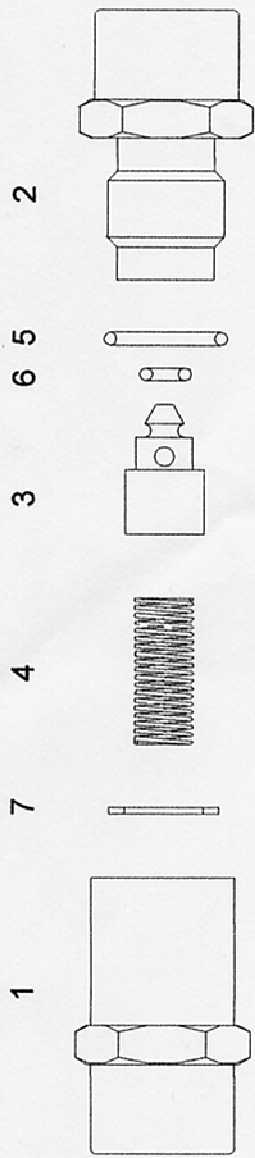


MODEL 6000 MK2

PART	ITEM	MATERIAL	FINISH
1	BODY	BRASS	CHROME
2	BODY	BRASS	CHROME
3	BODY	BRASS	CHROME
4	SEAT	AL/BRONZE	SELF
5	SPINDLE	AL/BRONZE	SELF
6	THRUST WASHER	PEEK	SELF
7	O RING 70° x 2	VITON	
8	O RING 90°	VITON	
9	SHAFT HOUSING	BRASS	CHROME
10	SHAFT HOUSING	BRASS	CHROME
11	LOCK NUT	BRASS	CHROME
12	O RING 90°	VITON	
13	THRUST WASHER	NYLON 6	
14	HANDWHEEL	RUBBER	
15	WASHER	BRASS	SELF
16	CRINKLE WASHER	A2 STAINLESS	SELF
17	M6 NUT	BRASS	SELF
18	COVER CAP	POLYTHENE	

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BALANCED NEEDLE VALVE

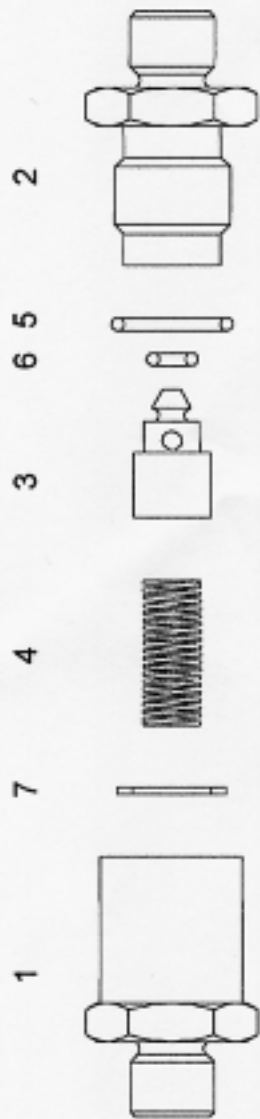


MODEL 5105 MK2

PART	ITEM	MATERIAL	FINISH
1	BODY	BRASS	CHROME
2	BODY	BRASS	CHROME
3	SEAT	BRASS	SELF
4	SPRING	STAINLESS	SELF
5	O RING	VITON	
6	O RING	VITON	
7	O RING	VITON	

