butt weld Installation Dimensions
per ASME B16.10

SIZE	CLASS	A-Dia		B-LTH		WEIGHT	
		inch	mm	inch	mm	lbs.	kg.
6" 150mm	150	13	330	14	356	198	90
	300	15	381	17-1/2	445	220	100
	600	18	457	18	457	490	223
	900	19	483	20	508	695	315
	1500	20	508	22	559	436	198
8" 200mm	150	16	406	19-1/2	495	294	134
	300	17	432	21	533	325	147
	600	19	483	23	584	510	232
	900	22	559	26	660	585	266
	1500	24	610	28	711	724	329
10" 250mm	150	18	457	24-1/2	622	361	164
	300	20	508	24-1/2	622	560	255
	600	23	584	28	711	972	442
	900	26	660	31	787	1435	652
12" 300mm	150	21	533	27-1/2	699	814	370
	300	23	584	28	711	1042	474
	600	25	635	32	813	1491	677
	900	28	711	36	914	1653	751
14" 350mm	150	23	584	31	787	1080	491
	300	26	660	33	838	1433	651
	600	27	686	35	889	1610	732
	900	29	737	39	991	1825	830
16" 400mm	150	26	660	34	864	1593	724
	300	28	711	34	864	1666	757
	600	31	787	39	991	2634	1197
18" 450mm	150	28	711	38-1/2	978	1753	797
	300	31	787	38-1/2	978	2244	1020
20" 500mm	150	31	787	38-1/2	978	2244	1020
	300	34	864	40	1016	3550	1613
24" 600mm	150	35	889	51	1295	4379	1990
	300	39	991	53	1346	5698	2590

Consult HY-GRADE for sizes/classes not shown

Metallic Check Valves – Series T, F, L, D, H and FF



Codes for Valve Type	
Code	Valve Type
T	Wafer Single Disc
F	Lug wafer with Thru Holes Single Disc
L	Lug wafer with Threaded Holes Single Disc
D	Wafer Dual Disc
FD	Lug wafer with Thru Holes Dual Disc
LD	Lug wafer with Threaded Holes Dual Disc
X	Swing Check - ANSI B16.10 end-to-end
H	Buttweld, Hub, Flanged
FF	Full Bore/Full Opening
Modifiers	
S*	Severe Service Option
A*	Tilt Seat Option
E*	Extended face-to-face Option

Codes for ANSI/API Pressure Rating	
Code	Rating
01	Class 150
03	Class 300
06	Class 600
09	Class 900
15	Class 1500
25	Class 2500
30	3,000 API 6A
50	5,000 API 6A
10	10,000 API 6A
15	15,000 API 6A

Size Code	
Code	Size
01 to 48	1" to 48"

Code for End Connection	
Code	End Connection Type
G	Raised Face (serrated)
F	Flat Face
R	Ring Joint or BX groove
H	Hub Ends
B	Buttwelding ends
O	per customer requirement

*Examples of Modifiers for Valve Types

- ST** = Severe Service Wafer
- SX** = Severe Service Swing Check - ANSI B16.10 end-to-end
- AF** = Tilt Seat Lug with Thru Holes
- EL** = Extended face-to-face with Threaded Holes
- AET** = Tilt Seat, Extended face-to-face Wafer

Codes for Seal Materials			
Code	Material	Temperature Range**	
		°C	°F
1	Buna-N	-51 to 107	-60 to 225
2	Neoprene	-40 to 107	-40 to 225
3	Butyl	-54 to 163	-65 to 325
4	Kalrez®	-29 to 316	-20 to 600
5	Chemraz®	-29 to 232	-20 to 450
6	AFLAS®	-40 to 218	-40 to 425
7	Viton®	-29 to 204	-20 to 400
8	Teflon®	-157 to 232	-250 to 450
9	EPDM	-54 to 149	-65 to 300
10	Metal-to-Metal	extreme	extreme
11	13% Chrome (410 S.S.) seating surfaces	extreme	extreme
12	316 S.S. seat insert	extreme	extreme
13	Stellite® seat overlay on disc and seat insert	extreme	extreme
14	Stellite® seat overlay on disc only	extreme	extreme
15	Stellite® seat overlay on seat insert only	extreme	extreme
16	FKM 58/90	-27 to 210	-17 to 410
0	As specified by customer		

