OUNCES PRESSURE REGULATOR

BACK PRESSURE TO ATMOSPHERE W/OUTSIDE SUPPLY

APPLICATIONS:

Valve designed to regulate ounces (0.5 oz to 2.5 psig) back pressure on a tank and vent to atmosphere when pressure exceeds set point. An outside supply of 10 psig is raised to operate motor valve.

FEATURES:

Intermittent bleed pilot
Soft seat for bubble tight shut-off
High capacity (Full opening seat)
External pilot isolating process stream from instrument supply gas

PRESSURE RANGE:

UPSTREAM PRESSURE: .5 oz to 2.5 psig
Optional springs provide a set point of:
1 oz to 5 psig or
1 psig to 20 psig

CAPACITY:

See Table of Contents

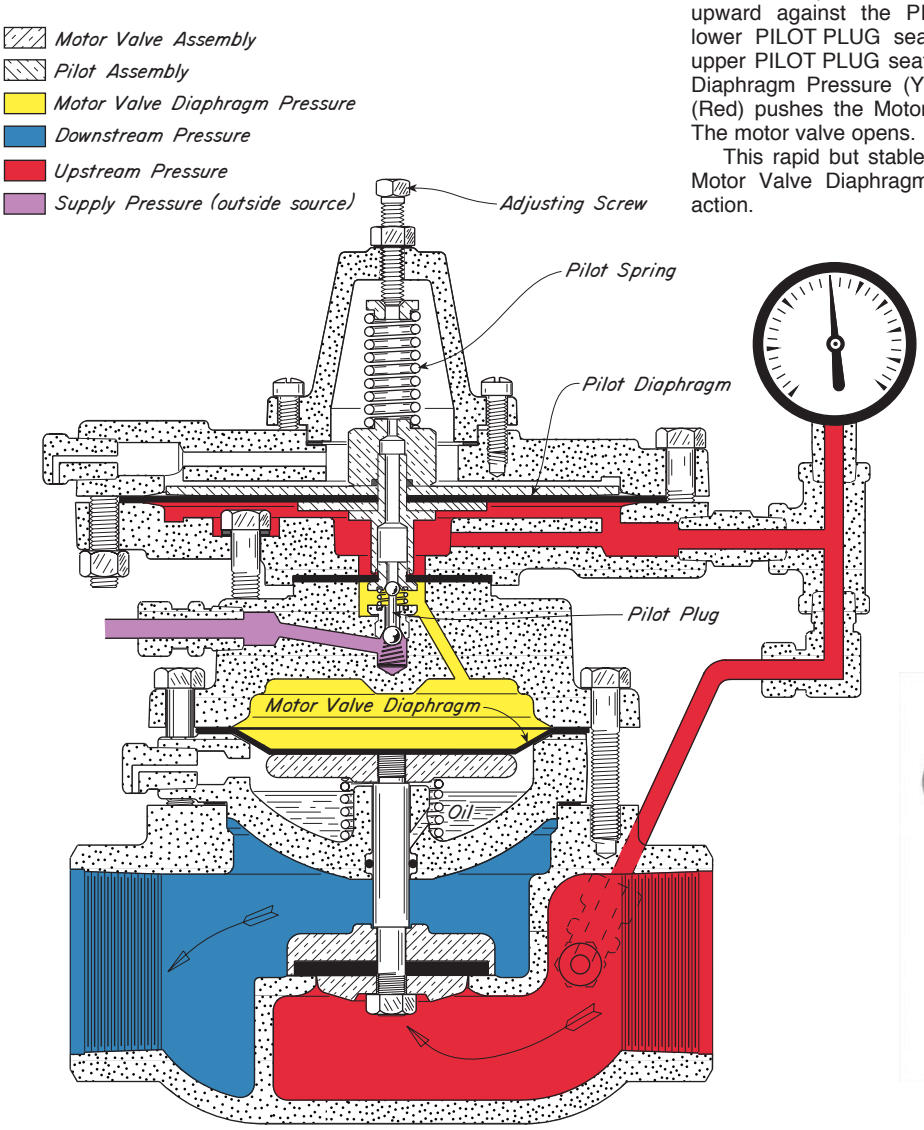
OPERATION:

