BVA BUTTERFLY VALVES

Air

Valve Model	Pipe Size (NPT)	Wide Open Valve Capacity Air (scfh)			70° Open Valve Capacity Air (scfh)			Valve Leakage @ Fully Closed Position & 1psig Upstream Static Pressure Air (scfh)
		0.5" w.c.Δp	1 osi Δp	C_v	0.5" w.c.Δp	1 osi Δp	C_v	
BVA 110/410	1"	892	1690	28	776	1440	25	≤ 45
BVA 112/412	1¼"	1970	3720	62	1430	2630	45	≤ 105
BVA 115/415	1½"	3580	6640	113	2340	4340	74	≤ 130
BVA 120/420	2"	6320	11800	199	4080	7500	129	≤ 150
BVA 125/425	2½"	10200	18400	322	5310	9770	167	≤ 190
BVA 130/430	3"	12900	23700	405	8000	14600	252	≤ 210
BVA 140/440	4"	29000	53000	913	13900	26000	437	≤ 240
BVA 160/460	6"	95300	182000	3040	36200	68600	1150	≤ 455
BVA 1060/4060	6" FLG	75200	141600	2370	31900	59800	1005	≤ 710
BVA 1080/4080	8" FLG	185000	345000	5770	61000	115000	1910	≤ 710
BVA 1100/4100	10" FLG	242000	451000	7630	98200	182000	3070	≤ 710

Natural Gas

Valve Model	Pipe Size (NPT)	Wide Open Valve Capacity Natural Gas (scfh)			70° Open Valve Capacity Natural Gas (scfh)			Valve Leakage @ Fully Closed Position & 1psig Upstream Static Pressure Nat. Gas (scfh)
		0.5" w.c.Δp	1 osi Δp	C_v	0.5" w.c.Δp	1 osi Δp	C_v	
BVA 110/410	1"	1150	2180	28	1000	1860	25	≤ 60
BVA 112/412	1¼"	2550	4800	62	1840	3400	45	≤ 140
BVA 115/415	1½"	4600	8570	113	3000	5600	74	≤ 95
BVA 120/420	2"	8200	15200	199	5270	9680	129	≤ 195
BVA 125/425	2½"	13200	23900	322	6860	12600	167	≤ 115
BVA 130/430	3"	16600	30700	405	10300	18800	252	≤ 275
BVA 140/440	4"	37500	68400	913	17900	33500	437	≤ 310
BVA 160/460	6"	123000	235000	3040	46800	88600	1150	≤ 590

Notes:

1. Capacities based on air @ 1.0 s.g. and natural gas @ 0.60 s.g., and 60°F fluid temperature.
2. Δp measured across valve.
3. Maximum inlet pressure is 5 psig, maximum operating temperature is 250°F.
4. 1xx and 1xxx series are manual valves with a short lever and locking screw; 4xx and 4xxx are automatic valves with a long lever and linkage connector.
5. For applications requiring a control motor mounting bracket, specify the motor model number when ordering.

(Hot air BVA-H valve capacities on reverse side.)

BVA-H SERIES (Hot Air To 800°F)

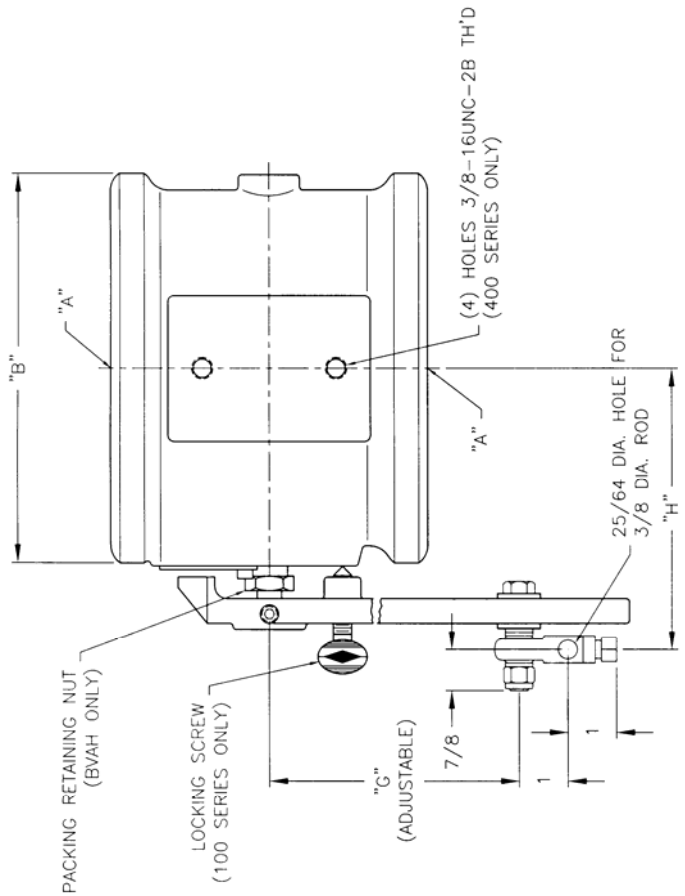
Valve Model	Pipe Size (NPT)	70° Open Valve Capacity Air (scfh)							Valve Leakage @ Fully Closed Position & 1psig Upstream Static Pressure Air 60°F (scfh)
		0.5" wc Δp			1 osi Δp			C_v	
		400°F	600°F	800°F	400°F	600°F	800°F		
BVA-H 110/410	1"	596	537	493	1080	975	894	24	≤ 305
BVA-H 112/412	1¼"	1090	984	903	2080	1880	1720	44	≤ 445
BVA-H 115/415	1½"	1680	1510	1390	3080	2780	2550	68	≤ 470
BVA-H 120/420	2"	2700	2430	2230	4920	4430	4070	109	≤ 705
BVA-H 125/425	2½"	3360	3030	2770	6290	5660	5200	136	≤ 925
BVA-H 130/430	3"	5570	5020	4600	10500	9490	8700	226	≤ 1470
BVA-H 140/440	4"	9810	8840	8100	18400	16600	15200	400	≤ 2930
BVA-H 160/460	6"	23300	21000	19300	43000	38800	35600	943	≤ 5330

