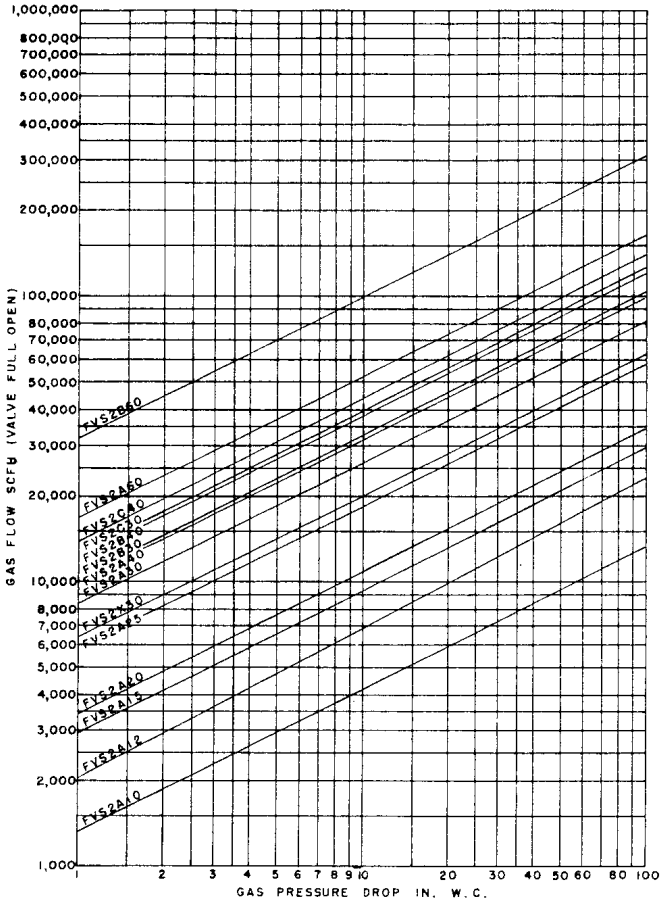
FVA-FVS ADJUSTABLE FLOW VALVES

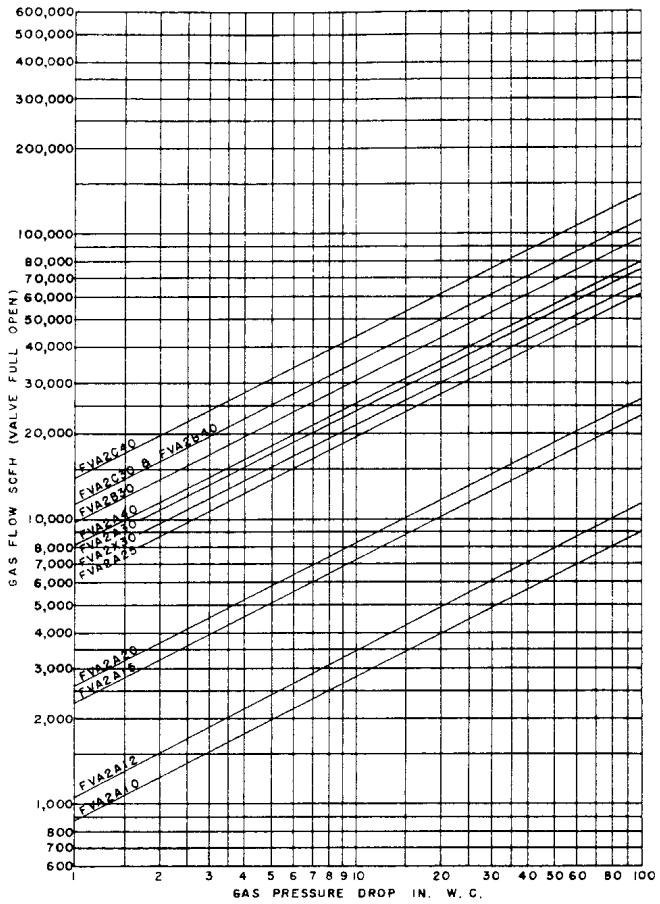
NATURAL GAS

STRAIGHT VALVE



Q135

ANGLE VALVE



Q136

NOTES:

1. Capacities based on gas @ 0.60 s.g. and 68°F temperature.
2. Static pressure drop measured across full open valve with pointer at position 10 and valve piston in full open position.
3. Maximum inlet pressure is **15 psig** up to 4" valve size and **3 psig** for 6" valve size.
4. Maximum temperature is **200°F**.