This Regulator maintains a low pressure back pressure by relieving to a lower pressure or atmosphere. The pressure to operate the valve is an outside pressure source. The Regulator consists of a three-way pilot operating a motor valve. The only moving parts are the Pilot Assembly and the Motor Valve Stem Assembly (Crosshatched). The three-way pilot action is due to the operation of the PILOT PLUG. The PILOT PLUG consists of two stainless balls rigidly connected. The upper PILOT PLUG seat is the Motor Valve Diaphragm Pressure vent (Yellow to Atmosphere). The lower PILOT PLUG seat is the Motor Valve Diaphragm Pressure inlet (Violet to Yellow). The Pilot Assembly actuates the PILOT PLUG. The force of the PILOT SPRING above the PILOT DIAPHRAGM acts against the Upstream Pressure (Red) below the PILOT DIAPHRAGM to determine the motion of the Pilot Assembly.

Assume a desired Upstream Pressure (Red) greater than the current setting. The ADJUSTING SCREW compresses the PILOT SPRING. The PILOT SPRING forces the Pilot Assembly downward. First, the upper PILOT PLUG seat (Yellow to Atmosphere) closes, then the lower PILOT PLUG seat (Violet to Yellow) opens. Increased Motor Valve Diaphragm Pressure (Yellow) pushes the Motor Valve Stem Assembly downward and closes the motor valve.

Assume the Upstream Pressure (Red) increases. The increased Upstream Pressure pushes the Pilot Assembly upward against the PILOT SPRING. This first, closes the lower PILOT PLUG seat (Violet to Yellow), then opens the upper PILOT PLUG seat (Yellow to Atmosphere). Motor Valve Diaphragm Pressure (Yellow) decreases, Upstream Pressure (Red) pushes the Motor Valve Diaphragm Assembly upward. The motor valve opens.

This rapid but stable interaction of the Pilot Assembly and Motor Valve Diaphragm Assembly produce a true throttling action.