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NON RETURN VALVE

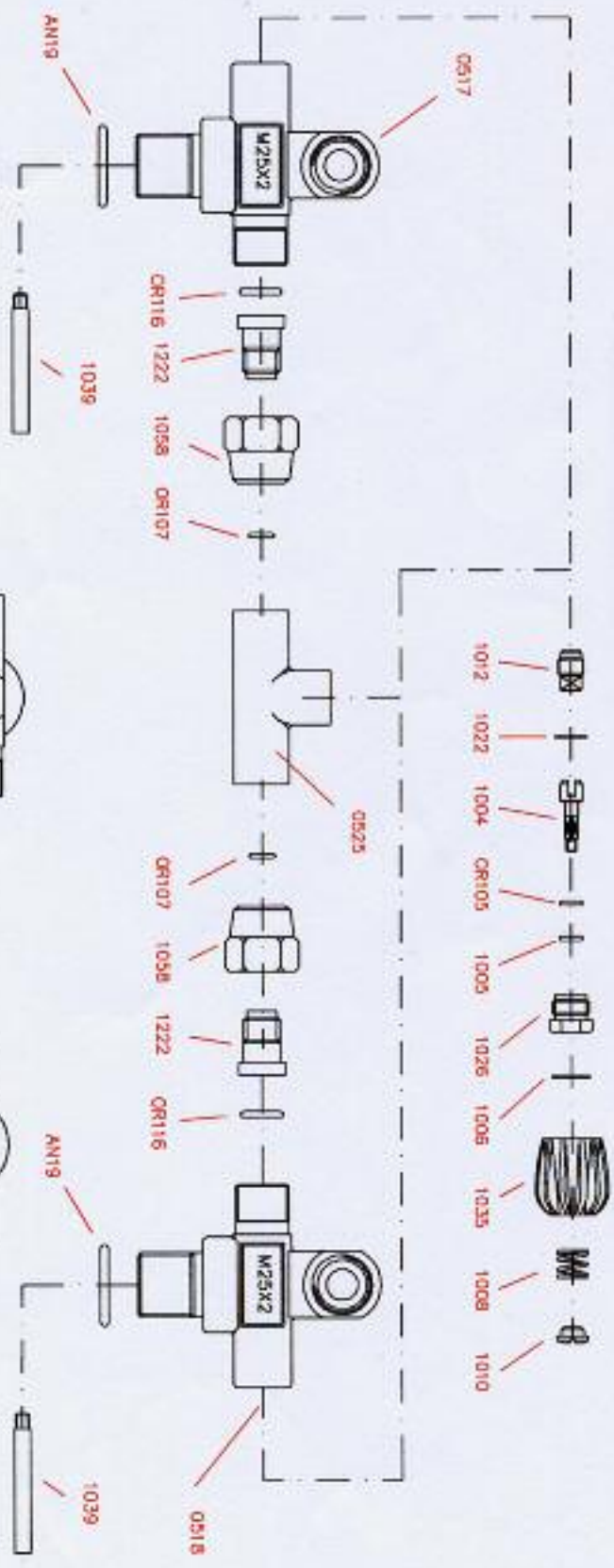


MODEL 5100 MK2

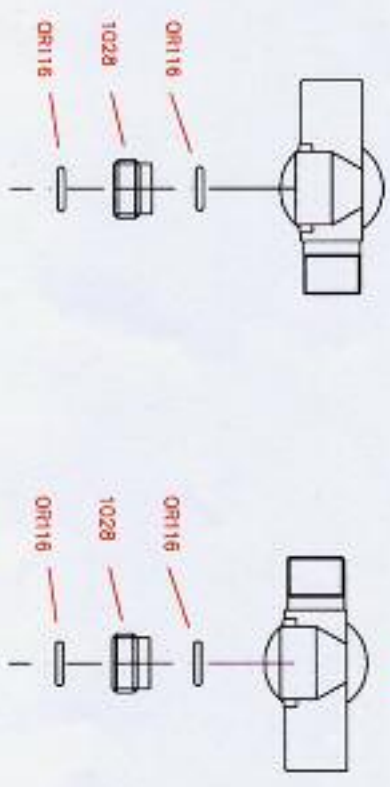
PART	ITEM	MATERIAL	FINISH
1	BODY	BRASS	CHROME
2	BODY	BRASS	CHROME
3	SEAT	BRASS	SELF
4	SPRING	STAINLESS	SELF
5	O RING	VITON	
6	O RING	VITON	
7	O RING	VITON	

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NON RETURN VALVE



1004	SHAFT
1005	PTFE SHAFT WASHER
1006	THRUST WASHER
1008	SPRING
1010	RETAINING NUT
1012	SEAT WITH INSERT
1022	COPPER WASHER
1026	GLAND NUT
1028	DIN INSERT
1035	HANDWHEEL BLACK
1036	HANDWHEEL GREEN
1039	DEBRIS TUBE
1058	LOCKING NUT
1222	NUT RETAINING SPACER
OR105	010/90 °O' RING
OR107	011/90 °O' RING
OR116	614/90 °O' RING
AN19	214/70 °O' RING
0525	CENTRE 'T' BAR