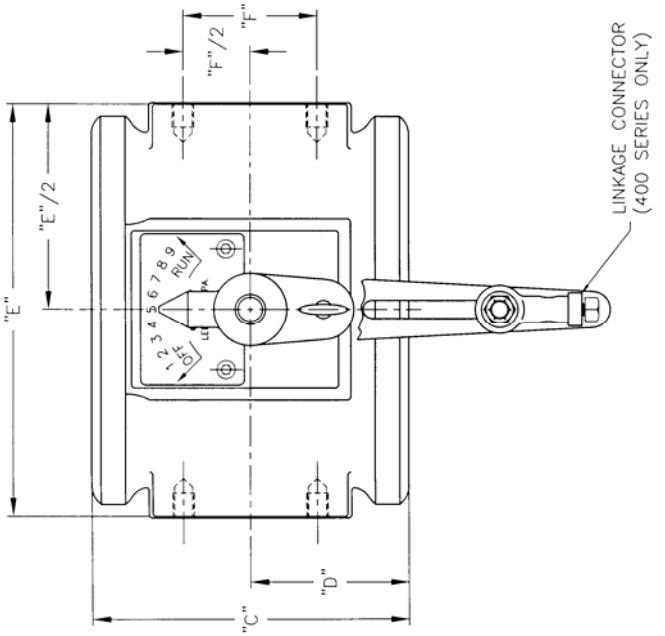
Valve Model	Pipe Size (NPT)	Wide Open Valve Capacity Air (scfh)							Valve Leakage @ Fully Closed Position & 1psig Upstream Static Pressure Air 60°F (scfh)
		0.5" wc Δp			1 osi Δp			C_v	
		400°F	600°F	800°F	400°F	600°F	800°F		
BVA-H 110/410	1"	743	669	614	1350	1220	1110	30	≤ 305
BVA-H 112/412	1¼"	1660	1500	1380	3120	2800	2580	67	≤ 445
BVA-H 115/415	1½"	3000	2700	2480	5620	5070	4640	121	≤ 470
BVA-H 120/420	2"	4550	4100	3760	8420	7580	6950	184	≤ 705
BVA-H 125/425	2½"	8310	7500	6870	15200	13700	12600	336	≤ 925
BVA-H 130/430	3"	11300	10200	9360	21000	18900	17300	459	≤ 1470
BVA-H 140/440	4"	25000	22500	20600	45800	41250	37800	1000	≤ 2930
BVA-H 160/460	6"	96600	87000	79800	179000	161000	147000	3900	≤ 5330

Notes:

1. Capacities based on air at specified temperature.
2. Δp is measured across valve.
3. Maximum inlet pressure is 5 psig.
4. 1xx and 1xxx are manual operation valves with a short lever; 4xx and 4xxx series are automatic valves with a long lever and linkage connector.
5. For applications that require a control motor mounting bracket, specify the motor model number when ordering.
6. Maximum operating temperature is 800°F.

BVA BUTTERFLY VALVES
100 & 400 SERIES





MODEL NO.	A	B	C	D	E	F	G	H	APPROX. NET WT.
BVA110	1 NPT	1 15/16	3	1 1/2	———	———	———	———	2.5 LB
BVA112	1 1/4 NPT	2 3/8	3 1/8	1 9/16	———	———	———	———	2.7 LB
BVA115/415	1 1/2 NPT	2 5/8	3 1/8	1 9/16	3 3/8	15/16	1 3/4 – 4 3/4	3 3/8	4.0 LB
BVA120/420	2 NPT	3	3 1/4	1 5/8	3 3/4	1 1/8	1 3/4 – 4 3/4	3 5/8	4.8 LB
BVA125/425	2 1/2 NPT	3 3/4	4 5/16	2 5/32	4 1/2	1 3/8	1 3/4 – 4 3/4	3 13/16	8.2 LB
BVA130/430	3 NPT	4 1/2	4 13/16	2 1/4	5	1 3/4	2 1/2 – 6	4 5/16	12 LB
BVA140/440	4 NPT	5 1/2	5	2 7/16	6 1/8	2 1/4	2 1/2 – 6	4 13/16	16 LB
BVA160/460	6 NPT	8	6 1/2	3 1/4	8 1/2	2 3/4	2 1/2 – 6	5 13/16	29 LB