Genuine KIMRAY INC. Quality Since 1948

OUNCES PRESSURE REGULATOR

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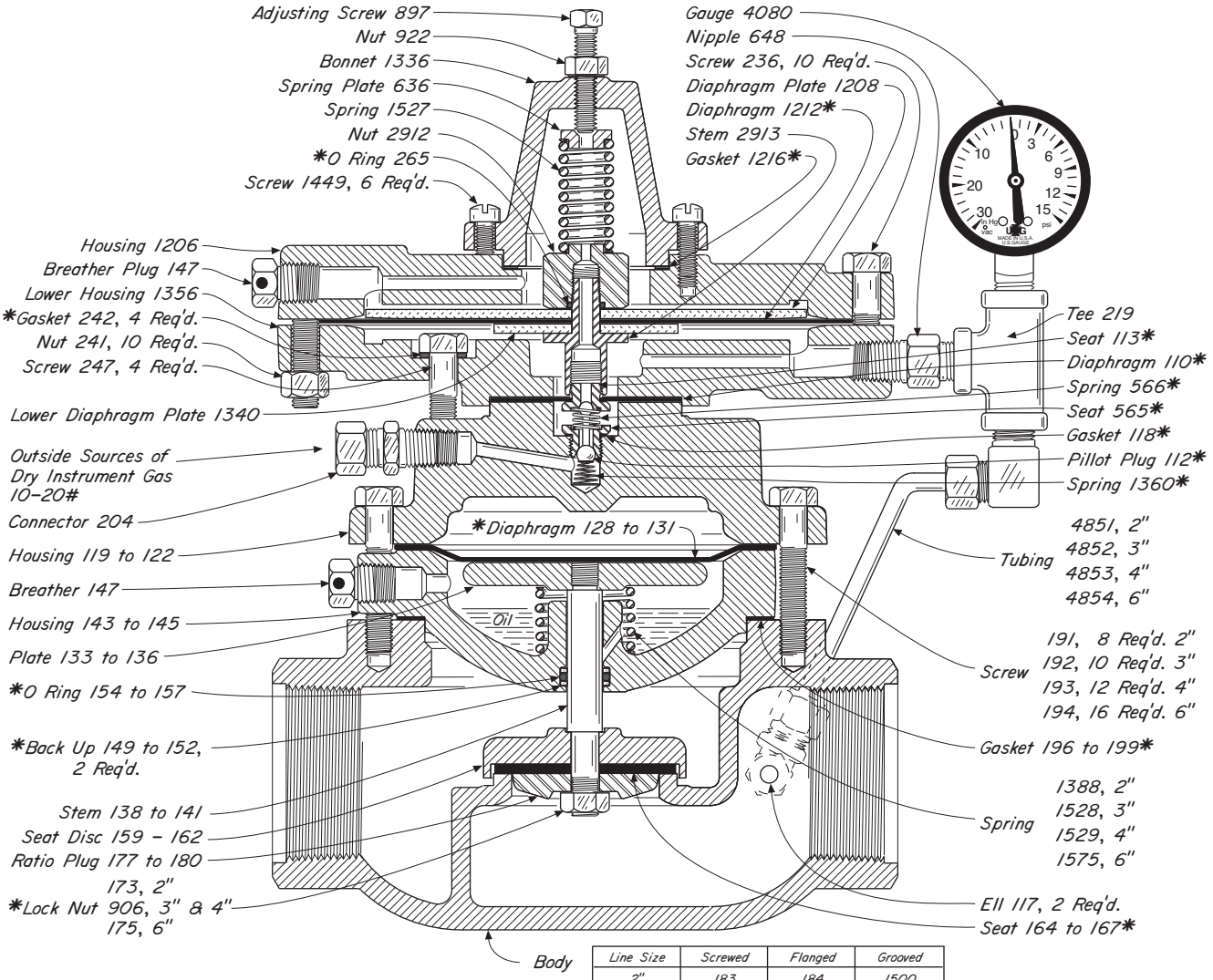
CAST IRON



Line Size	Screwed	Flanged	Grooved
2"	183	184	1500
3"	185	186	–
4"	187	188	–
6"	–	189	–

THRU VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	REG. NO	OPER. PRES.	MAX W.P.	KIT
AAI-2.5	2" SCRD.	2.2 SGT OBPA	2.5	175	RUI
AAI-5	2" SCRD.	2.5 SGT OBPA	5	175	RUI
AAI-20	2" SCRD.	202 SGT OBPA	20	175	RUI
AAJ-2.5	2" FLGD.[a]	2.2 FGT OBPA	2.5	175	RUI
AAJ-5	2" FLGD.[a]	2.5 FGT OBPA	5	175	RUI
AAJ-20	2" FLGD.[a]	202 FGT OBPA	20	175	RUI
AAK-2.5	2" GRVD.	2.2 GGT OBPA	2.5	175	RUI
AAK-5	2" GRVD.	2.5 GGT OBPA	5	175	RUI
AAK-20	2" GRVD.	202 GGT OBPA	20	175	RUI
AAL-2.5	3" SCRD.	3.2 SGT OBPA	2.5	175	RUJ
AAL-5	3" SCRD.	3.5 SGT OBPA	5	175	RUJ
AAL-20	3" SCRD.	302 SGT OBPA	20	175	RUJ
AAM-2.5	3" FLGD.[a]	3.2 FGT OBPA	2.5	175	RUJ
AAM-5	3" FLGD.[a]	3.5 FGT OBPA	5	175	RUJ
AAM-20	3" FLGD.[a]	302 FGT OBPA	20	175	RUJ

THRU VALVES AVAILABLE:

