



North American Butterfly Valves

Bulletin 1123/24/26

1124 and 1126 Motor Operated and 1123 Manual



Butterfly valves have no appreciable pressure drop when wide open in full size pipe, handling flows and velocities of normal combustion systems. Therefore, capacity ratings usually are not a factor when selecting manual valves for individual burners or systems.

If valve flow control characteristics are important, valve sizing should take into consideration:

- total cfm required at high and low fire;
- available air pressure drop;
- piping configuration between control valve and burners;
- effect of the ratio of pressure drops in the complete system vs. those through the control valve.

VALVE CAPACITIES

Air capacities listed below (wide open and 70° open) are under full flow conditions: The valve installed in a pipe run of the same size as the valve with a pipe velocity of 70 ft/sec.

Butterfly valve capacities (see box above)
scfh air at 1" w.c. pressure drop (70°F air; 6 osig upstream pressure)*

Valve designation	Pipe size inches	wide open	70° open	Valve C _v (70° open)
-0	¾	500	255	5.9
-1	1	940	680	15.6
-2	1¼	1 900	1 130	26
-3	1½	2 800	1 450	33
-4	2	5 320	2 900	66
-5	2½	8 350	4 570	105
-6	3	14 500	7 560	173
-7	4	29 100	15 200	348
-8	6	78 100	45 800	1050
-9	8	167 000	66 100	1516
-10	10	245 000	107 000	2454
-12	12	360 000	162 000	3715
-14	14	429 000	209 000	4793
-16	16	570 000	271 000	6215

Where a motorized butterfly control valve serves a group of burners, system pressure drops determined by pipe size, lengths, fittings, etc. affect valve size selection in critical applications.

One "rule of thumb" for combustion systems, has been to size valve (70° open) for pressure drop equal to 1/5 - 1/6 of total drop in system including, of course, drop across burners. Change in flow and pressure drop across the valve is negligible when changing from 70° open to wide open unless inlet pressure is increased substantially to maintain the 1" w.c. pressure drop.

TORQUE. Torques required to operate Butterfly Valves with 3 psi inlet pressure are:

Valve size designation	Torque lb-in.	Valve size designation	Torque lb-in.
-0 thru -5	2.8	-10	123
-6	5.8	-12	177
-7	10.0	-14	242
-8	22.8	-16	317
-9	79.0		

* See page 2 for air temperature correction factors.

STANDARD VALVES

(See also Bulletins 1122 [Manual], and 1154 [Resilient Seat Wafer])

1124 Motorized
1126 Motorized
1126 (H) Hot Air Motorized
1123 Manual

Standard butterfly valves have female pipe threads in ¾" through 6" pipe sizes; larger valves are flanged^①, as are 1126-F in 3", 4", and 6" sizes. Motorized valves can be ordered with bracket, motor arm, and linkage for standard control motor or actuator. 1123 Manual valves have a locking handle and are available in 8" to 16" sizes. 1122 manual valves have a locking handle and are available in ¾" to 6" sizes.

1126 and 1123 Valves have a swing-through disc. 1122 manual valves and 1124 motorized valves have a beveled disc for tighter shutoff; spring-loaded linkage is furnished with the 1124 when an electric operator is specified (see Instructions 1230).

All standard valves (except 1126- -H) can be used on gas. However, if UL approval is required for -0 through -8 sizes, a "G" suffix can be added to the 1126 series only (exs. 1126-1-G).

Standard 1122^③, 1123, 1124, and 1126 Valves are suitable for air heated to 400 F. For 400 to 700 F, specify the 1122 (H)^③, 1124 (H), or 1126 (H) Valve with Grafoil seal. The -H (Heated Air) is available in sizes 1" through 6" only.

SPECIFICATIONS/CONSTRUCTION

Valve designation	Maximum inlet pressure, psi	Maximum temperature, F	Minimum Ambient temperature, F	Body	Disc	Shaft
1122 ^③ , 1124, 1126: -0 thru -4	25	400 ^②	-20	cast iron threaded	steel	303 stainless steel
-5 thru -8	15	400 ^②	-20	"	"	"
-6-F thru -8-F ^①	15	400 ^②	-20	cast iron flanged	"	"
1126, 1123 -9 thru -16 ^①	5	400	-20	"	cast iron	416 stainless steel

Caution:

① Flanged Valves: Use flat flanges and full face gaskets when installing this equipment. Raised face flanges can damage the valve body.

Additional Notes:

② 700°F for 1122-(H), 1124-(H) and 1126-(H) which have Grafoil seals.

③ See Bulletin 1122.