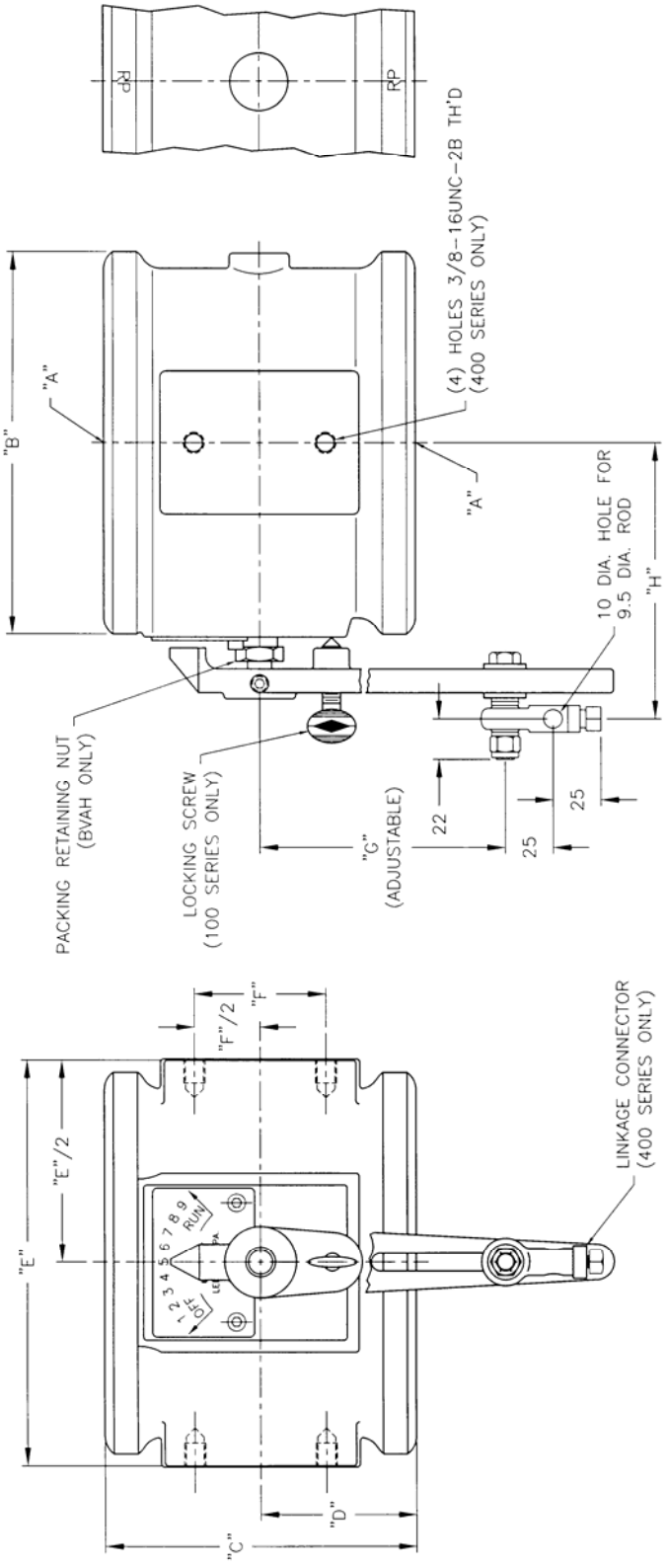
Y3307
(NOT TO SCALE)

NOTE:
1. 100 SERIES IS MANUAL OPERATION;
   400 SERIES IS AUTOMATIC OPERATION
2. FOR HOT AIR BUTTERFLY VALVE, ADD
   'H' TO MODEL NO., E.G., BVAH125.

(See Reverse Side For Metric Dimensions)