CAT. NO.	SIZE TYPE	REG. NO	OPER. PRES.	MAX W.P.	KIT
AAN-2.5	4" SCRD.	4.2 SGT OBPA	2.5	175	RUK
AAN-5	4" SCRD.	4.5 SGT OBPA	5	175	RUK
AAN-20	4" SCRD.	402 SGT OBPA	20	175	RUK
AAO-2.5	4" FLGD.[a]	4.2 FGT OBPA	2.5	175	RUK
AAO-5	4" FLGD.[a]	4.5 FGT OBPA	5	175	RUK
AAO-20	4" FLGD.[a]	402 FGT OBPA	20	175	RUK
AAP-2.5	6" FLGD.[a]	6.2 FGT OBPA	2.5	175	RTY
AAP-5	6" FLGD.[a]	6.5 FGT OBPA	5	175	RTY
AAP-20	6" FLGD.[a]	602 FGT OBPA	20	175	RTY

*These parts are recommended spare parts and are stocked as repair kits.

The number of a series assigned to a part indicated different line sizes. For example: Diaphragm 128-2", 129-3", 130-4" and 131-6".

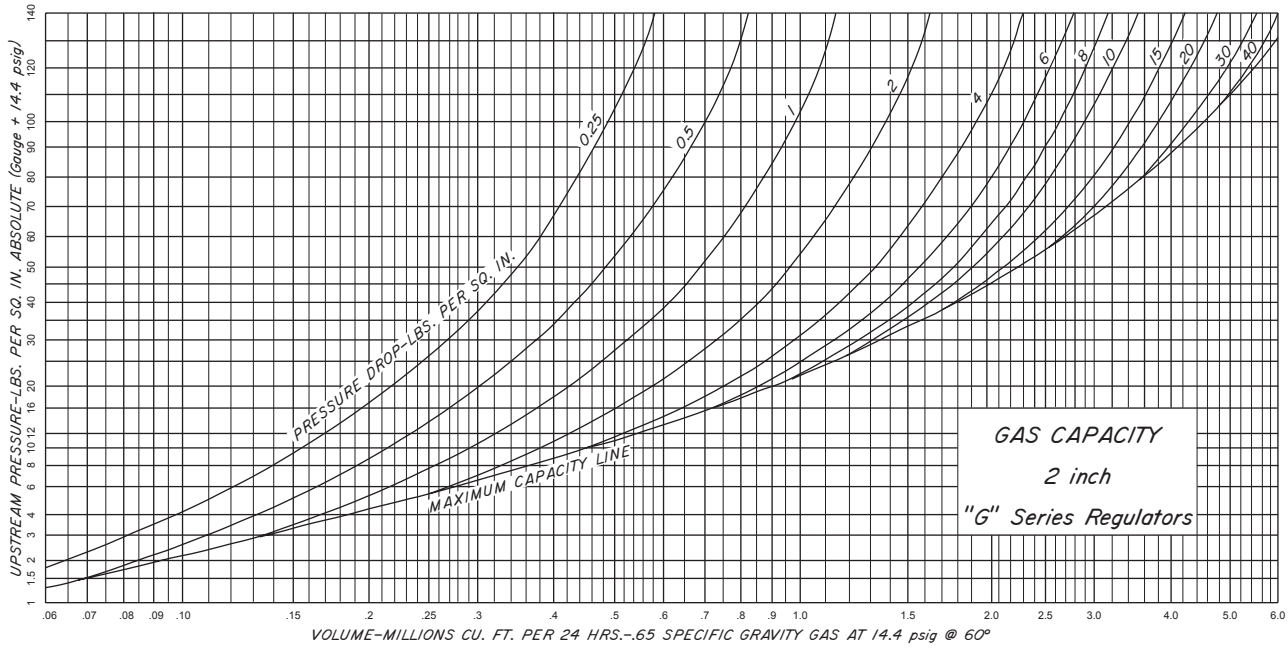
[a]Companion flanges, nuts, bolts and gaskets are furnished, at extra cost, only when specified.