SPECIFIC GRAVITY (Correction Factor C_3)

Gas	Coke Oven	Natural Gas			Blast Furnace	Propane	Butane
Specific Gravity	.40	.59	.60	.61	1.02	1.52	2.01
Multiplier	1.224	1.007	1.000	.992	.767	.628	.547

CORRECTION FACTORS

PRESSURE (Correction Factor C_1)

Pressure Drop (psig)	Inlet Pressure (psig) 5	10	15
1	1.15	1.29	1.42
2	1.63	1.80	1.95
3	1.95	2.25	2.45
4	2.20	2.50	2.85
5	2.45	2.75	3.00
10		3.70	4.05
15			4.70

TEMPERATURE (Correction Factor C_2)

Temperature (°F)	68	100	150	200
Multiplier	1.00	1.03	1.07	1.12

EXAMPLE:

Determine the corrected volumetric flow rate in standard cubic feet per hour for a FVS2A15 (1½") adjustable flow valve for propane gas at 100°F having an inlet pressure of 15 psig and a pressure drop of 5 psig.

Using the equation: ^{Q}(corrected) = C_1 x C_2 x C_3 x ^{Q}(rated)

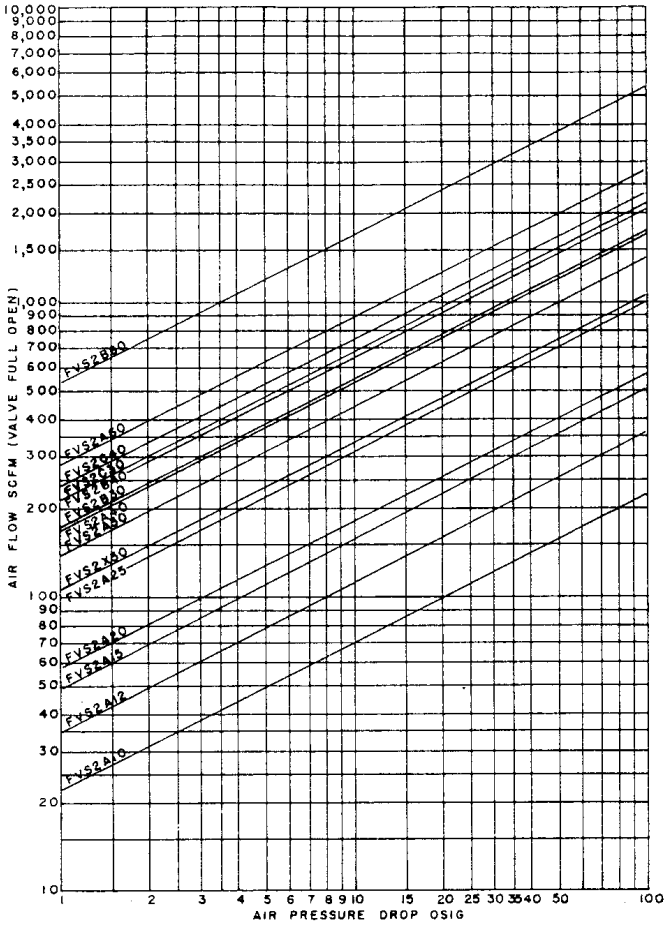
1. From the standard flow curve for Natural Gas (Q135) at 27.7 "w.c. pressure drop, determine the rated flow: ^{Q}(rated) = 16,000 scfh.
2. From the Pressure correction factor table, determine the pressure correction factor: C_1 = 3.00
3. From the Temperature correction factor table, determine the temperature correction factor: C_2 = 1.03
4. From the Specific Gravity correction factor table, determine the specific gravity correction factor for Propane: C_3 = 0.628