METRIC DIMENSIONS

BVA BUTTERFLY VALVES
100 & 400 SERIES

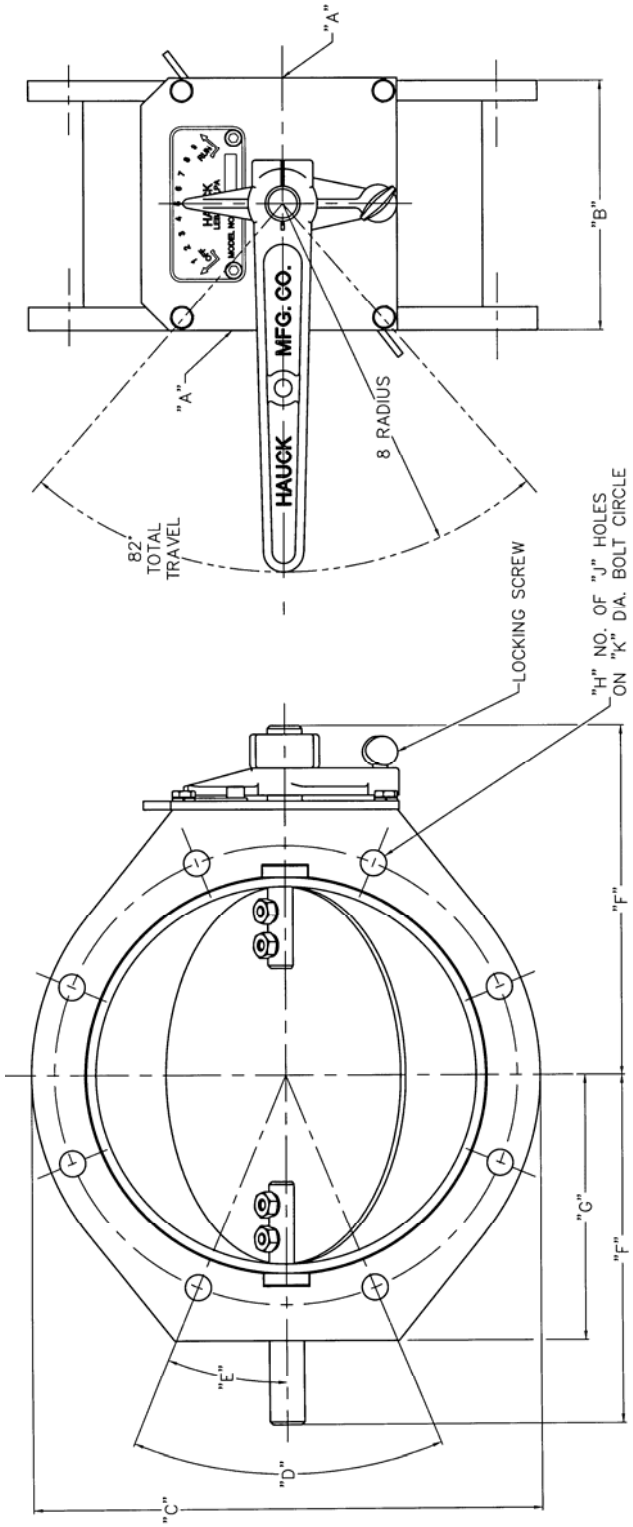


MODEL NO.	A	B	C	D	E	F	G	H	APPROX. NET WT.
BVA110-E	Rp 1	49	76	38	———	———	———	———	1.1 KG
BVA112-E	Rp 1 1/4	60	79	40	———	———	———	———	1.2 KG
BVA115-E/415-E	Rp 1 1/2	67	79	40	86	24	44 – 121	86	1.8 KG
BVA120-E/420-E	Rp 2	76	83	41	95	29	44 – 121	92	2.2 KG
BVA125-E/425-E	Rp 2 1/2	95	110	55	114	35	44 – 121	97	3.7 KG
BVA130-E/430-E	Rp 3	114	122	57	127	44	64 – 152	110	5.4 KG
BVA140-E/440-E	Rp 4	140	127	62	156	57	64 – 152	122	7.3 KG
BVA160-E/460-E	Rp 6	203	165	86	216	70	64 – 152	148	13 KG

Y3307 METRIC
(NOT TO SCALE)

NOTE:
1. DIMENSIONS ARE IN MM.
2. 100 SERIES IS MANUAL OPERATION; 400 SERIES IS AUTOMATIC OPERATION.
3. FOR HOT AIR BUTTERFLY VALVE, ADD 'H' TO MODEL NO., E.G., BVAH125-E.

BVA BUTTERFLY VALVES
MANUAL
BVA1060C – BVA1100C



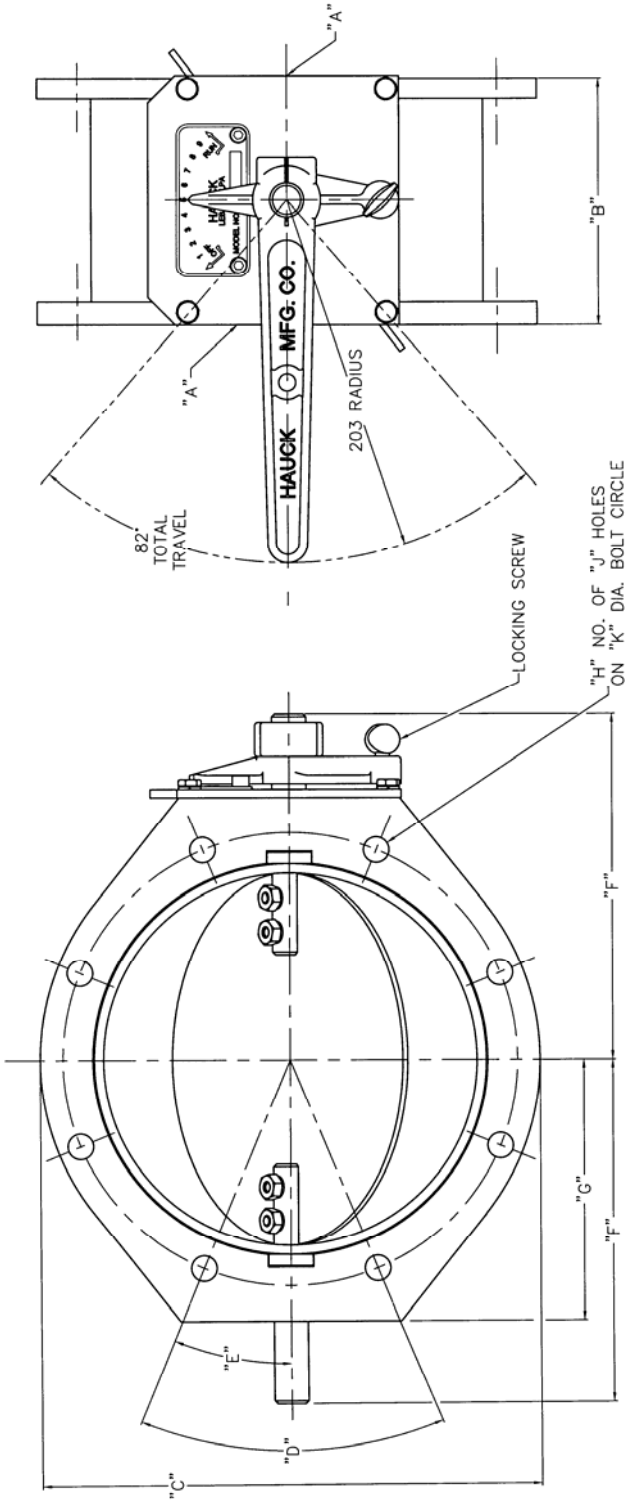
MODEL NO.	A	B	C	D	E	F	G	H	J	K	APPROX. NET WT.
BVA1060C	6 RPM	4	9	45°	22 1/2°	6 7/16	4 3/4	8	1/2–13 UNC–2B	7 7/8	19 LB
BVA1080C	8 RPM	5 1/2	11	45°	22 1/2°	7 7/16	5 3/4	8	9/16 DIA.	10	27 LB
BVA1100C	10 RPM	5 1/2	14	30°	15°	8 9/16	6 13/16	12	11/16 DIA.	12 1/4	36 LB

Y7824
(NOT TO SCALE)

(See Reverse Side For Metric Dimensions)