** Temperatures are for general guidance and may vary per application

Codes for Body, Seat Insert, and Disc Material

Code	Material	ASME B16.34 Group	ASTM Specifications			
			Forgings	Round Bar	Plate	Investment or Centrifugal Castings
A	Carbon Steel	1.1	A105	A105	A516 Gr. 70	
B	Bronze (Navy)					B148 / B271 C92200
C	Nickel-Aluminum Bronze			B150 C63200		B148 / B271 C95800
D	Low Temp. Steel (-50°F)	1.1	A350 Gr. LF 2	A350 Gr. LF 2	A516 Gr. 70	
E	Low Temp. Steel (-150°F)	1.1	A350 Gr. LF 3	A350 Gr. LF 3		
F	316 Stainless Steel	2.2	A182-F316	A182-F316 / A479 316	A240 316	A351 Gr. CF8M
G	5% Cr Steel	1.13	A182-F5a	A182-F5a		
H	Alloy C276	3.8	B462 N10276 / B564 N10276	B462 N10276 / B574 N10276	B575 N10276	A494 Gr. CW12MW
I	Inconel® 625	3.8	B564 N06625	B446 N06625	B443 N06625	A494 Gr. CW6MC
J	317 Stainless Steel	2.2	A182-F317	A182-F317	A240 317	A351 Gr. CG8M
K	347H Stainless Steel	2.5	A182-F347	A182-F347 / A479-F347	A240 347	A351 Gr. CF8C
L	410 Stainless Steel		A182-F6a	A182-F6a	A240 410	A217 Gr. CA15
M	Monel®	3.4	B564 N04400	B164 N04400	B127 N04400	A494 Gr. M-35-2
N	Super Duplex Stainless Steel	2.8	A182-F55	A182-F55 / A479 S32760	A240 S32760	A995 Gr. CD3MWCuN (6A)
P	6% Moly S.S. (type 254 SMO®)	2.8	A182-F44	A182-F44 / A479 S31254	A240 S31254	A351 Gr. CK3MCuN
R	Incoloy® 825	3.8	B564 N08825	B425 N08825	B424 N08825	
S	Nickel	3.2	B564 N02200	B160 N02200	B162 N02200	
T	Titanium Grade 2		B381 F2	B348 Gr. 2	B265 Gr. 2	
U	Duplex Stainless Steel	2.8	A182-F51	A182-F51 / A479 S31803	A240 S31803	A351-CD3MN
W	API 60K Low Alloy Steel		A694 Gr. F65			
X	9% Cr - 1% Mo Steel	1.14	A182-F9	A182-F9		
Y	Alloy 20	3.1	B462 N08020	B462 N08020 / B473 N08020	B463 N08020	A351 Gr. CN7M
Z	Zirconium		B493 R60702	B550 R60702	B551 R60702	
O	As specified by customer		Contact HY-Grade for materials not shown above.			

Due to continuous product improvement, HY-GRADE VALVE, Inc. reserves the right to change designs, materials or specifications without prior notice.

Codes for Spring Material

Code	Description	Max Temperature**	
		°C	°F
I	Inconel 600	327	620
X	Inconel X750 (standard)	537	1000
E	Elgiloy	327	620
H	Alloy C276	427	800
M	Monel K500	232	450
T	Titanium	288	550
S	316 Stainless Steel	249	480
O	Per customer specifications		

** Temperatures are for general guidance and may vary per application

Codes for Special Features	
	Description
N	Material per NACE MR01-75 / ISO 15156
1	1/8"-27 NPTF tapped gage port
2	1/4"-18 NPTF tapped gage port
3	1/2"-14 NPTF tapped gage port
4	1/4"-18 NPTF tapped drain
5	1/2"-14 NPTF tapped drain
6	3/4"-14 NPTF tapped drain
SP	Special Trim or Design as specified by the customer
O ₂	Cleaned for Oxygen service