PARTS LIST FOR 4070 MANIFOLD. ALSO SHOWS PARTS FOR 4005, 4020 VALVES

6000 P.S.I./ 414 BAR REDUCING REGULATOR

MODEL No: 7000

GENERAL INFORMATION

The 7000 model regulator is an economical, piston type, hand load regulator. The maximum inlet pressure is 6000 P.S.I./ 414 Bar with a variable outlet between 0 and 6000 P.S.I. The regulator seat is protected by a 30 micron filter. The regulator seat Poppet assembly and filter are contained in an easily replaced valve cartridge assembly. The cartridge is factory pre assembled and permits easy replacement in the field. This unit is self venting, a non venting unit can be supplied to special order. A panel mounting ring is also available. This unit is exceptionally rugged and insensitive to inlet contaminants due to the simplicity of it's design. **FOR AIR USE ONLY.**

SPECIFICATION

Maximum inlet pressure:	6000 P.S.I./ 414 Bar.
Maximum outlet pressure:	6000 P.S.I./ 414 Bar.
Materials: Body and Housing	Anodised Aluminium
Internals	Brass & Stainless Steel
Seals	Viton
Size:	2.25" x 5.5" High.
Weight:	700 Grams./ 1.5 Lbs.
Inlet & Outlet ports:	1/4 NPT
Gauge ports x 2. Inlet & Outlet:	1/4 NPT



INSTALLATION

Use a suitable Teflon or PTFE tape to seal fittings into the regulator using ample tape 3 or 4 turns around the thread. Do not over tighten fittings. We recommend that you use 316 stainless fittings only. A panel mounting ring is available, part number 0750.

As with all regulators a pressure relief valve should always be fitted on the outlet side set slightly above the maximum desired pressure. Inlet and outlet ports are opposite each other with inlet and outlet Pressure gauge ports at 60 degrees spacing. All threads are 1/4 NPT. We can supply suitable fittings from stock or on short delivery times.

MAINTENANCE

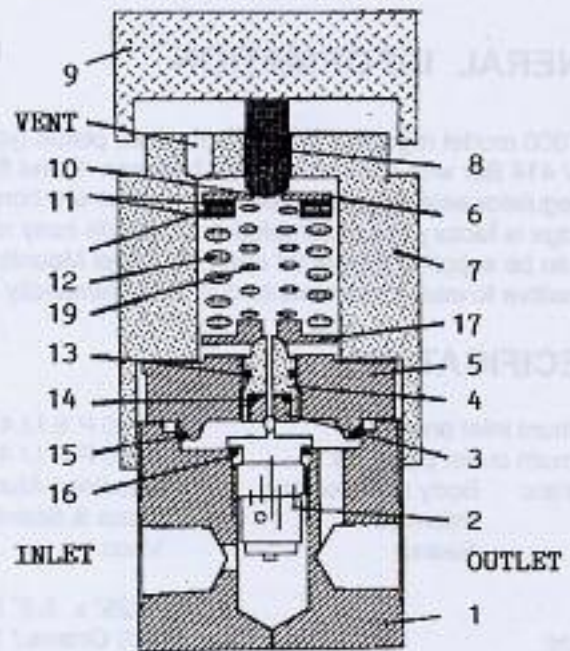
As with any regulator, particulates or moisture can block or freeze the internal filter or seat. Therefore it is important that you check and change your filters regularly. We can supply a complete service kit from stock to enable a quick turn round. The poppet assembly is factory set and should not be stripped out unless absolutely necessary. All maintenance must be carried out in a clean environment. Use appropriate grease for the service required when re-assembling any parts. If in doubt please ask!

UNDERSEA LTD
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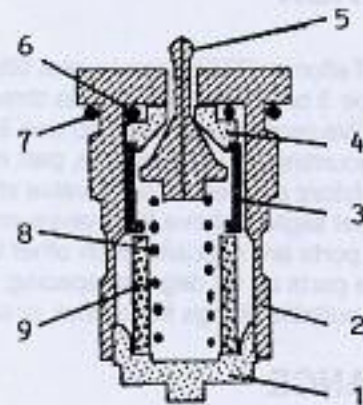
PARTS BREAKDOWN LIST

1. Body
2. Poppet cartridge
3. Vent seat
4. Piston
5. Piston housing
6. Spring guide.— See note 2
7. Cap
8. Adjusting screw
9. Handwheel
10. Bearing plate
11. Thrust bearing
12. Outer spring
13. Seal "O" ring
14. Seal "O" ring
15. Seal "O" ring
16. Seal "O" ring
17. Lower spring guide
18. No longer used
19. Inner spring



