

**STEAM SEPARATOR**

ELIMINATOR SERIES STEAM SEPARATOR

Pressures to 600 PSIG (41.1 barg)
Temperatures to 650°F (344°C)

Removal of Entrained Contaminants - Extracts nearly all moisture and solids above 10 microns

Long Service Life - No moving parts mean less wear and corrosion

High Capacities - Up to 35,000 lbs./hr steam

Steel bodies and internals - Withstand unfavorable conditions and water hammer

Drain Outlet Below Condensate Level - Prevents steam leakage

Optimal Gravity Discharge - Drain located directly below the line

Maintenance Free - Regular maintenance is not required

APPLICATION DATA

- Steam, compressed air, and gas systems
- Steam mains
- Before steam turbines
- Hot air batteries
- Heat exchangers
- Duplicators
- Boilers
- Kilns
- Radiators
- Sterilizers
- Drip stations before temperature control or pressure reducing valves
- Steam inlets to process equipment which require dry saturated steam
- Before filters and on the compressed air supply to sensitive instruments
- Laundry Processes

ORDERING CODE

MODEL # (Must be 2 Digits)	CONNECTIONS	RATING (Must be 4 Digits)	—	SIZE
example: <u>E S</u>	<u>I</u>	<u>0 1 5 0</u>	<u>—</u>	<u>C</u>
ES - Eliminator	T - NPT	0150 - 150#	C - ½	
	W - Socketweld	0300 - 300#	D - ¾	
	F - Flanged	0600 - 600#	E - 1	
			F - 1¼	
			G - 1½	
			H - 2	
			J - 2½	
			K - 3	
			M - 4	
			P - 6	

OPTIONS

- Optional Insulation Jacket

MAXIMUM OPERATING CONDITIONS

½" - 2" All

PMO: Max. Operating Pressure 600 psig (41.4 barg)
 TMO: Max. Operating Temperature 650°F (344°C)

2½" - 6" ANSI 150

PMO: Max. Operating Pressure 150 psig (10.4 barg)
 TMO: Max. Operating Temperature 565°F (296°C)

2½" - 6" ANSI 300

PMO: Max. Operating Pressure 300 psig (20.7 barg)
 TMO: Max. Operating Temperature 650°F (344°C)

2½" - 6" ANSI 600

PMO: Max. Operating Pressure 600 psig (41.1 barg)
 TMO: Max. Operating Temperature 650°F (344°C)

MODELS

- ES-150 - 150 psig ANSI Flanged
- ES-300 - 300 psig ANSI Flanged
- ES-600 - 600 psig NPT, Socketweld, ANSI Flanged

APPLICABLE CODES

ASME Section 8, Division 1
 Welders certified to ASME Section 9

Installation Tip: Always install a Steam Trap after the Steam Separator

Installation Tip: Always install a Y Strainer between the Steam Separator and Trap

OPERATION

When the vapor enters the steam separator, a series of baffles change its flow direction several times. During this process, the baffles in the housing collect impinging water droplets that are carried in the system. Gravity allows the accumulated water droplets and

other foreign particles to fall to the drain and exit the system through a steam trap. The remaining steam in the system is clean and dry, allowing improved and maintained performance.



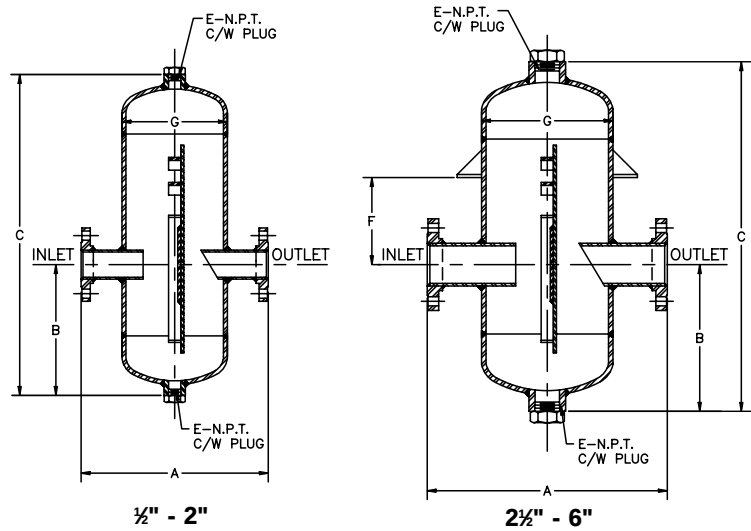
ELIMINATOR SERIES STEAM SEPARATOR

SPECIFICATION

Steam Separator shall have an internal baffle that does not exceed an equivalent length of pipe. The Steam Separator shall be installed in a horizontal pipe configuration with the drain directly below the line. The Steam Separator shall have an NPT bottom drain on which a mechanical constant flow steam trap shall be installed.

