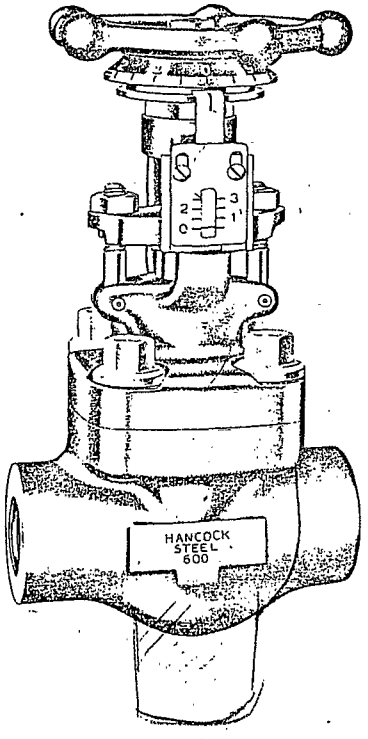
PLAINTIFF'S
EXHIBIT
CHV-446

SIZES 1/4" thru 2"
Outside Screw And Yoke

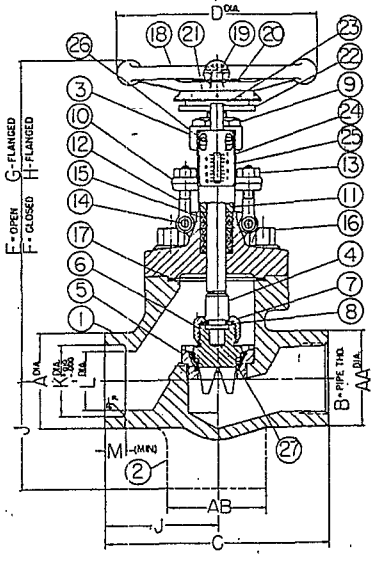
▪ GLOBE AND ANGLE ▪ BOLTED BONNET

Screwed and Socket Weld Valves: For all pressures up to 600 psi at 910°F. W.S.P. 2000 psi-100°F. O.W.G. Flanged Valves: For all pressures up to 600 psi at 850°F. W.S.P. 1440 psi-100°F. O.W.G.
Renewable hard faced seat.



Flow IN

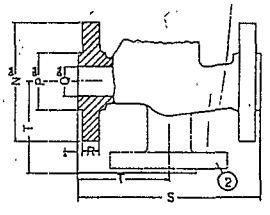
TYPE 5525 — GLOBE
out
ALSO FURNISHED WITH
2-V PORT DISCS
SIZES: 1/4" THROUGH 1"
TYPE 5526—GLOBE
TYPE 5536—ANGLE



TYPE 5525W—GLOBE
TYPE 5535W—ANGLE
SOCKET WELD ENDS
To ASA B16.11

TYPE 5525S—GLOBE
TYPE 5535S—ANGLE
SCREWED ENDS
To ASA B2.1

1" Size



TYPE 5525F—GLOBE
TYPE 5535F—ANGLE
FLANGED ENDS
To ASA B16.5
FACE TO FACE
To ASA B16.10

Flanges drilled unless otherwise stated on order.

Continuous Blowdown Valve
RMCoulter

SEP 3 1970

R. M. COULTER

CHEV B8 5936

HANCOCK 600# FORGED STEEL FLOCONTROL VALVES

GLOBE AND ANGLE

SCREWED, SOCKET WELD AND FLANGED ENDS

TYPES 5525 and 5535

DIMENSIONS—Screwed and Socket Weld Valves—Types 5525S and 5535W

VALVE SIZES INCHES	TYPE NUMBERS: SCREWED ENDS GLOBE	SCREWED ENDS ANGLE	SOCKET ENDS GLOBE	SOCKET ENDS ANGLE	A	AA	AB	B	C	D	E	F	J	K	L	M	WEIGHTS GLOBE	WEIGHTS ANGLE
¼	5525S	5535S	5525W	5535W	⅞	15/16	15/16	¼	35/16	3	515/16	5¾	121/32	.555	5/16	⅜	4	4
⅜					11/32	15/16	15/16	⅜	35/16	3	515/16	5¾	121/32	.690	⅜	⅜	4	4
½					15/16	15/16	15/16	½	35/16	3	515/16	5¾	121/32	.855	9/16	⅜	4	4
¾					1½	1½	1⅝	¾	39/16	3½	6⅜	6⅛	125/32	1.065	¾	½	4½	4½
					1⅞	1⅞	1⅞	1	4⅜	4	7¾	7⅜	23/16	1.330	1	½	8	8
1¼					2¼	2¼	2¼	1¼	5¼	4½	8⅞	8⅜	2⅝	1.675	1¼	½	12	12
1½					2½	2½	2½	1½	6½	5½	911/16	91/32	3¼	1.915	1½	½	16½	16½
2					3⅛	3⅛	3⅛	2	7	6½	111/16	105/16	3½	2.406	115/16	⅝	25	25