PARTS LIST FOR POPPET CARTRIDGE

1. Retaining nut
2. Poppet housing
3. Sleeve
4. Seat
5. Poppet
6. Seal "O" ring
7. Seal "O" ring
8. Spring
9. Filter 30 Micron



NOTES

1. Mount piston housing (5) with smoother side down against "O" Ring seal.
2. Mount spring guide (6) with bevel side toward adjusting screw.
3. Poppet cartridge (2) includes parts 1 to 9 above ready assembled.
4. Service kit comprises parts: 2,3,4,5,13,14,15 & 16

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JUNE 2004



6000 PSI HIGH FLOW REDUCING REGULATOR MODEL 873

GENERAL INFORMATION

The model 873 is a piston type hand loading regulator. It utilizes a balanced poppet design for high flow and minimum effect of inlet pressure on outlet pressure. The poppet assembly is contained in a cartridge with internal filtration permitting very easy in field servicing. The low cost poppet cartridge (pictured on the opposite side of this sheet) is factory preassembled. It contains the more critical valving elements of the regulator thus eliminating in-field servicing problems. The regulator is self venting but is optionally available without the vent. This regulator design was developed for gas mixers for commercial diving where high flow, very precise pressure control and high reliability are needed. They have served this application for many years. It is available with different size sensing pistons resulting in a complete range of outlet pressures. A highly sensitive dome loaded version rated to 6000 PSI is also available. See drawing 1034 for flow curves.

SPECIFICATIONS

- Maximum inlet pressure 6000 PSI (40 MPa)
- Outlet pressure - from 0 to:
 - model 873-150..... 150 PSI
 - model 873-400..... 400 PSI
 - model 873-1500..... 1500 PSI
 - model 873-5000..... 5000 PSI
 - model 873-D..... 6000 PSI
- Flow coefficient (C_v)..... 0.8 (0.23" orifice)
- Rise of outlet pressure with drop of inlet pressure..... 4 PSI per 1000 PSI for model 873-150
- Materials body and cap - aluminum
internals - brass, stainless
seals - Buna N, nylon
- Fittings 1/2" NPT outlet port
1/4" NPT inlet & gauge
- Size 3 inch dia. x 5 inch long