AIR TEMPERATURE CORRECTION FACTORS FOR ALL VALVES

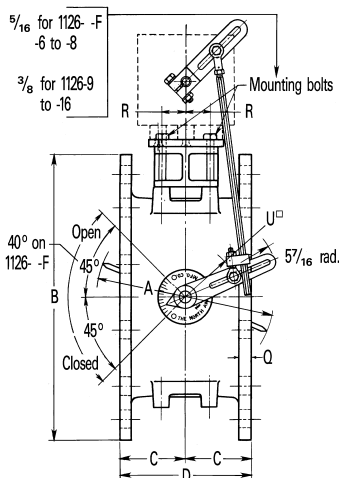
Multiply scfh in table by air temperature factor to get scfh air at that temperature.

F	factor	F	factor
60	1.0	300	0.83
100	0.96	400	0.78
150	0.92	500	0.74
200	0.89	600	0.70
250	0.86	700	0.67

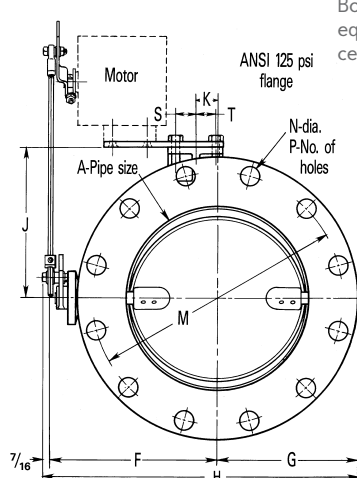
STANDARD VALVES

(dimensions apply also to "G" valves)

DIMENSIONS inches

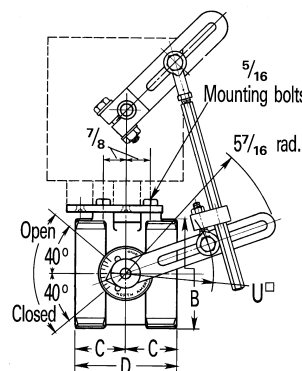


1126-9 thru -16
1126-6-F thru 1126-8-F^①

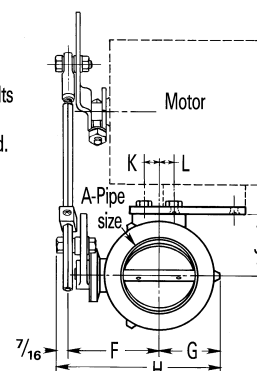


Bolt holes on all flanged models are equally spaced and straddle valve centerlines.

ORDER MUST SPECIFY:
1) Valve designation (for all valves).
2) Motor selected (for 1124 and 1126 Valves).

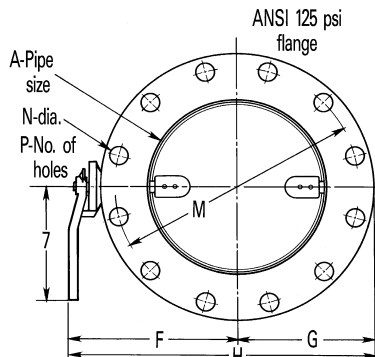
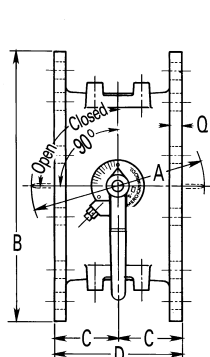