Then, ^{Q}(corrected) = (3.00) x (1.03) x (0.628) x (16,000)
= 31,050 scfh of propane gas

(OVER)

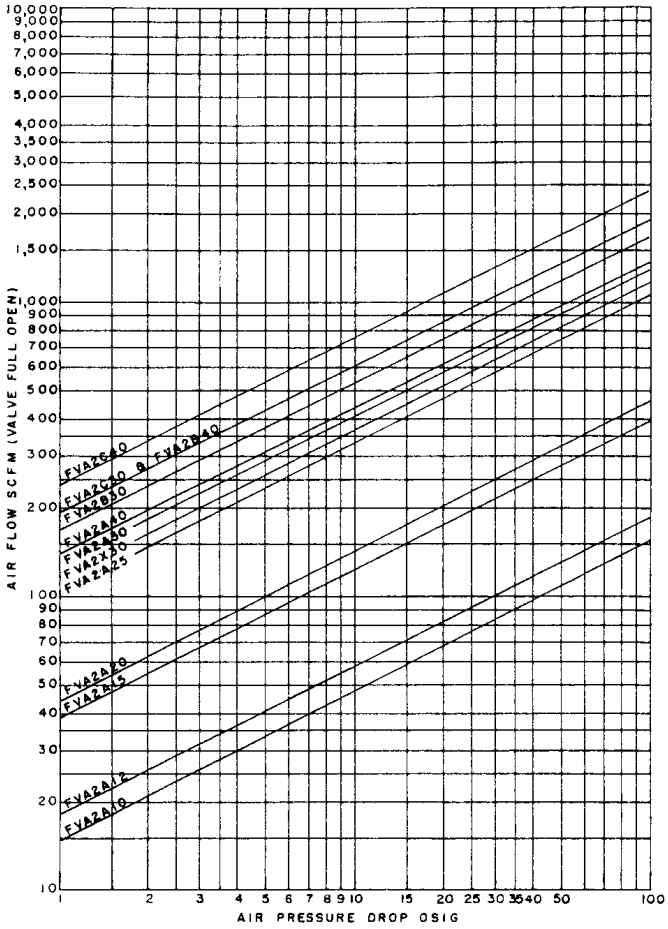
AIR

STRAIGHT VALVE



Q138

ANGLE VALVE



Q139

NOTES:

1. Capacities based on air @ 1.0 s.g. and 68°F temperature.
2. Static pressure drop measured across full open valve with pointer at position 10 and valve piston in full open position.
3. Maximum inlet pressure is **15 psig** up to 4" valve size and **3 psig** for 6" valve size.
4. Maximum temperature is **200°F**.

CORRECTION FACTORS

PRESSURE (Correction Factor C_1)

Pressure Drop (psig)	Inlet Pressure (psig) 5	10	15
1	1.15	1.29	1.42
2	1.63	1.80	1.95
3	1.95	2.25	2.45
4	2.20	2.50	2.85
5	2.45	2.75	3.00
10		3.70	4.05
15			4.70

TEMPERATURE (Correction Factor C_2)

Temperature (°F)	68	100	150	200
Multiplier	1.00	1.03	1.07	1.12

EXAMPLE:

Determine the corrected volumetric flow rate in standard cubic feet per hour for a FVS2A15 (1½") adjustable flow valve for air at 150°F having an inlet pressure of 15 psig and a pressure drop of 5 psig.