MATERIALS OF CONSTRUCTION

Body	($\frac{1}{2}$ " to 2") Carbon Steel	ASTM A106-B
	(2 $\frac{1}{2}$ " to 6") Carbon Steel	ASTM A106-B
End Caps	Carbon Steel	ASTM A-234 WPB
Coupling	Carbon Steel	ASTM A-105
Baffle	Carbon Steel	ASTM A 569
Plug	Carbon Steel	ASTM A105
End Connections:		
	($\frac{1}{2}$ " to 2") Carbon Steel	ASTM A105
	(2 $\frac{1}{2}$ " to 6") Carbon Steel	ASTM A105



Connections:
 $\frac{1}{2}$ " - 2" SW & NPT or 2 $\frac{1}{2}$ " - 6" Flanged

Call factory for sizing information. Please provide the following:

1. Steam or Compressed Air System
2. Flow Rate (lb/Hr) ____
3. Separator Connection Size ____
4. System Pressure ____

DIMENSIONS inches (mm) AND WEIGHTS pounds (kg)

Pipe Size	Connection	A	B	C	E	F	G	Weight
1/2	NPT/SW	3 $\frac{3}{4}$ (218)	5 $\frac{1}{4}$ (132)	10 $\frac{3}{4}$ (269)	$\frac{3}{4}$ (20.3)	—	6 (152.4)	9 (4.1)
3/4	NPT/SW	8 $\frac{3}{4}$ (224)	5 $\frac{1}{4}$ (150)	12 $\frac{3}{4}$ (307)	$\frac{3}{4}$ (20.3)	—	6 (152.4)	10 (4.5)
1	NPT/SW	9 $\frac{3}{4}$ (236)	6 (152)	14 $\frac{3}{4}$ (358)	$\frac{3}{4}$ (20.3)	—	6 (152.4)	19 (8.6)
1-1/4	NPT/SW	9 $\frac{3}{4}$ (236)	7 $\frac{1}{4}$ (180)	16 $\frac{3}{4}$ (414)	$\frac{3}{4}$ (20.3)	—	6 (152.4)	30 (13.6)
1-1/2	NPT/SW	11 $\frac{3}{4}$ (287)	7 $\frac{1}{4}$ (193)	19 (483)	1 (25.4)	—	8 (203)	43 (19.5)
2	NPT/SW	11 $\frac{3}{4}$ (295)	11 $\frac{3}{4}$ (206)	20 $\frac{3}{4}$ (523)	1 (25.4)	—	8 (203)	50 (22.7)
2-1/2	Flanged ANSI 150	22 $\frac{1}{2}$ (572)	9-3/8 (239)	24 $\frac{1}{2}$ (622)	1 (25.4)	7 $\frac{1}{4}$ (180)	10 (254)	109 (49.4)
	Flanged ANSI 300	22 $\frac{1}{2}$ (572)	9-3/8 (239)	24 $\frac{1}{2}$ (622)	1 (25.4)	7 $\frac{1}{4}$ (180)	10 (254)	112 (50.8)
	Flanged ANSI 600	22 $\frac{1}{2}$ (572)	9 $\frac{1}{4}$ (251)	25 $\frac{1}{4}$ (650)	1 (25.4)	7 $\frac{1}{4}$ (180)	10 (254)	113 (51.3)
3	Flanged ANSI 150	25 $\frac{1}{4}$ (643)	12 (305)	28 $\frac{3}{4}$ (726)	2 (50.8)	7 $\frac{1}{4}$ (201)	10 (254)	163 (73.9)
	Flanged ANSI 300	25 $\frac{1}{4}$ (643)	12 (305)	28 $\frac{3}{4}$ (732)	2 (50.8)	7 $\frac{1}{4}$ (201)	10 (254)	169 (76.7)
	Flanged ANSI 600	25 $\frac{1}{4}$ (643)	12 $\frac{3}{4}$ (323)	29 $\frac{1}{4}$ (759)	2 (50.8)	7 $\frac{1}{4}$ (201)	10 (254)	189 (85.7)
4	Flanged ANSI 150	29 (737)	12 $\frac{3}{4}$ (320)	31 $\frac{1}{4}$ (792)	2 (50.8)	8 $\frac{3}{4}$ (224)	12 (305)	237 (108)
	Flanged ANSI 300	29 (737)	12 $\frac{3}{4}$ (320)	31 $\frac{1}{4}$ (792)	2 (50.8)	8 $\frac{3}{4}$ (224)	12 (305)	256 (116)
	Flanged ANSI 600	29 (737)	13 $\frac{3}{4}$ (335)	31 $\frac{1}{4}$ (792)	2 (50.8)	9 (229)	12 (305)	297 (135)
6	Flanged ANSI 150	35 $\frac{3}{4}$ (909)	12 $\frac{3}{4}$ (312)	36 $\frac{3}{4}$ (932)	2 (50.8)	11 $\frac{1}{4}$ (290)	16 (406)	365 (166)
	Flanged ANSI 300	35 $\frac{3}{4}$ (909)	12 $\frac{3}{4}$ (315)	36 $\frac{3}{4}$ (937)	2 (50.8)	11 $\frac{1}{4}$ (290)	16 (406)	401 (182)
	Flanged ANSI 600	35 $\frac{3}{4}$ (909)	13 (330)	37 $\frac{3}{4}$ (960)	2 (50.8)	11 $\frac{1}{4}$ (290)	16 (406)	551 (250)

SIZING ELIMINATOR STEAM SEPARATORS

SIZING FOR STEAM APPLICATIONS

Using your system pressure and capacity, select a size from the Pressure Drop Tables below that will yield a pressure drop in **boldface** type. This will provide the most efficient separation with velocities between 30 and 100 ft/s for sizes up to 2½" and between 30 and 90 ft/s for sizes 3" and above.