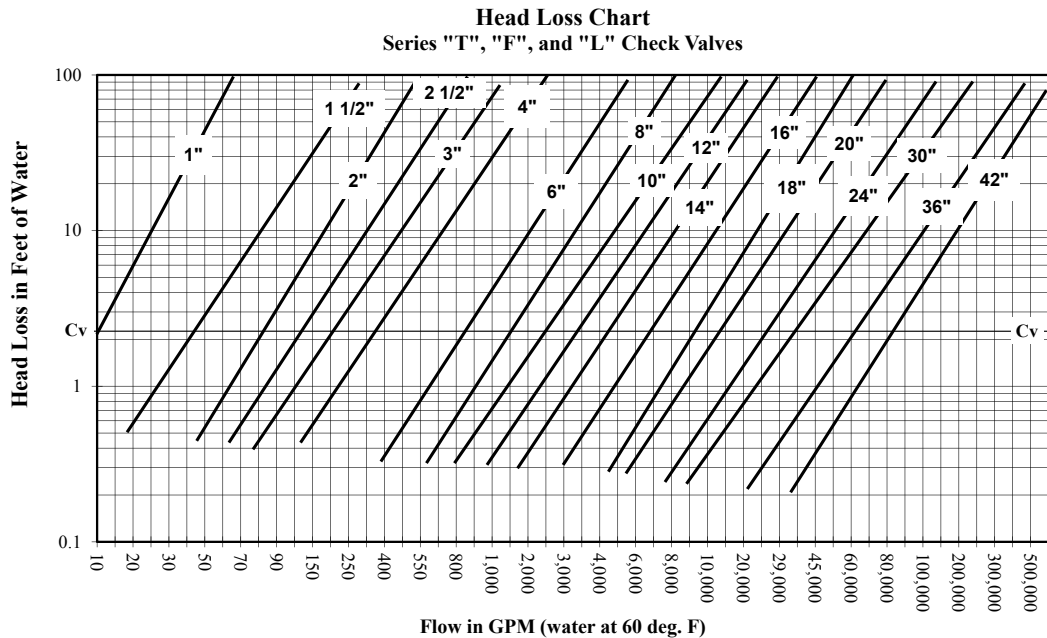
MODEL NUMBER EXAMPLES

- T03-04G-7AFX = Series T Wafer check valve, 4" (100mm), Class 300, Raised Face Ends, Viton® seal, Carbon Steel Body & Seat Insert, 316 S.S. Flapper, Inconel® X750 Spring.
- T01-08G-10FFX = Series T Wafer, 8" (200mm), Class 150, Raised Face ends, Metal seal, 316 S.S. Body & Seat Insert, 316 S.S. Flapper, Inconel® X750 Spring.
- F09-16R-8AFE-N = Series F Lug Wafer check valve with thru holes, 16" (400mm), Class 900, RTJ ends, Teflon® seal, Carbon Steel Body & Seat Insert, 316 S.S. Flapper, Elgiloy Spring, NACE MR01-75 certification.
- ST03-06G-10FN = Severe Service - Series T Wafer check valve, 6" (150mm), Class 300, Raised Face ends, 316 S.S. Body & Seat Insert, Duplex S.S. Flapper.
- X15-02G-15ALX = Series X Swing Check with ANSI B16.10 face-to-face, 2" (50mm), Class 1500, Raised Face Ends, Stellite® seat overlay on seat insert, Carbon Steel Body & Seat Insert, type 410 S.S. Flapper, Inconel® X750 Spring
- H15-14B-14GLX = Series H check valve with Buttwelding ends, 14" (350mm), Class 1500, Stellite® seat overlay on flapper, 5% Cr Body & Seat Insert, 410 S.S. Flapper, Inconel® X750 Spring.
- AET09-10R-10AF = Series T Wafer check valve with Tilt Seat and Extended body, 10" (250mm), Class 900, RTJ ends, Metal seal, Carbon Steel Body & Seat Insert, 316 S.S. Flapper.
- D03-36G-10AFX = Series D High Performance Dual Plate Wafer check valve, 36"(900mm), Class 300, Raised Face ends, Metal Seal, Carbon Steel Body & Seat Insert, 316 S.S. Flapper, Inconel® X750 Spring.