Using the equation: ^{Q}(corrected) = C_1 x C_2 x ^{Q}(rated)

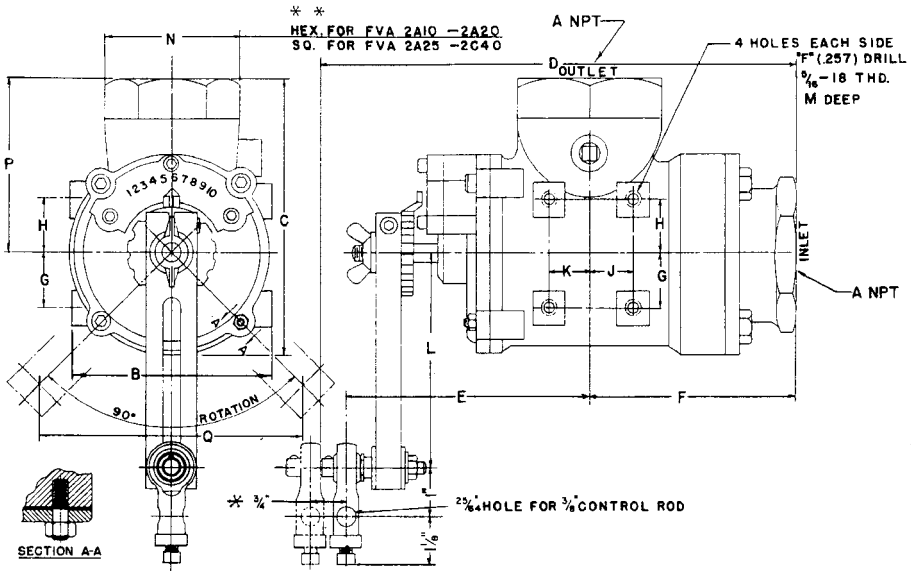
1. From the standard flow curve for Air (Q138) at 16 osig pressure drop, determine the rated flow: ^{Q}(rated) = 12,000 scfh.
2. From the Pressure correction factor table, determine the pressure correction factor: C_1 = 3.00
3. From the Temperature correction factor table, determine the temperature correction factor: C_2 = 1.07

Then, ^{Q}(corrected) = (3.00) x (1.07) x (12,000)
= 38,520 scfh of air

SELECTION TABLE

VALVE SIZE	PORT SIZE	STRAIGHT MODEL NO.	ANGLE MODEL NO.
1"	A	FVS2A10D	FVA2A10B
1¼"	A	FVS2A12D	FVA2A12B
1½"	A	FVS2A15D	FVA2A15B
2"	A	FVS2A20D	FVA2A20B
2½"	A	FVS2A25F	FVA2A25A
3"	X	FVS2X30F	FVA2X30A
3"	A	FVS2A30F	FVA2A30B
3"	B	FVS2B30F	FVA2B30B
3"	C	FVS2C30F	FVA2C30B
4"	A	FVS2A40F	FVA2A40B
4"	B	FVS2B40F	FVA2B40B
4"	C	FVS2C40F	FVA2C40B
6"	A	FVS2A60F	—
6"	B	FVS2B60F	—