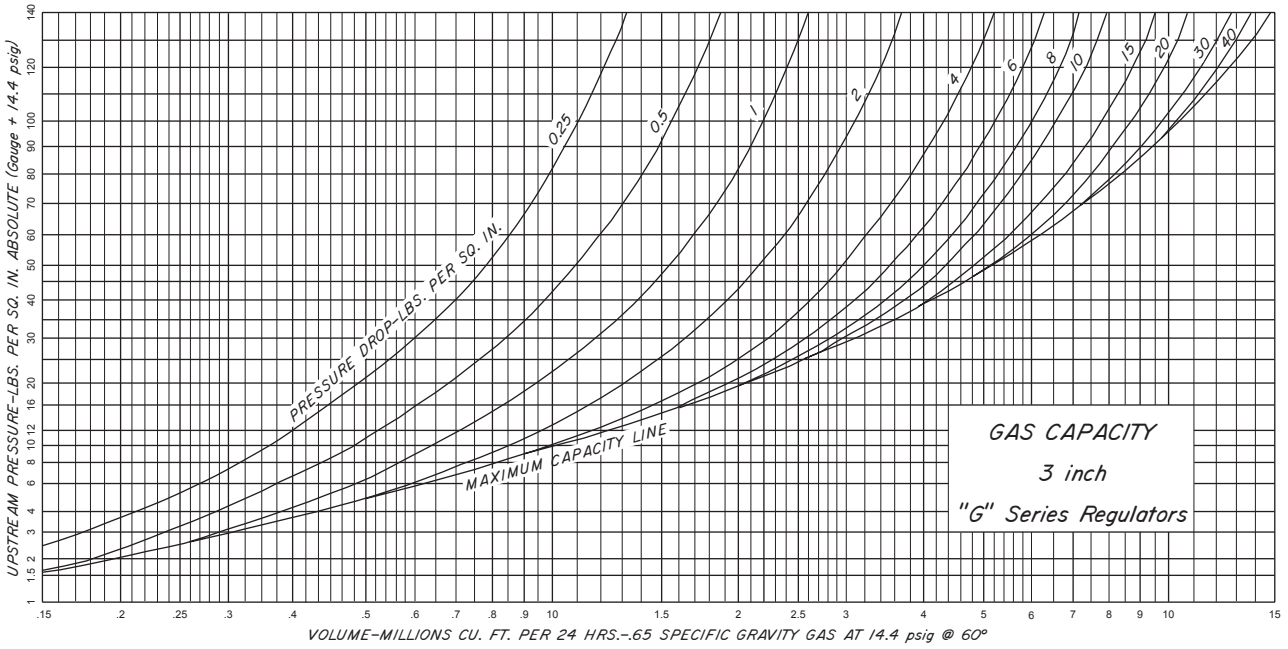
Dimensions refer to Table of Contents.

Genuine KIMRAY INC. Quality Since 1948

GAS CAPACITY CHARTS

125 psig Maximum W.P. Valves





Gas capacities are based on pressure taken immediately upstream and downstream from the regulator in a wide open position.