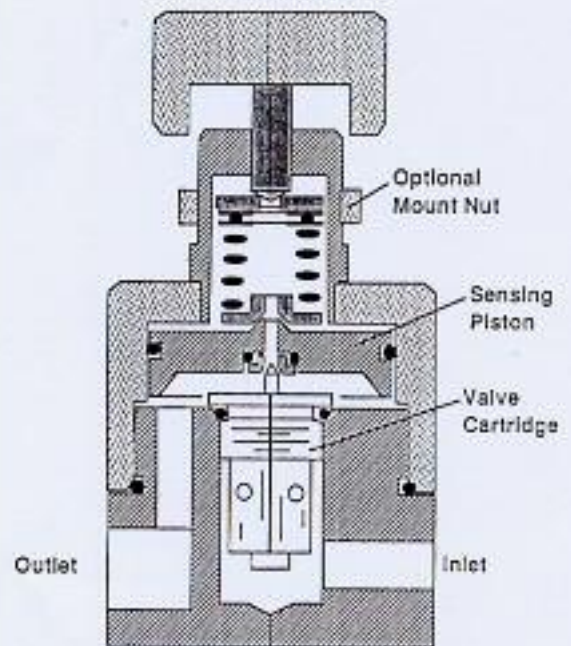
Model 873-150 Hand load



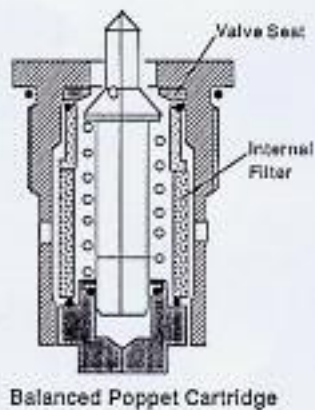
Model 873-D Dome Load

TYPICAL APPLICATIONS

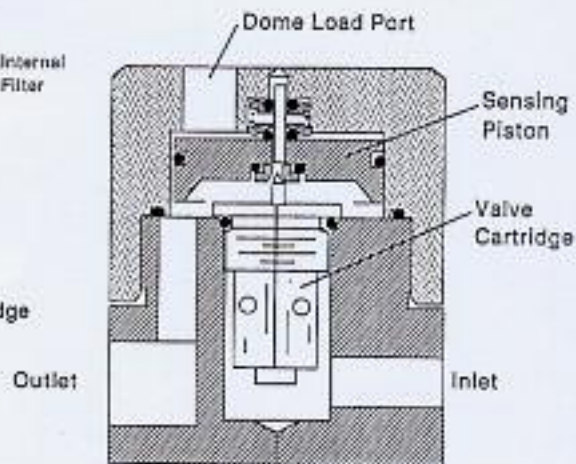
- Operation of high flow, low pressure equipment such as sirens from high pressure air tanks. Here use of high pressure air eliminates dependency on electrical power in an emergency.
- Component testing
- Air tank fill stations
- Fire fighting air systems
- Instrumentation and calibration panels
- Process industry control
- Shipboard and off shore air and gas control
- Aircraft service equipment
- Electronic industry rare gas flow
- Vehicle CNG stations
- Precision gas mixing equipment



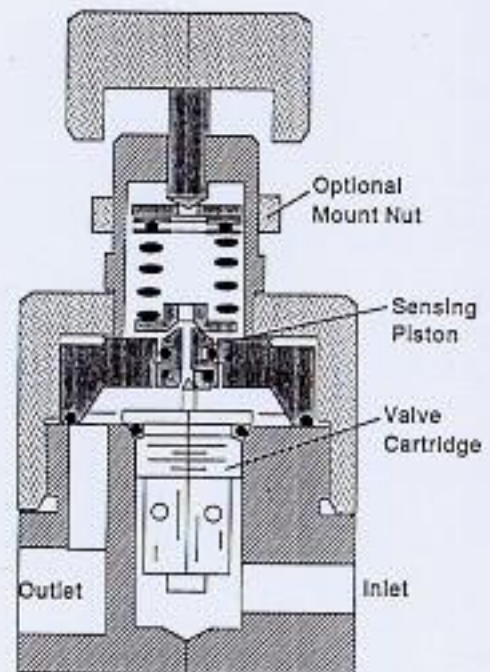
Model 873-150



Balanced Poppet Cartridge



Model 873-D



Model 873-5000

drw 1034
5/26/91

REGULATOR FLOW CHARTS

The regulator flow charts below give the maximum regulator flow rates for the 415 and 873 series regulators. These flows result in a 10% pressure drop below the zero or low flow setting. If more accurate regulation of outlet pressure is required (2 to 3% pressure drop) use one half the maximum flow values given below.

Examples of how to use the charts are given by the dashed lines on the 415 series flow chart.

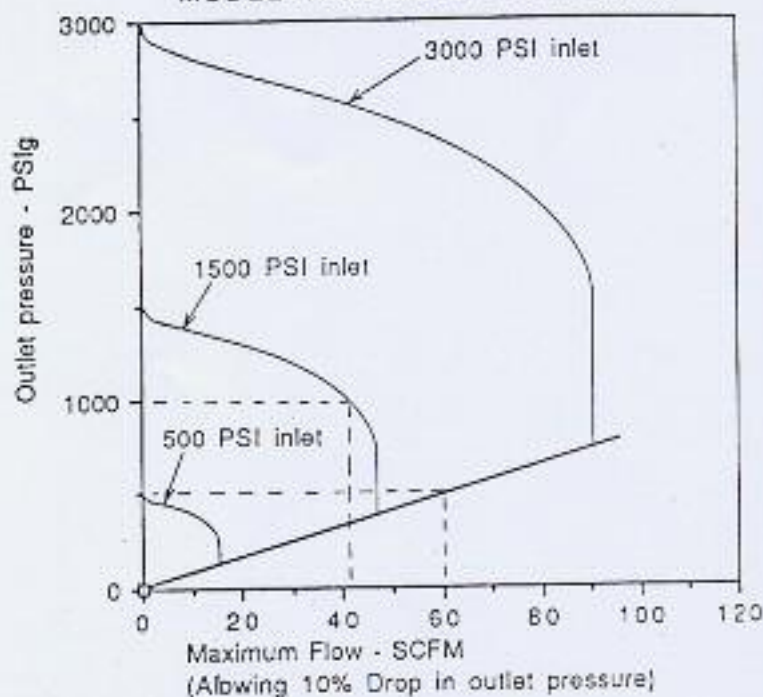
Example 1 - 1000 PSI outlet pressure
1500 PSI inlet pressure
from the chart maximum flow is 41 SCFM
Here flow is limited by the inlet pressure.