METRIC DIMENSIONS

BVA BUTTERFLY VALVES
MANUAL
BVA1060C – BVA1100C

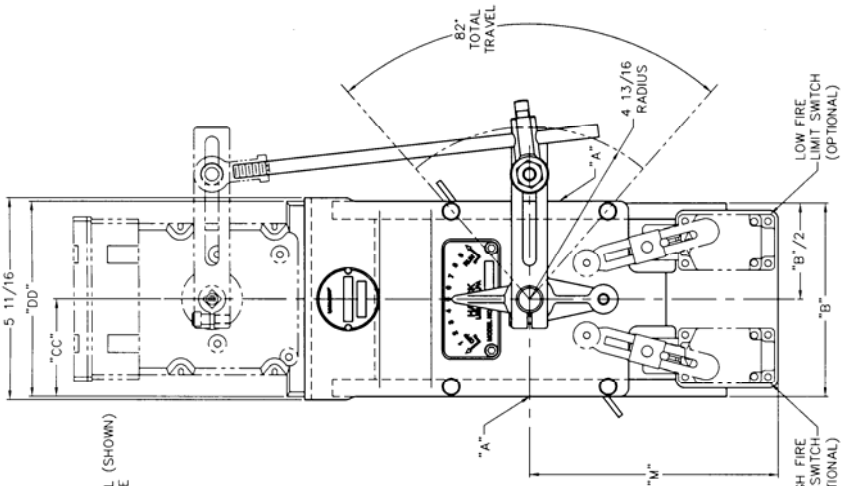


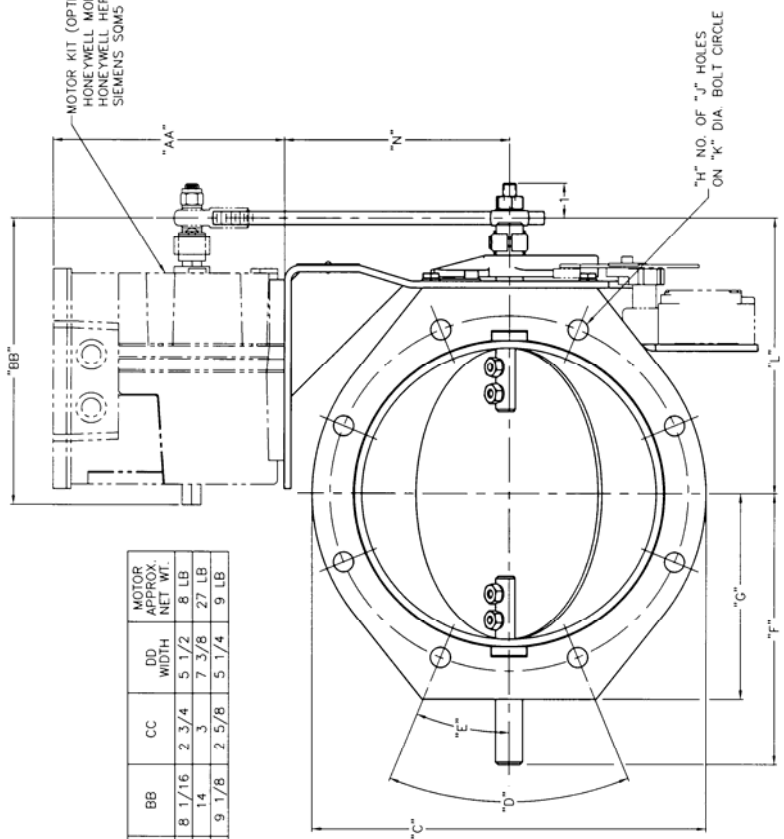
MODEL NO.	A	B	C	D	E	F	G	H	J	K	APPROX. NET WT.
BVA1060C	6 RPM	102	229	45°	22 1/2°	164	121	8	1/2-13 UNC-2B	200	9 KG
BVA1080C	8 RPM	138	279	45°	22 1/2°	189	146	8	14 DIA.	254	12 KG
BVA1100C	10 RPM	140	356	30°	15°	217	173	12	17 DIA.	311	16 KG

Y7824 METRIC
(NOT TO SCALE)

NOTE:
1. DIMENSIONS ARE IN MM.

BVA BUTTERFLY VALVES
AUTOMATIC LINKED DRIVE
BVA4060C – BVA4100C





MODEL NO.	A	B	C	D	E	F	G	H	J	K	L	M	N	VALVE APPROX. NET WT.
BVA4060C	6 RPM	4	9	45°	22 1/2°	6 5/8	4 3/4	8	1/2–13 UNC–2B	7 7/8	7 5/16	7 3/4	6 5/16	23 LB
BVA4080C	8 RPM	5 1/2	11	45°	22 1/2°	7 5/8	5 3/4	8	9/16 DIA.	10	7 3/4	6 15/16	6 5/16	30 LB
BVA4100C	10 RPM	5 1/2	14	30°	15°	8 11/16	6 13/16	12	11/16 DIA.	12 1/4	8 13/16	7 15/16	7 13/16	40 LB