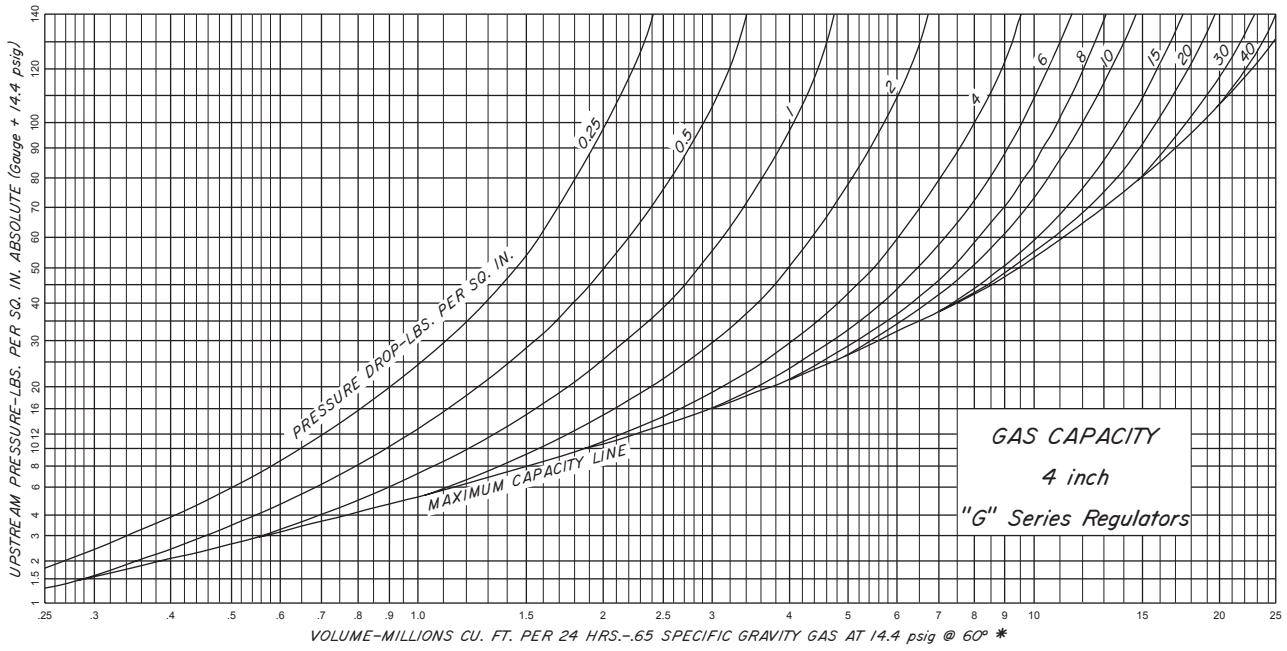
Critical flow exists across a valve or orifice when the downstream absolute pressure is approximately half of the upstream absolute pressure. Any decrease in downstream pressure will not increase the flow through the valve. Critical flow conditions on the charts are represented by the MAXIMUM CAPACITY LINE.

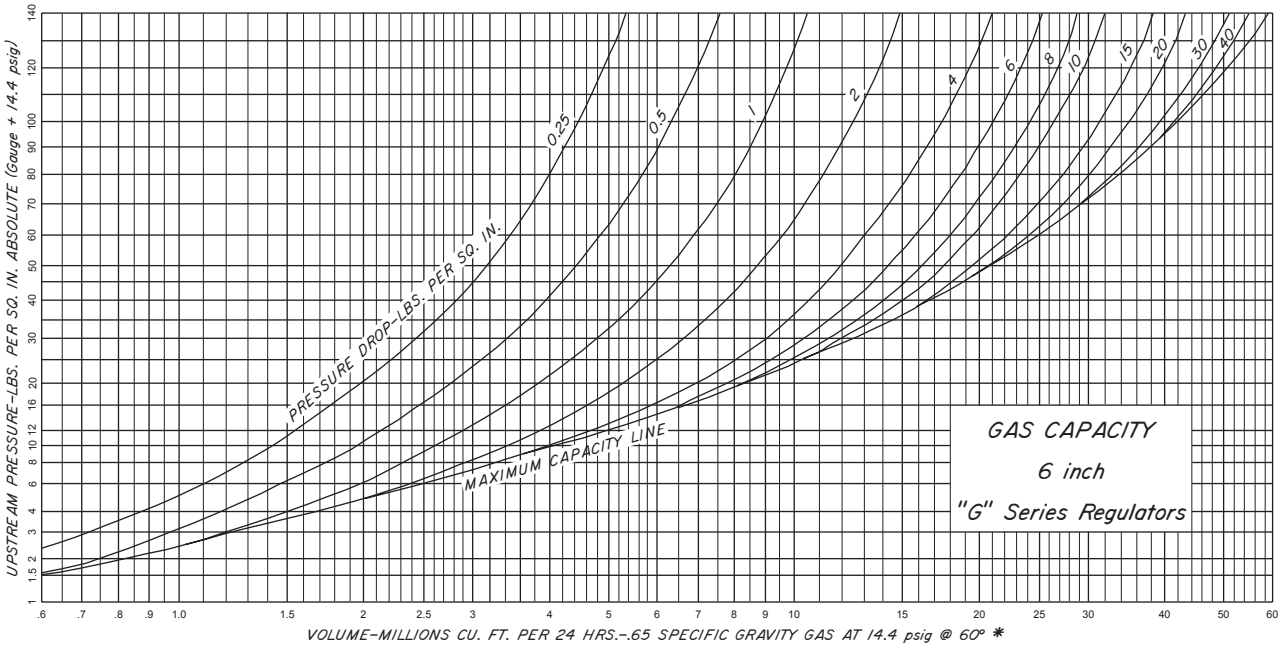
HOW TO USE CHARTS: Locate UPSTREAM PRESSURE at left of chart. Follow horizontally across to PRESSURE DROP (upstream minus downstream pressure). Read VOLUME directly below. If the horizontal projection of the upstream pressure does not intersect the given pressure drop, flow is critical. In this case project UPSTREAM PRESSURE horizontally to the MAXIMUM CAPACITY LINE and read VOLUME directly below.

