

Valve shown in flanges.
Flanges not included.

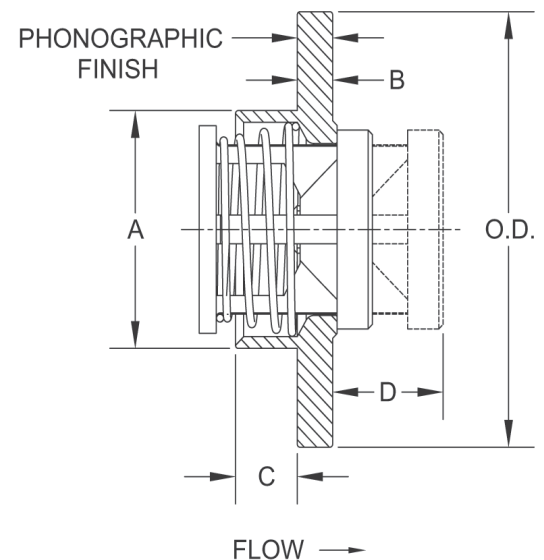
The **Flange Insert (F1, F6, FP)** valves are the ultimate check valve in flanged systems. They provide the simplest and most economical way to install check valves in a piping system. The valve body helps position itself while bolts are being installed and tightened. Two gaskets are required instead of the one normally used in a flanged joint. See page 53 or consult the factory for additional installation guidelines.

Flange Insert valves are designed to fit between two mating ANSI flanges. The “Spring Housing”, designated by the “A” dimension^❶, is designed to be inserted into the upstream pipe, thereby helping to center it in the pipe. Therefore, there must be clearance between the spring housing and the pipe or flange. Generally speaking, the FIV Class 150 and 300 valves (F1) are designed for standard schedule pipe with Class 150 or 300 flanges, and the FIV Class 600 (F6) valves are designed for schedule 80 pipe with Class 150, 300 or 600 flanges.

The Flange Insert valve can also be used as a low pressure relief valve or vacuum breaker by using the desired spring settings.

NOTE: Many valves in this series can be supplied with B16.34 certification. Consult the factory for more information.

Body Material ^❷	Nominal Pipe Size	Non-Shock Pressure-Temp. Rating		
		ANSI Class 150	ANSI Class 300	ANSI Class 600
316 Stainless Steel (SS) Carbon Steel (CS) Alloy 20 (A2) Alloy C-276 (HC) Alloy B (HB) MONEL® 400 or Alloy R405 Titanium (TI)	1/2" - 4"	X	X	X
	5" - 20"	X		
Brass (BR)	1/2" - 4"	X	X	
	5" - 20"	X		
PTFE (TF) ^❸	1/2" - 1-1/2"	55 PSIG @ 100°F		
	2" - 6"	20 PSIG @ 100°F		
PVC (PV) ^❸	1/2" - 6"	200 PSIG @ 100°F		



❶ Check “A” dimension for clearance with pipe ID. Generally “A” dimension is designed for use in schedule 40 pipe for class 150 & 300 valves (F1). Order class 600 (F6) valves for schedule 80 pipe.

❷ See pages 55-56 for material grade information.

❸ Standard spring material is 316 Stainless Steel.