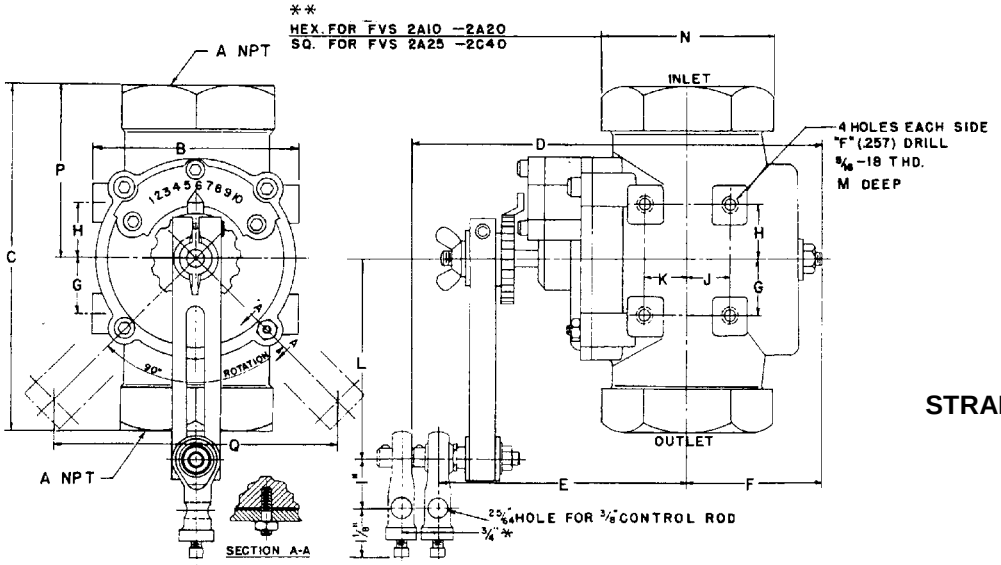
FVA-FVS ADJUSTABLE FLOW VALVES



ANGLE VALVES (1-4")
GX428

VALVE MODEL NO.	A NPT	DIMENSIONS — INCHES B	C	D	E	F	G	H	J	K	L MIN	L MAX	M	N	P	Q
FVA 2A10 -2A12	1 OR 1¼	4 1/8	5	7 15/16	4 11/32	3 1/32	1 1/8	1 1/8	1	1	1 1/8	4 3/8	5/16	2 5/8	3	6 3/16
FVA 2A15 -2A20	1½ OR 2	4 1/8	5 23/32	9 15/16	5 1/32	4 9/32	1 1/8	1 1/8	7/8	1 1/8	1 1/8	4 3/8	7/16	3 1/2	3 5/8	6 3/16
FVA 2A25 -2X30	2½ OR 3	5	6 3/32	10 29/32	5 9/16	4 25/32	1 1/8	1 1/8	1	1	1 1/8	4 3/8	9/16	4 7/8	4 1/2	6 3/16
FVA 2A30 -2C40	3 OR 4	6 1/4	8 11/16	12 9/16	6 3/32	5 29/32	1 1/8	1 1/8	1	1	1 1/8	4 3/8	1/2	5 1/2	5 7/16	6 3/16

NOTE: 1. TORQUE REQUIREMENT, 20 IN-LB
* WHEN ORDERING SPECIFY DOUBLE BALL SNAP IF DESIRED
** FVA2A10-2A20 HAVE ONE PIECE CAST BODYS
FVA2A25-2C40 HAVE REMOVABLE COMPANION FLANGES