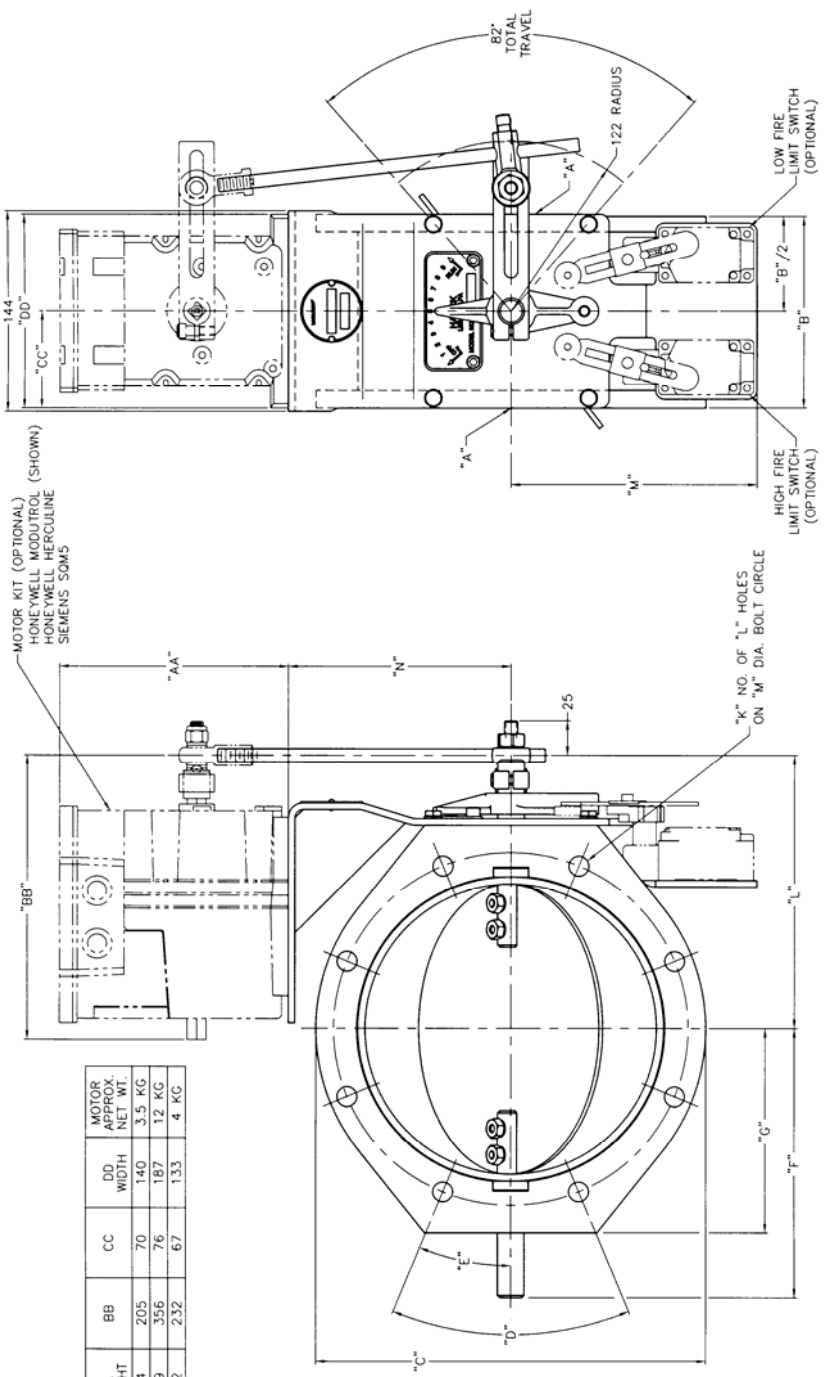
MOTOR KIT	AA HEIGHT	BB	CC	DD WIDTH	MOTOR APPROX. NET WT.
MODUTROL	6 7/16	8 1/16	2 3/4	5 1/2	8 LB
HERCULINE	5 7/8	14	3	7 3/8	27 LB
SQM5	6	9 1/8	2 5/8	5 1/4	9 LB

Y7825
(NOT TO SCALE)

(See Reverse Side For Metric Dimensions)

METRIC DIMENSIONS

BVA BUTTERFLY VALVES
AUTOMATIC LINKED DRIVE
BVA4060C – BVA4100C



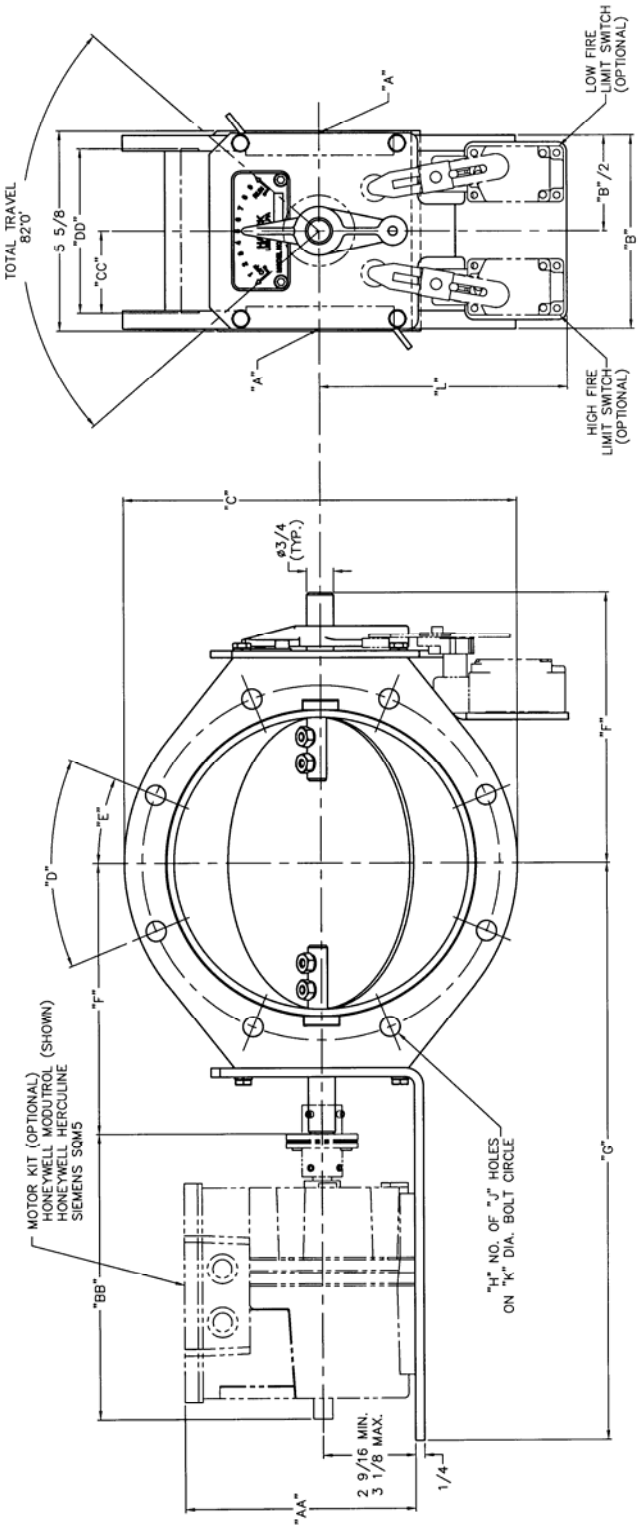
MOTOR KIT	AA HEIGHT	BB	CC	DD WIDTH	MOTOR APPROX. NET WT.
MODUTROL	164	205	70	140	3.5 KG
HERCULINE	149	356	76	187	12 KG
SQM5	152	232	67	133	4 KG