Example 2 - 500 PSI outlet pressure
2000 PSI or more inlet pressure
from the chart maximum flow is 60 SCFM
Here there is ample inlet pressure and flow is limited by the outlet pressure.

The charts are for air or any nitrogen/oxygen mix at or near room temperature. For helium multiply the flow rate by 2.7.

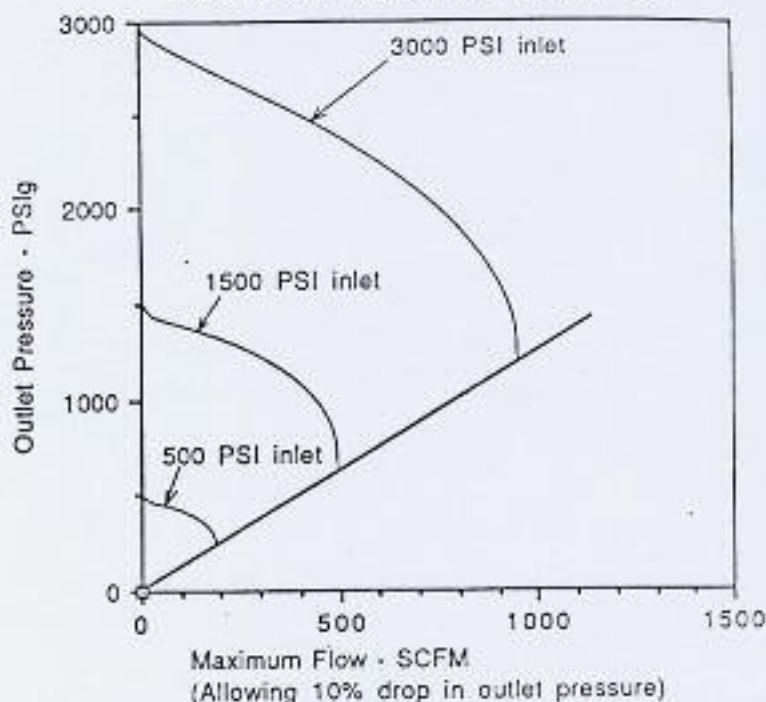
7000 & 7010

MODEL 415 SERIES FLOW CHART



7025

MODEL 873 SERIES FLOW CHART



EQUATIONS FOR FLOW THROUGH ORIFICES

The following equations give an approximate flow through orifices and short tubes based on orifice size, pressures and gas involved. They are simple equations that provide only an estimate of flow rate. They should not be depended on in critical applications. They can be used for round orifices or short tubes where the length does not exceed more than a few times the tube diameter.

WHEN DOWNSTREAM PRESSURE IS LESS THAN 1/2 THE UPSTREAM PRESSURE FOR AIR

$$Q = 11 P_U D^2 \quad D = 0.3 (Q/P_U)^{1/2}$$

Where: Q is the flow rate in SCFM
P_U is the upstream pressure going to the orifice or hole
in PSI
D is the orifice or hole inside diameter in inches
The superscript "2" means square the value
The superscript "1/2" mean take the square root of the
value in parenthesis

WHEN DOWNSTREAM PRESSURE IS MORE THAN 1/2 THE UPSTREAM PRESSURE APPLY THE FOLLOWING CORRECTION.

Downstream press. as % of upstream press.	Correction - multiply Q by:
0 to 50%	1.00
60%	0.90
70%	0.65
80%	0.46
90%	0.33
95%	0.23
98%	0.14
99%	0.10

WHEN GASES OTHER THAN AIR ARE USED MULTIPLY THE ABOVE Q BY:

Helium gas	2.6
Nitrogen	1.0
Natural gas	1.3
Carbon dioxide	0.8

AN APPROXIMATE CONVERSION OF ORFICE DIAMETER TO C_V VALUE IS GIVEN BY:

$$C_V = 15 D^2$$

where D is the orifice diameter in inches.