DIMENSIONS—Flanged Valves—Types 5525F and 5535F

VALVE SIZES INCHES	TYPE NUMBERS: GLOBE	ANGLE	D	G	H	N	P	Q	R	S	T	BOLT CIR.	HOLES NO.	HOLES SIZE	WEIGHTS GLOBE	WEIGHTS ANGLE
½	5525F	5535F	3½	6¾	6½	3¾	1⅝	½	9/16	6½	3¼	2⅝	4	⅝	9	8
¾			4	85/16	715/16	4⅝	111/16	¾	⅝	7½	3¾	3¼	4	¾	14½	13½
			4½	9½	9	4⅞	2	1	11/16	8½	4¼	3½	4	¾	17	16
1¼			5½	115/16	109/16	5¼	2½	1¼	13/16	9	—	3⅞	4	¾	34½	33
1½			6½	115/16	109/16	6⅛	2⅞	1½	⅞	9½	4¾	4½	4	⅞	39	37
			8½	131/16	121/16	6½	3⅝	2	1	11½	5¾	5	8	¾	55½	53

MATERIAL SPECIFICATIONS—Types 5525 and 5535

PART NO.	PART NAME	MATERIAL
1	BODY (GLOBE)	FORGED CARBON STEEL, ASTM A-105 GR. 2
2	BODY (ANGLE FLANGED)	CAST STEEL, ASTM A-216 GR. WCB
3	BONNET	FORGED CARBON STEEL, ASTM A-105 GR. 2
4	STEM	STAINLESS STEEL, AISI 416, H. T. 300 BRINELL
5	SEAT	STAINLESS STEEL, AISI 410
6	DISC	STAINLESS STEEL, AISI 420, H. T. 500 BRINELL
7	DISC NUT	CARBON STEEL, AISI B-1113
8	LOCK RING	STAINLESS STEEL, AISI 410, H. T. 250 BRINELL
9	THREAD BUSHING	STAINLESS STEEL, AISI 416, H. T. 400 BRINELL
10	PACKING GLAND FLANGE	FORGED STEEL, ASTM A-105 GR. 2
11	PACKING GLAND	STAINLESS STEEL, AISI 416, H. T. 400 BRINELL
12	PACKING GLAND BOLTS	STAINLESS STEEL, AISI 410, H. T. 300 BRINELL
13	PACKING GLAND NUTS	CARBON STEEL, CADMIUM PLATED
14	PINS	STAINLESS STEEL, AISI 416
15	PACKING RING	BRAIDED ASBESTOS WITH INCONEL WIRE, GRAPHITED & CORROSION INHIBITED
16	BONNET BOLTS	ALLOY STEEL, ASTM A-193 GR. B-7
17	GASKET	STAINLESS STEEL & ASBESTOS-SPIRAL WOUND LAMINATED
18	HANDWHEEL	MALLEABLE IRON, ASTM A197
19	HANDWHEEL NUT	LOCK TYPE, CARBON STEEL
20	MARKER PLATE	ETCHED ALUMINUM
21	DIAL	BRASS
22	DIAL PLATE	BRASS
23	INDICATOR	BRASS
24	INDICATOR BRACKET	BRASS
25	INDICATOR PLATE	ETCHED BRASS
26	INDICATOR PLATE SCREWS	BRASS
27	SEAT FACING	STELLITE OR EQUAL

Page 40 for pressure and temperature ratings. See Bulletin 205 for Hancock Bronze Flocontrol Valves.