MODEL NO.	A	B	C	D	E	F	G	H	J	K	L	M	N	VALVE APPROX. NET WT.
BVA4060C	6 RPM	102	229	45°	22 1/2°	168	121	8	1/2–13 UNC–2B	200	186	197	160	11 KG
BVA4080C	8 RPM	138	279	45°	22 1/2°	189	146	8	9/16 DIA.	254	197	176	160	14 KG
BVA4100C	10 RPM	140	356	30°	15°	217	173	12	11/16 DIA.	311	224	202	198	18 KG

Y7825 METRIC
(NOT TO SCALE)

NOTE:
1. DIMENSIONS ARE IN MM.

BVA BUTTERFLY VALVES
AUTOMATIC DIRECT DRIVE
BVA5060 – BVA5100



MOTOR KIT	AA HEIGHT	BB	CC	DD WIDTH	MOTOR APPROX. NET WT.
MODUTROL	6 7/16	8 1/16	2 3/4	5 1/2	8 LB
HERCULINE	5 7/8	14 1/4	3	7 3/8	27 LB
SQM5	5 1/4	9 3/8	2 5/8	5 1/4	9 LB

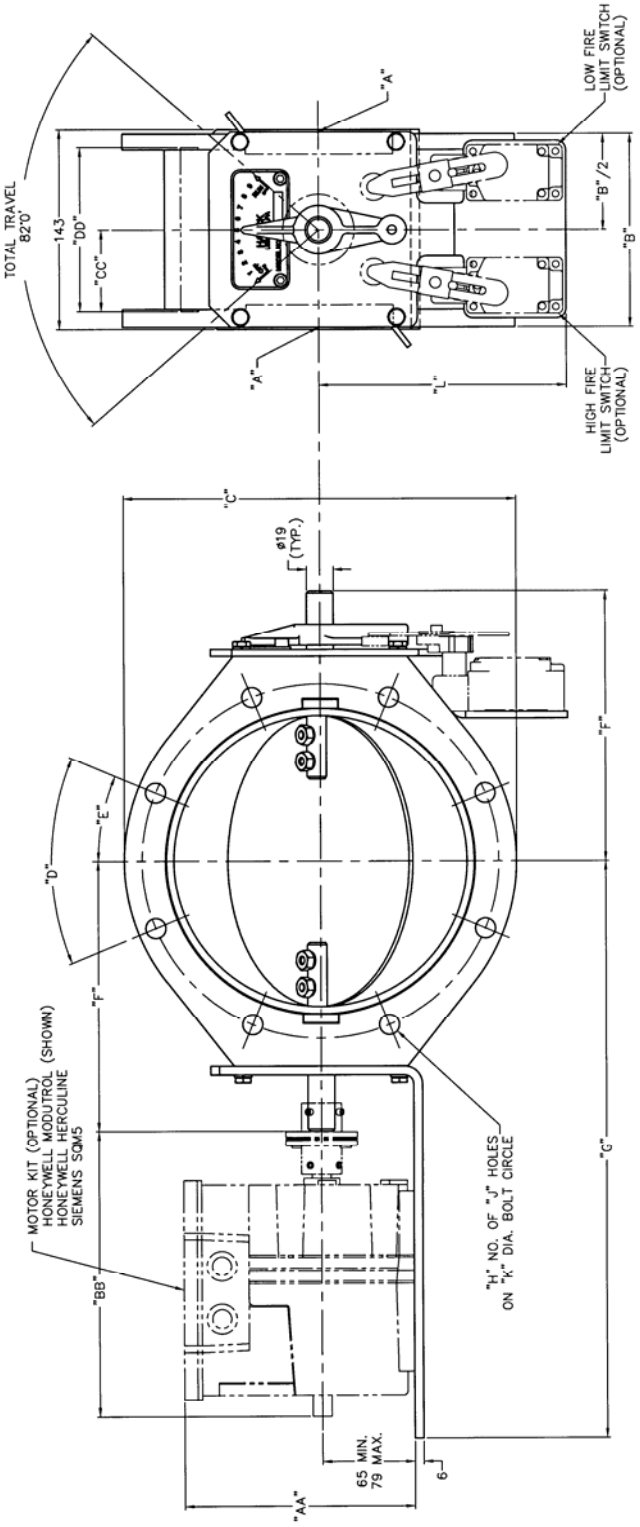
MODEL NO.	A	B	C	D	E	F	G	H	J	K	L	VALVE APPROX. NET WT.
BVA5060	6 RPM	4	9	45°	22 1/2°	6 5/8	15 1/4	8	1/2–13 UNC–2B	7 7/8	7 3/4	25 LB
BVA5080	8 RPM	5 1/2	11	45°	22 1/2°	7 5/8	16 5/16	8	9/16 DIA.	10	6 15/16	33 LB
BVA5100	10 RPM	5 1/2	14	30°	15°	8 11/16	17 5/16	12	11/16 DIA.	12 1/4	7 15/16	43 LB