*For gravity correction multiply above capacities by $\sqrt{\frac{.65}{G;}}$ where G equals specific gravity of gas.

GAS CAPACITY CHARTS

125 psig Maximum W.P. Valves





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Critical flow exists across a valve or orifice when the downstream absolute pressure is approximately half of the upstream absolute pressure. Any decrease in downstream pressure will not increase the flow through the valve. Critical flow conditions on the charts are represented by the MAXIMUM CAPACITY LINE.

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*For gravity correction multiply above capacities by $\sqrt{\frac{.65}{G}}$ where G equals specific gravity of gas.

CAPACITY-Bbls. Water/Day, Steady Flow

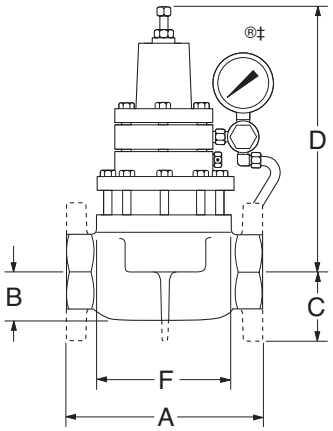
PRESSURE DROP ACROSS VALVE PSIG	VALVE SIZE - INCHES			
	1	2	3	4
1	745	1,760	3,350	7,800
2	1,060	2,500	4,900	11,000
3	1,300	3,050	6,100	13,500
4	1,500	3,500	7,000	15,600
5	1,700	3,900	7,800	17,500
10	2,300	5,600	11,000	24,700
15	2,900	6,800	13,500	30,200
20	3,300	7,900	15,600	34,900
30	4,100	9,600	19,200	42,700
40	4,700	11,100	22,100	49,300
50	5,300	12,400	24,800	55,200
60	5,800	13,600	27,100	60,500
70	6,200	14,700	29,300	65,400
80	6,700	15,700	31,300	69,800
100	7,500	17,600	33,500	78,200
125	8,400	19,700	39,200	87,500
150	9,300	21,500	40,750	93,000
200	10,750	25,000	47,000	108,000
250	12,100	28,000	52,000	120,000
300	13,300	30,900	57,250	130,000

For gravity correction, multiply the above figures by $\frac{1}{\sqrt{G}}$
Where “G” is the specific gravity of the flowing liquid.