See Diagram on Page 5

(F1, F6, FP) Dimensions

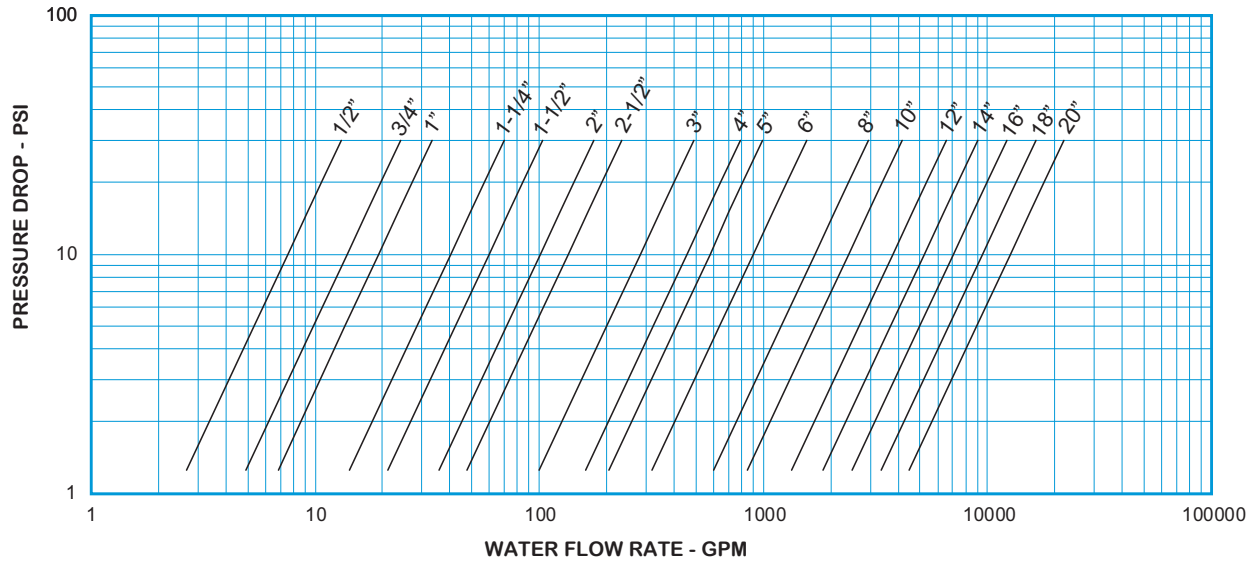
Nominal Pipe Size	Size Code	ANSI Rating & Material	A	B	C	D ^①	O.D.	Orifice ^② Diameter
1/2	D	150 & 300 600 PTFE & PVC	0.605 N/A ^③ 0.600	1/4	0.29 N/A ^③ 0.27	0.55 0.53 0.68	1-3/8	0.348
3/4	F	150 & 300 600 PTFE & PVC	0.762 0.719 0.720	1/4	0.26 0.24 0.26	0.63 0.62 0.77	1-3/4	0.464
1	H	150 & 300 600 PTFE & PVC	1.000 0.922 0.930	1/4	0.36 0.33 0.36	0.81 0.80 0.81	2	0.593
1-1/4	I	150 & 300 600 PTFE & PVC	1.340 1.234 1.240	1/4	0.44 0.39 0.59	0.88 0.87 0.99	2-1/2	0.890
1-1/2	J	150 & 300 600 PTFE & PVC	1.570 1.490 1.490	1/4	0.44 0.40 0.69	1.04 1.03 1.11	2-7/8	1.135
2	K	150 & 300 600 PTFE & PVC	2.005 1.890 1.890	1/4	0.49 0.43 0.52	1.21 1.21 0.93	3-5/8	1.385
2-1/2	L	150 & 300 600	2.407 2.266	1/4	0.66 0.59	1.45 1.45	4-1/8	1.555
3	M	150 & 300 600 PTFE & PVC	3.006 2.844 2.865	5/16	0.70 0.65 0.73	1.63 1.62 1.62	5	2.025
4	N	150 & 300 600 PTFE & PVC	3.964 3.766 3.766	3/8	1.00 0.96 1.00	1.93 1.93 2.04	6-3/16	2.560
Sizes 5" and larger are only available in class 150. Consult the factory if using Schedule 80 pipe.								
5	O	150	4.985	1/2	1.07	2.14	7-5/16	3.280
6	P	150 PTFE & PVC	6.003 5.700	3/8 9/16	1.52 1.55	2.22 2.78	8-1/2	3.875
8	Q	150	7.919	1/2	2.27	3.14	10-5/8	5.110
10	R	150	9.958	1/2	2.84	3.58	12-3/4	6.380
12	S	150 Brass Other Metals	11.876	5/8 1/2	3.12 3.25	4.33 4.18	15	7.670
14	T	150 Brass Other Metals	13.062	11/16 1/2	3.18 3.37	4.58 4.45	16-1/4	8.460
16	U	150 Brass Other Metals	14.938	3/4 9/16	3.69 3.88	5.20 5.05	18-1/2	9.650
18	V	150 Brass Other Metals	16.814	7/8 5/8	3.87 4.12	5.80 5.63	21	10.860
20	W	150 Brass Other Metals	18.750	15/16 11/16	3.88 4.13	6.54 6.26	23	12.110

① Maximum nominal dimension for a fully open valve with no spring.

② Due to molding process, orifice in plastic valves may vary.

③ Style F6 size "D" does not have a spring housing.

Flange Insert
Flow Curves assume Schedule 40 pipe
For Water at 72°F



Note: All flow curves and Cv values presume the valves are fully open with 1/2 PSI cracking pressure springs. Consult the factory for more information.