CHEV B8 5937

HANCOCK 600# FLOCONTROL VALVES

▪ CAPACITY TABLES, CORRECTION FACTORS

CAPACITY TABLES

600# STEEL FLOCONTROL VALVES

TYPES—5525 AND 5535, SOCKET AND WELD ENDS

VALVE SIZES INCHES	FLOW COEFFICIENT CV	HANDWHEEL TURNS FULL OPEN	RELATIVE CAPACITY % OF 1" VALVE FULL OPEN	CAPACITY FULL OPEN		
				WATER G.P.H. AT 10# P.D.	STEAM LBS. PER HR. AT 100# ABS.	S. 100
¼	.4	2.25	10	75	70	
⅜	1.0	2.25	25	180	160	
½	1.0	2.25	25	180	160	
¾	2.0	3.00	50	370	350	
1	4.0	3.75	100	760	700	
1¼	7.0	5.00	175	1310	1220	
1½	10.4	6.00	260	1960	1820	
2	14.0	6.00	350	2620	2450	

TYPES—5525-F and 5535-F

VALVE SIZES INCHES	FLOW COEFFICIENT CV	HANDWHEEL TURNS FULL OPEN	RELATIVE CAPACITY % OF 1" VALVE FULL OPEN	CAPACITY FULL OPEN		
				WATER G.P.H. AT 10# P.D.	STEAM LBS. PER HR. AT 100# ABS.	S. 10
¼	.4	2.25	5.8	75	70	
⅜	1.0	2.25	14.5	180	160	
½	2.0	3.00	29	370	350	
¾	4.0	3.75	58	750	700	
1	7.0	5.00	100	1310	1220	
1¼	14.0	6.00	200	2620	2450	
1½	14.0	6.00	200	2620	2450	
2	25.3	6.00	360	4700	4400	

NOTE 1. Capacities are for 10 lbs. per sq. in. pressure drop across valve. For other conditions, flow is proportional to the square root of the pressure drop.

NOTE 2. Capacities are for saturated steam at 100 lbs. per sq. in. absolute pressure. For other conditions, flow is proportional to the *absolute pressure.*

NOTE 3. Capacities are for air at 70°F.—100 lbs. per sq. in. gauge. Air flow is proportional to the *absolute pressure.* For other gases, flow is inversely proportional to the square root of the specific gravity of the gas referred to air=1.00

$$Q_{Gas} = Q_{Air}\sqrt{\frac{1}{\text{Specific Grav. Gas}}}$$

NOTE 4. Cv or flow coefficient is the number of which will flow through a given valve v drop is one psi. It may be used in cor following formula for sizing Flocontrol v other non-viscous liquids.

Flow coefficient $Cv = \frac{Q \times \sqrt{\ }}{\sqrt{H}}$

Q = G.P.M.

H = Pressure drop psi.

G = Specific gravity compared with w

CORRECTION FACTORS—STEAM FLOW

FOR FLOCONTROL AND HI-PRESSURE DROP VALVES

CHART #1

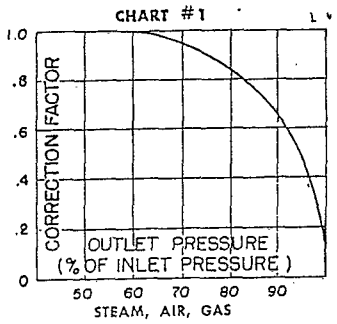
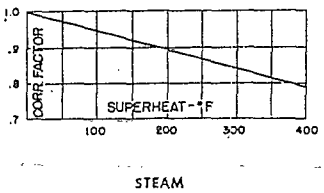


CHART #2



TYPES 5315S, 5315F, 5

The four charts on the n maximum capacity for H trol Valves in the sizes to of 2½" to 6" valves may termined by reading the 1" valve from the chart tiplying by the followin

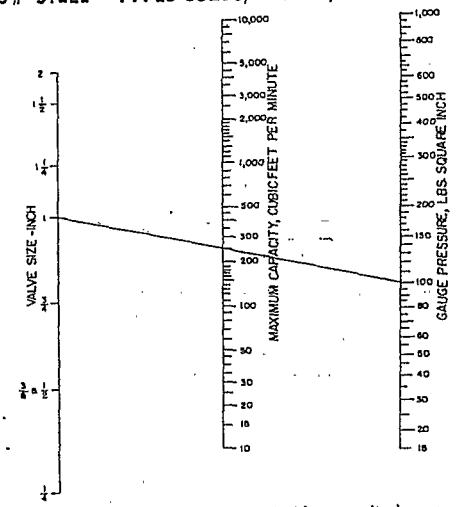
2½ .....
3" .....
4" .....
5" .....
6" .....