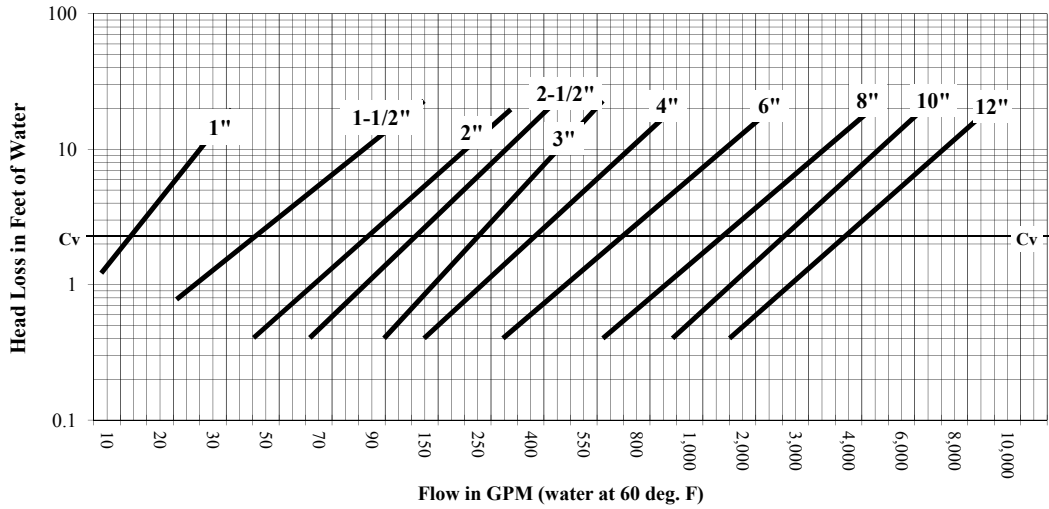
CALCULATED CRACKING PRESSURE

SIZE	SPRING ASSISTED		NON-SPRING ASSISTED	
	HORIZONTAL FLOW	VERTICAL UP FLOW	HORIZONTAL FLOW	VERTICAL UP FLOW
1"	0.67	0.78	0.01	0.12
1-1/2"	0.28	0.39	0.01	0.11
2"	0.32	0.43	0.01	0.12
2-1/2"	0.52	0.64	0.01	0.13
3"	0.21	0.31	0.01	0.11
4"	0.17	0.31	0.01	0.13
6"	0.25	0.43	0.02	0.18
8"	0.12	0.31	0.02	0.18
10"	0.16	0.38	0.02	0.22
12"	0.21	0.43	0.02	0.22
14"	0.19	0.41	0.02	0.21
16"	0.15	0.49	0.02	0.34
18"	0.12	0.34	0.02	0.22
20"	0.08	0.37	0.02	0.29
24"	0.06	0.31	0.02	0.24
30"	0.06	0.28	0.02	0.23
36"	0.06	0.29	0.02	0.24

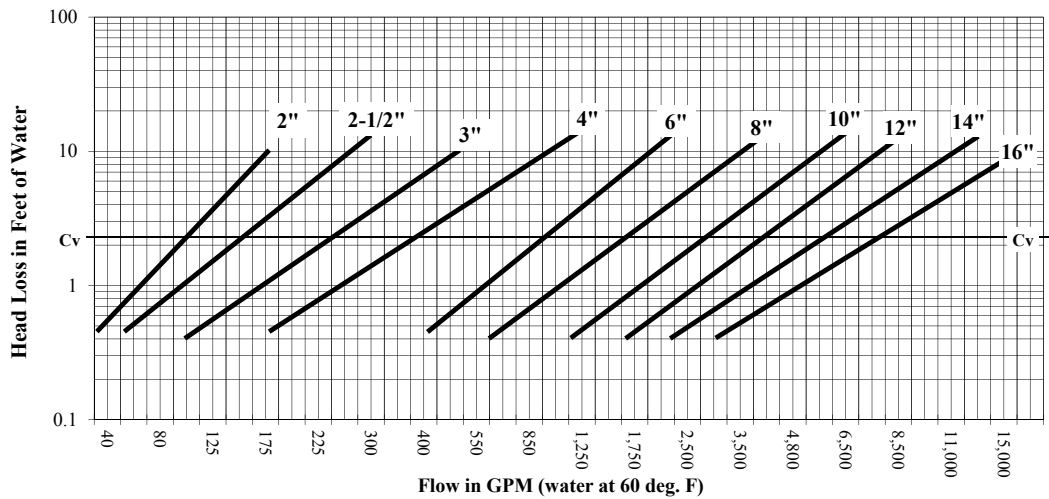
1 PSI = 27.72" water = 0.069 bar



Head Loss Chart
Series "P" Plastic Bodied Check Valves



Head Loss Chart
Series "H" Flanged, Butt-weld or Hub Ended Check Valves



Head Loss Chart
Series "D" Dual Plate Check Valves