Y7826
(NOT TO SCALE)

(See Reverse Side For Metric Dimensions)

METRIC DIMENSIONS

BVA BUTTERFLY VALVES
AUTOMATIC DIRECT DRIVE
BVA5060 – BVA5100



MOTOR KIT	AA HEIGHT	BB	CC	DD WIDTH	MOTOR APPROX. NET WT.
MODUTROL	164	205	70	140	3.5 KG
HERCULINE	149	362	76	187	12 KG
SQM5	133	238	67	133	4 KG

MODEL NO.	A	B	C	D	E	F	G	H	J	K	L	VALVE APPROX. NET WT.
BVA5060	6 RPM	102	229	45°	22 1/2°	168	387	8	1/2–13 UNC–2B	200	197	11 KG
BVA5080	8 RPM	138	279	45°	22 1/2°	194	414	8	14 DIA.	254	176	15 KG
BVA5100	10 RPM	140	356	30°	15°	221	440	12	17 DIA.	311	202	20 KG

Y7826 METRIC
(NOT TO SCALE)

NOTE:
1. DIMENSIONS ARE IN MM.

BVA / BVA-H SERIES BUTTERFLY VALVES

CORRECTING FOR CONDITIONS OUTSIDE CATALOG PARAMETERS

The capacities listed in BVA-2 are cataloged at 60°F and 0.5" wc or 1 osi Δp (specific gravity for air at 1.0, natural gas 0.60). When these conditions are not present, corrections must be applied to the catalog flow rate. **All corrections below are based on wide open capacity and 0.5" wc Δp.**

Valve Differential Pressure Δp

For a differential pressure other than 0.5" wc Δp, use FORMULA 1 or TABLE 1 to obtain the appropriate correction factor for valve Δp, then determine the corrected flow as shown.

(1) $$C\,\Delta p = \sqrt{\frac{\Delta p_2}{\Delta p_1}}$$

$C\Delta p$ = Differential Pressure Correction Factor
Δp_1 = Cataloged Δp (0.5" wc)
Δp_2 = Actual Δp (" wc)
(Note: 1.0"wc = 0.58 osi = .036 psi)

Table 1

Δp_2("wc)	0.2	0.5	0.7	1.0	1.5	2.0	3.0
CΔp	.632	1.0	1.183	1.414	1.732	2.0	2.449

Multiply the valve differential pressure correction factor, **C**Δp**,** by the flow determined from the BVA capacity table to obtain the corrected flow. For example, a BVA 140 with 0.5" Δp wide open has a capacity of 29000 SCFH air. For a 1.5" wc valve Δp, the corrected flow will be 29000 SCFH X 1.732 = 50229 SCFH.

Specific Gravity

For a specific gravity other than 1.0 (air), use FORMULA 2 or TABLE 2 to obtain the appropriate specific gravity correction factor, then determine the corrected flow as shown. (Note: Flows in BVA-2 are cataloged for natural gas and air)

(2) $$C_{s.g.} = \sqrt{\frac{s.g._1}{s.g._2}}$$

$C_{s.g.}$ = Specific Gravity Correction Factor
$s.g._1$ = Specific Gravity - Air (1.0)
$s.g._2$ = Specific Gravity - Actual Gas

Table 2

Gas	Natural	Air	Propane	Butane
s.g.	0.60	1.0	1.52	2.01
$C_{s.g.}$	1.29	1.0	.81	.71

Multiply the s.g. correction factor, **$C_{s.g.}$,** by the flow determined from the BVA capacity table to obtain the corrected flow. For example, a BVA 140 with 0.5" Δp wide open has a capacity of 29000 scfh air. For propane, the corrected flow will be 29000 SCFH X 0.81 = 23490 SCFH.

Temperature

For a gas temperature other than 60°F, use FORMULA 3 or TABLE 3 to obtain the appropriate temperature correction factor, then determine the correct flow as shown.

(3) $$C_{temp} = \sqrt{\frac{\text{Abs Temp}_1}{\text{Abs Temp}_2}}$$

C_{temp} = Temperature Correction Factor
Abs $\text{Temp}_1 = t_1 + 460$
Abs $\text{Temp}_2 = t_2 + 460$
t_1 = Catalog Temperature (60ºF)
t_2 = Actual Temperature (ºF)

Table 3

Temp., °F	50	60	80	100	150	200	250	300	500	700
C_{temp}	1.01	1.0	.98	.96	.92	.88	.85	.83	.74	.67

Multiply the temp. correction factor, **C_{temp},** by the flow determined from the BVA capacity table to obtain the corrected flow. For example, a BVA 140 with 0.5" Δp wide open has a capacity of 29000 scfh air. For an air temperature at 200°F, the corrected flow is 29000 SCFH X .88 = 25520 SCFH.

Note: For gas temperatures above 250°F, use the BVA-H series (Shaded Area).

Note: If more than one correction factor is necessary, multiply the cataloged flow by each applicable correction factor. For all the correction factors shown above, the corrected flow will be 29000 SCFH X 1.732 X 0.81 X 0.88 = 35803 SCFH.

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