STYLE F1, F6, FP C _v VALUES & VALVE WEIGHTS					
C _v	SIZE	SS & CS ALLOYS	BRASS	PTFE	PVC
2.4	1/2	1.7 oz.	1.9 oz.	0.5 oz.	0.3 oz.
4.4	3/4	2.9 oz.	3.2 oz.	0.8 oz.	0.5 oz.
6.1	1	4.2 oz.	4.6 oz.	1.1 oz.	0.7 oz.
12.7	1-1/4	7.0 oz.	7.4 oz.	1.9 oz.	1.4 oz.
18.8	1-1/2	9.5 oz.	9.8 oz.	2.6 oz.	1.7 oz.
32.0	2	16.3 oz.	17.3 oz.	3.8 oz.	2.6 oz.
42.5	2-1/2	1.4 lb.	1.5 lb.	---	---
89.0	3	2.3 lb.	2.6 lb.	9.6 oz.	6.1 oz.
144	4	4.9 lb.	5.3 lb.	1.2 lb.	12.7 oz.
182	5	8.2 lb.	8.7 lb.	---	---
284	6	12.3 lb.	13 lb.	1.8 lb.	1.2 lb.
535	8	24.4 lb.	26.4 lb.	---	---
757	10	36.3 lb.	44 lb.	---	---
1200	12	51 lb.	58 lb.	---	---
1650	14	74 lb.	93 lb.	---	---
2230	16	105 lb.	130 lb.	---	---
3010	18	157 lb.	201 lb.	---	---
4000	20	207 lb.	262 lb.	---	---

C_v values assume Schedule 40 pipe. Valve weights are approximate. See page 51 for Flow Formulae.

HOW TO ORDER

CHECK-ALL STYLE F1, F6, FP

BODY MATERIAL

ALLOY 20 = A2
BRASS = BR
CARBON STEEL = CS
ALLOY B = HB
ALLOY C-276 = HC
MONEL® 400 OR ALLOY R405 = MO
PVC = PV
316 SS = SS
PTFE = TF
TITANIUM = TI

See p. 3 for temperature ratings

SPRING CRACKING PRESSURES (PSI)

Must use decimal as a character unless selecting NO SPRING. Specify Exact Setting

SPRING RANGES	EXAMPLE
.000 TO .999	= .500
1.00 TO 9.99	= 1.50
10.0 TO 85.0	= 15.0
NO SPRING	= NOSPRG

STANDARD CRACKING PRESSURES ①

.125	.500	1.50	3.50
(Sizes D-N Only)	(Sizes D-N Only)	(Sizes D-N Only)	(Sizes D-J Only)

Note: Many other cracking pressures are available. All spring tolerances +/- 15%.

VALVE STYLE

Class 150 & 300 = F1
(Sizes D-W) & (Sizes D-N)
(FIT UP TO SCH 40 PIPE)

Class 600 = F6
(Sizes D-N)
(FIT UP TO SCH 80 PIPE)

PTFE & PVC = FP

SEAT MATERIAL ②

AFLAS® = AS
BUNA-N = BN
EPDM ③ = EP
KALREZ® = KZ
"METAL-TO-METAL" ④ = MT
NEOPRENE = NE
PTFE ⑤ = TF
VITON™ = VT

See p. 3 for temperature ratings

SPECIAL OPTIONS

T = FEP ENCAPSULATED SPRING
See p. 4 for temperature rating
Contact the factory for more options

SIZE
(SEE BELOW)

SPRING MATERIAL

316 SS = SS
ALLOY C-276 = HC
ALLOY B = HB
INCONEL® X750 OR ALLOY X750 = IX
MONEL® 400 = MO
17-7PH SS = PH
TITANIUM = TI

See p. 4 for temperature ratings

**STYLE F1
(All Metals)
SIZES**

1/2 = D
3/4 = F
1 = H
1-1/4 = I
1-1/2 = J
2 = K
2-1/2 = L
3 = M
4 = N
5 = O
6 = P
8 = Q
10 = R
12 = S
14 = T
16 = U
18 = V
20 = W

**STYLE F6
(Except Brass)
SIZES**

1/2 = D
3/4 = F
1 = H
1-1/4 = I
1-1/2 = J
2 = K
2-1/2 = L
3 = M
4 = N

**STYLE FP ④
(PTFE or PVC Only)
SIZES**

1/2 = D
3/4 = F
1 = H
1-1/4 = I
1-1/2 = J
2 = K
3 = M
4 = N
6 = P

Note: Consult the factory for an optional Flag Tag which indicates that a check valve is present in the line.

Listed above are the most common material selections. Please contact the factory for additional options.

① .500 PSI is the only standard cracking pressure for spring materials other than Stainless Steel. .125 PSI springs are not recommended for installations with flow vertical down.

② "Metal-to-Metal" and PTFE seats are not resilient. See page 52 for allowable leakage rates.

③ EP seats not recommended for use with Carbon Steel valves.

④ For PTFE and PVC valves, "MT" seats mean seated plastic to plastic. (No o-ring)

⑤ "TF" seat not available for FP valve style.