1124, 1126-0 thru -8



Valve designation	dimensions in inches																	Wt, lb	
	A	B	C	D	F	G	H	J	K	L	M	N	P	Q	R	S	T		U
1124, 1126-0	3/4	2 1/16	1 3/16	2 3/8	2 5/16	1 3/16	3 15/16	1 1/4	-	1/4	-	-	-	-	-	-	-	1 3/8	5
1124, 1126-1	1	2 1/16	1 3/16	2 3/8	2 5/16	1 3/16	3 15/16	1 1/4	-	1/4	-	-	-	-	-	-	-	1 3/8	5
1124, 1126-2	1 1/4	2 5/16	1 1/4	2 1/2	2 3/8	1 5/16	4 1/8	1 3/8	-	3/16	-	-	-	-	-	-	-	1 3/8	5 1/4
1124, 1126-3	1 1/2	2 9/16	1 5/16	2 5/8	2 1/2	1 7/16	4 3/8	1 1/2	-	1/16	-	-	-	-	-	-	-	1 3/8	5 1/2
1124, 1126-4	2	3 3/16	1 1/2	3	2 13/16	1 3/4	5	1 13/16	1/4	-	-	-	-	-	-	-	-	1 3/8	6 1/2
1124, 1126-5	2 1/2	3 13/16	1 3/4	3 1/2	3 1/8	2 1/8	5 11/16	2 1/8	9/16	-	-	-	-	-	-	-	-	1 3/8	8 1/2
1124, 1126-6	3	4 1/2	1 5/16	3 7/8	3 3/4	2 7/16	6 5/8	2 3/8	1 3/16	-	-	-	-	-	-	-	-	1 3/8	11
1124, 1126-7	4	5 5/8	2 1/4	4 1/2	4 5/16	3	7 3/4	2 15/16	1 3/4	-	-	-	-	-	-	-	-	1 3/8	15 1/2
1124, 1126-8	6	7 7/8	2 9/16	5 1/8	5 7/16	4 1/8	10	4 1/16	2 7/8	-	-	-	-	-	-	-	-	1 3/8	27
1124, 1126-6-F	3	7 1/2	2	4	5 1/16	3 3/4	9 1/4	5 1/16	1	-	6	3/4	4	1/2	7/8	1 1/2	-	1 3/8	20
1124, 1126-7-F	4	9	2 1/4	4 1/2	5 13/16	4 1/2	10 3/4	4 5/8	1 3/4	-	7 1/2	3/4	8	9/16	7/8	1 1/2	-	1 3/8	24
1124, 1126-8-F	6	11	2 1/2	5	6 13/16	5 1/2	12 3/4	5 5/8	2 3/4	-	9 1/2	7/8	8	9/16	7/8	1 1/2	-	1 3/8	34
1126-9	8	13 1/2	2 3/4	5 1/2	8 1/4	6 3/4	15 11/16	7 5/16	-	-	11 3/4	7/8	8	9/16	1 3/8	1 1/8	1 1/8	1 5/8	55
1126-10	10	16	3 3/4	7 1/2	9 1/2	8	18 3/16	8 7/16	1 1/4	-	14 1/4	1	12	3/4	1 3/8	1 1/8	1 1/8	1 5/8	94
1126-12	12	19	4	8	11	9 1/2	21 3/16	9 3/4	2 3/4	-	17	1	12	3/4	1 3/8	1 1/8	1 1/8	1 5/8	128
1126-14	14	21	4	8	12	10 1/2	23 3/16	10 3/4	3 3/4	-	18 3/4	1 1/8	12	3/4	1 3/8	1 1/8	1 1/8	1 5/8	152
1126-16	16	23 1/2	4 1/4	8 1/2	13 1/4	11 3/4	25 11/16	12 1/8	5	-	21 1/4	1 1/8	16	7/8	1 3/8	1 1/8	1 1/8	1 5/8	188
1123-9	8	13 1/2	2 3/4	5 1/2	8 1/2	6 3/4	15 1/4	-	-	-	11 3/4	7/8	8	9/16	-	-	-	-	52
1123-10	10	16	3 3/4	7 1/2	9 3/4	8	17 3/4	-	-	-	14 1/4	1	12	3/4	-	-	-	-	91
1123-12	12	19	4	8	11 1/4	9 1/2	20 3/4	-	-	-	17	1	12	3/4	-	-	-	-	125
1123-14	14	21	4	8	12 1/4	10 1/2	22 3/4	-	-	-	18 3/4	1 1/8	12	3/4	-	-	-	-	149
1123-16	16	23 1/2	4 1/4	8 1/2	13 1/4	11 3/4	25 1/4	-	-	-	21 1/4	1 1/8	16	7/8	-	-	-	-	185

1123^① Manual Valves (-9 thru -16)



^① Minimum valve arm radius for attaching linkage is U, maximum is 5".

DIMENSIONS SHOWN ARE SUBJECT TO CHANGE. PLEASE OBTAIN CERTIFIED PRINTS FROM FIVES NORTH AMERICAN COMBUSTION, INC.
IF SPACE LIMITATIONS OR OTHER CONSIDERATIONS MAKE EXACT DIMENSION(S) CRITICAL.

WARNING: Situations dangerous to personnel and property may exist with the operation and maintenance of any combustion equipment. The presence of fuels, oxidants, hot and cold combustion products, hot surfaces, electrical power in control and ignition circuits, etc., are inherent with any combustion application. Components in combustion systems may exceed 160°F (71°C) surface temperatures and present hot surface contact hazard. Fives North American Combustion, Inc. suggests the use of combustion systems that are in compliance with all Safety Codes, Standards, Regulations and Directives; and care in operation.



CONTACT US:
Fives North American Combustion, Inc.
4455 East 71st Street - Cleveland, OH 44105 - USA
Tel: +1 216 271 6000 - Fax: +1 216 373 4237
Email: fna.sales@fivesgroup.com



www.fivesgroup.com