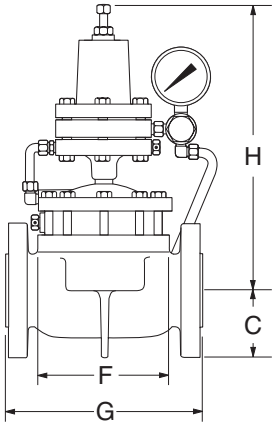
GAS SERIES REGULATOR

DIMENSIONS

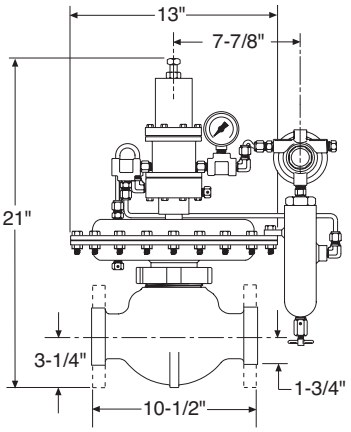
FOR: BACK PRESSURE
UPSTREAM DIFFERENTIAL PRESSURE
PRESSURE REDUCING-BALANCED
PRESSURE REDUCING VACUUM
PRESSURE DIFFERENTIAL
PRESSURE REDUCING
BACK PRESSURE VACUUM
LIQUID BACK PRESSURE



CAST IRON OR DUCTILE

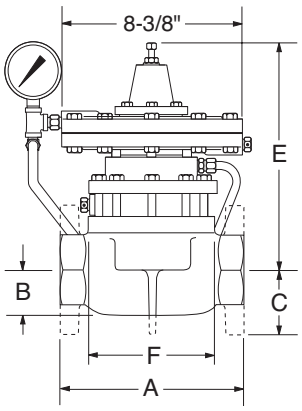


STEEL

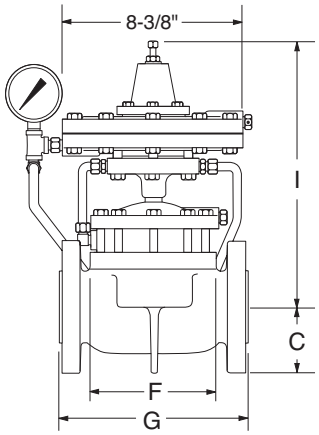


250 S/FGT-BP-S

FOR: LOW PRESSURE BACK PRESSURE
OUNCES BACK PRESSURE TO VACUUM
OUNCES PRESSURE REDUCING
OUNCES PRESSURE REDUCING VACUUM
VACUUM BACK PRESSURE TO VACUUM



CAST IRON OR DUCTILE



STEEL

LINE SIZE	BODY STYLE	A	B	C	D*	E	F	G	H*	I
1 "	SCRD	4 3/8"	1 1/8"		7 1/2"	11 5/8"	3 1/4"			
2 "	SCRD	8 1/2"	2 1/8"		11 1/2"	10 1/2"	6 1/2"			
	FLGD	9"		3	11 1/2"	10 1/2"	6 1/2"	9 1/8"	14 1/2"	14"
	GRVD	8 3/4"	2 1/8"		11 1/2"	10 1/2"	6 1/2"			
250 S/FGT	SCRD			1 3/4"				10 1/2"		
	FLGD			3 1/4"				10 1/2"		
3 "	SCRD	12"	3 1/16"		13"	12"	8 1/2"			
	FLGD	12 3/16"		3 3/4"	13"	12"	8 1/2"	12 5/16"	16 1/2"	15 1/2"
4 "	SCRD	15"	4"		14 1/2"	13 3/16"	10 1/2"			
	FLGD	15 1/8"		4 1/2"	14 1/2"	13 3/16"	10 1/2"	15"	18 1/2"	16 11/16"
6 "	FLGD	22 1/8"		5 1/2"	17"	14 7/8"	16"	22"	20 1/2"	18 3/8"

FLANGE DIMENSIONS ARE ANSI 125/150 STANDARD. *Add 7/8" to PRB and USDP Regulators for this dimension.