HANCOCK 600# FLOCONTROL VALVES

▪ AIR, STEAM, WATER, BLOWDOWN CHARTS

AIR FLOW CHART

600# STEEL— TYPES 5525S, 5525W, 5535S & 5535W



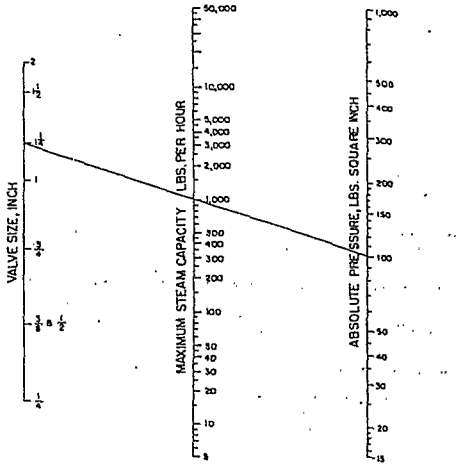
For air at 70° F. only. For other gases, divide capacity by square root of specific gravity.

Note: If outlet pressure is greater than 55% of the inlet pressure, multiply capacity by the correction factor on Page 32, Chart #1.

4 V-Port valves only. 2 V-Port valves have half capacity.

STEAM FLOW CHART

600# STEEL— TYPES 5525S, 5525W, 5535S & 5535W



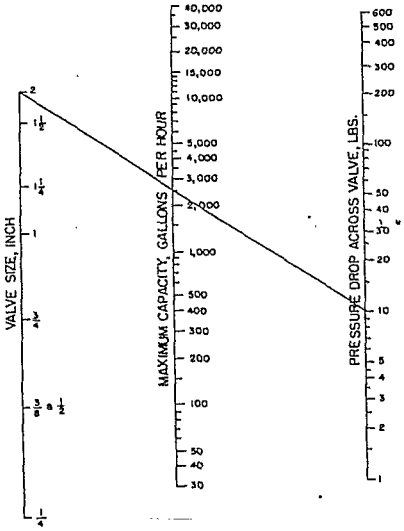
Note: If outlet pressure is greater than 55% of the inlet pressure, multiply capacity by the correction factor on Page 32, Chart #1.

For superheated steam multiply by correction factor on Page 32, Chart #2.

4 V-Port valves. 2 V-Port valves have half capacity.

WATER FLOW CHART

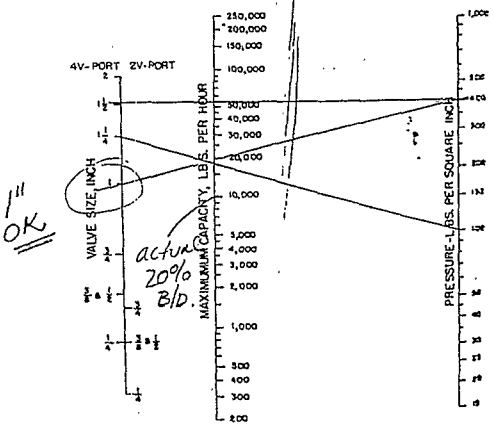
600# STEEL— TYPES 5525S, 5525W, 5535S & 5535W



4 V-Port valves. 2 V-Port valves have half capacity.

BOILER BLOWDOWN CHART

600# STEEL—TYPES 5535S & 5535W



CHEV B8 5939

Vanway - Unit Tandem Blow-off Valve

300# RF Flanged

Rated in stm svc to 515 psi Boiler Blowoff pressure.

One piece forged tandem body

Inside - hard seat blowing valve

Outside - seatless seating valve

Fig. T-3948 - 3928 Series 30

2" - 300# flg Price = $519.00 (GS Thomson 6/18/70)

Should be cheaper than 2 - individually flanged valves which are bolted together to make a tandem unit (usually an angle to a straight way)

I have asked Bob Field what he thinks about it from a maint standpoint. No answer as of 9/3/70.

Intermittent Blowdown Valve

RMC 8/21/70

CHEV B8 5940