STRAIGHT VALVES (1-4")
GX427

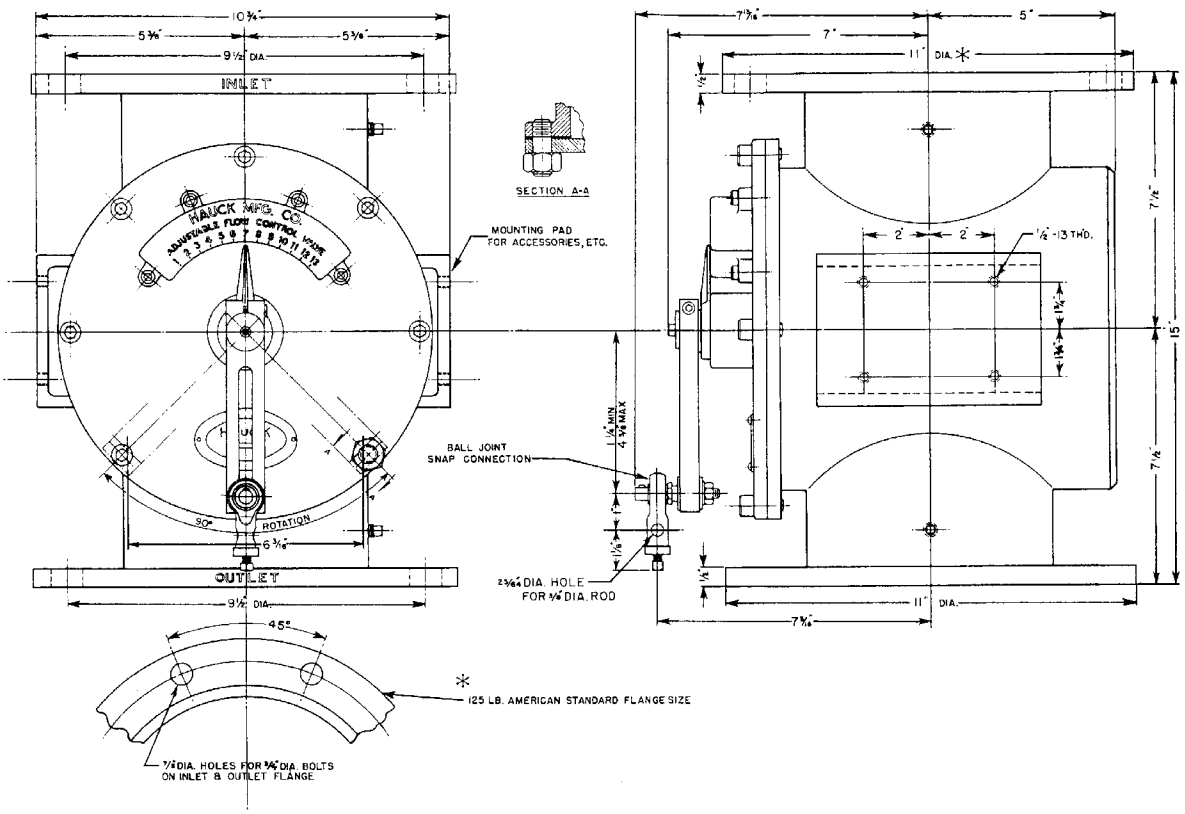
VALVE MODEL NO.	A NPT	DIMENSIONS — INCHES B	C	D	E	F	G	H	J	K	L MIN	L MAX	M	N	P	Q
FVS 2A10 -2A12	1 OR 1¼	4 1/8	6 3/8	8 1/8	4 11/16	2 7/8	1 1/8	1 1/8	1 1/8	7/8	1 1/8	4 3/8	5/16	2 5/8	3 5/16	6 3/16
FVS 2A15 -2A20	1½ OR 2	4 1/8	7 1/4	8 1/8	4 7/8	2 11/16	1 1/8	1 1/8	7/8	1 1/8	1 1/8	4 3/8	7/16	3 1/2	3 5/8	6 3/16
FVS 2A25 -2X30	2½ OR 3	5	9 1/16	9 1/16	5 9/16	2 15/16	1 1/8	1 1/8	1	1	1 1/8	4 3/8	1/2	4 7/8	4 1/2	6 3/16
FVS 2A30 -2C40	3 OR 4	6 1/4	11	9 15/16	6	3 3/8	1 1/8	1 1/8	1	1	1 1/8	4 3/8	1/2	5 1/2	5 1/2	6 3/16

NOTE:
1. TORQUE REQUIREMENT, 20 IN-LB
2. FOR 6" VALVE, WRITE FOR PRINT OF DRAWING GY226F
*WHEN ORDERING SPECIFY DOUBLE BALL SNAP IF DESIRED

** FVS 2A10 -2A20 HAVE ONE PIECE CAST BODYS
FVS 2A25 -2C40 HAVE REMOVABLE COMPANION FLANGES

(OVER)

STRAIGHT VALVES (6")
GY226

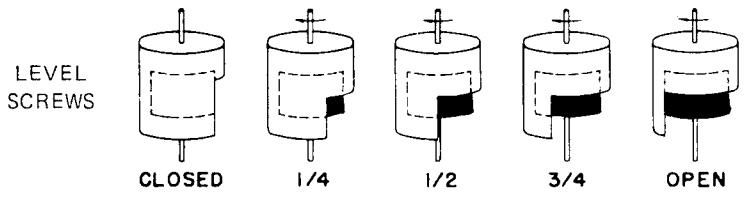


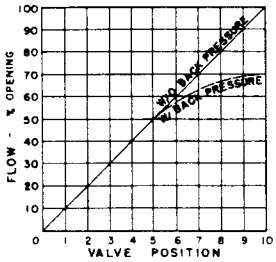
FVA-FVS ADJUSTABLE FLOW VALVES

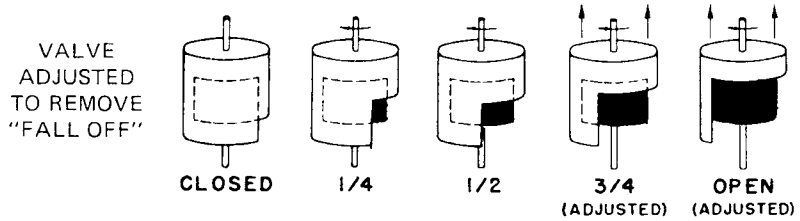
CONTROL

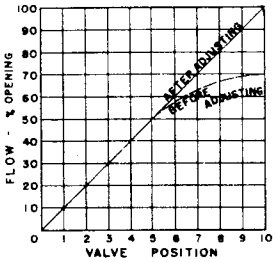
When adjusting screws are LEVEL the flow curve without any back pressure on the valve is a straight line, as shown. When valves are installed in a combustion system, as the burner flow rate increases the back pressure in the downstream side of the valve increases causing the flow through the valve to "fall off" from a straight line curve, as shown.

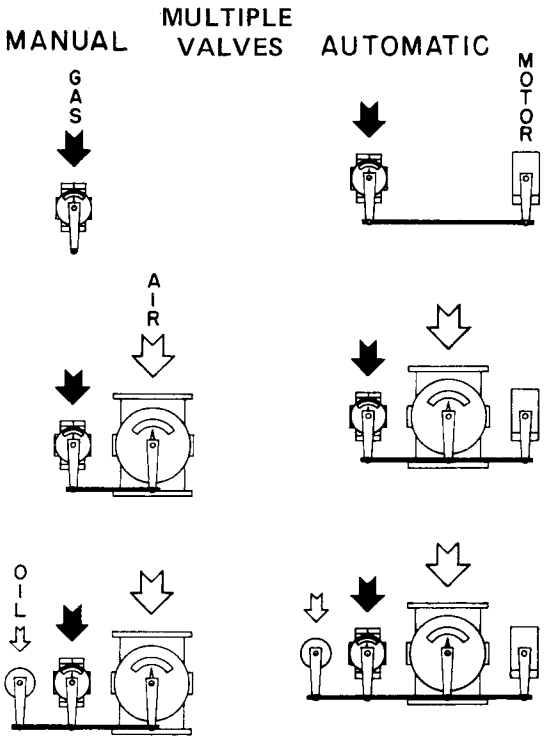
By turning the adjusting screws in, flow can be increased separately at each of ten valve positions to produce a straight line flow curve for the combustion system.

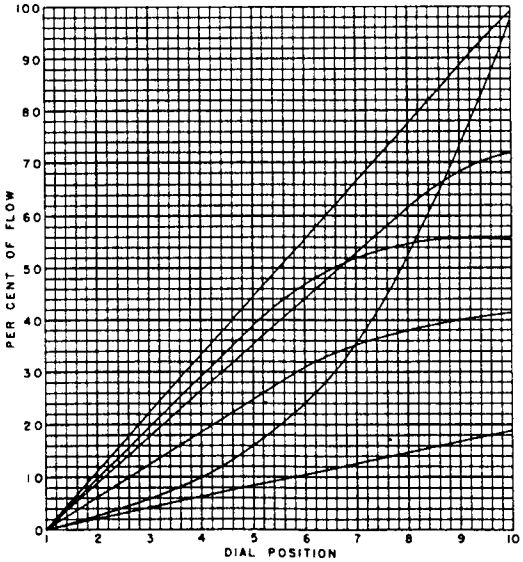












Several typical flow curves which are obtainable with the Hauck Adjustable Flow Valve. Valve flow curve can be characterized to match the flow curves of valves with which it is used.