EXAMPLE

For a system under 400 PSIG with a capacity of 500#/hr, a 1½" or 3/4" separator is recommended.

- A 1½" separator will provide a 1.86 PSIG pressure drop.
- A 3/4" separator will provide a 0.59 PSIG pressure drop.

ELIMINATOR PRESSURE DROP TABLES – STEAM

1/2 INCH ELIMINATOR

#/HR	PRESSURE (PSIG)								
	25	50	75	100	200	300	400	500	600
100	0.71	0.45	0.33	0.26	0.15	0.1	0.07	0.06	0.05
200	2.83	1.8	1.32	1.05	0.62	0.39	0.3	0.24	0.2
300	6.37	4.04	2.97	2.36	1.39	0.88	0.67	0.54	0.46
400	11.33	7.18	5.28	4.19	2.47	1.56	1.19	0.96	0.81
500	17.7	11.22	8.26	6.55	3.86	2.44	1.86	1.5	1.27
600	25.49	16.16	11.89	9.43	5.55	3.52	2.69	2.16	1.82

1 INCH ELIMINATOR

#/HR	PRESSURE (PSIG)								
	25	50	75	100	200	300	400	500	600
300	0.76	0.48	0.35	0.28	0.17	0.1	0.08	0.06	0.05
500	2.11	1.34	0.98	0.78	0.46	0.29	0.22	0.18	0.15
700	4.13	2.62	1.93	1.53	0.9	0.57	0.44	0.35	0.3
900	6.83	4.33	3.19	2.53	1.49	0.94	0.72	0.58	0.49
1100	10.21	6.47	4.76	3.78	2.22	1.41	1.08	0.87	0.73
1300	14.26	9.04	6.65	5.27	3.11	1.97	1.5	1.21	1.02
1500	18.98	12.03	8.85	7.02	4.14	2.62	2	1.61	1.36

1-1/2 INCH ELIMINATOR

#/HR	PRESSURE (PSIG)								
	25	50	75	100	200	300	400	500	600
400	0.24	0.15	0.11	0.09	0.05	0.03	0.03	0.02	0.02
500	0.37	0.24	0.17	0.14	0.08	0.05	0.04	0.03	0.03
1000	1.49	0.95	0.7	0.55	0.33	0.21	0.16	0.13	0.11
2000	5.98	3.79	2.79	2.21	1.3	0.82	0.63	0.51	0.43
3000	13.45	8.52	6.27	4.97	2.93	1.86	1.42	1.14	0.96
4000	23.91	15.16	11.15	8.84	5.21	3.3	2.52	2.03	1.71

2-1/2 INCH ELIMINATOR

#/HR	PRESSURE (PSIG)								
	25	50	75	100	200	300	400	500	600
1000	0.27	0.17	0.12	0.1	0.06	0.04	0.03	0.02	0.02
2000	1.07	0.68	0.5	0.39	0.23	0.15	0.11	0.09	0.08
3000	2.4	1.52	1.12	0.89	0.52	0.33	0.25	0.2	0.17
4000	4.27	2.71	1.99	1.58	0.93	0.59	0.45	0.36	0.31
5000	6.68	4.23	3.11	2.47	1.45	0.92	0.7	0.57	0.48
6000	9.61	6.09	4.48	3.55	2.09	1.33	1.01	0.82	0.69
7000	13.08	8.29	6.1	4.84	2.85	1.81	1.38	1.11	0.94

4 INCH ELIMINATOR

#/HR	PRESSURE (PSIG)								
	25	50	75	100	200	300	400	500	600
4000	0.6	0.38	0.28	0.22	0.13	0.08	0.06	0.05	0.04
6000	1.34	0.85	0.63	0.5	0.29	0.19	0.14	0.11	0.1
8000	2.39	1.51	1.11	0.88	0.52	0.33	0.25	0.2	0.17
10000	3.73	2.37	1.74	1.38	0.81	0.51	0.39	0.32	0.27
12000	5.37	3.41	2.51	1.99	1.17	0.74	0.57	0.46	0.38
14000	7.32	4.64	3.41	2.71	1.59	1.01	0.77	0.62	0.52
16000	9.55	6.06	4.46	3.53	2.08	1.32	1.01	0.81	0.68

3/4 INCH ELIMINATOR

#/HR	PRESSURE (PSIG)								
	25	50	75	100	200	300	400	500	600
100	0.22	0.14	0.1	0.08	0.05	0.03	0.02	0.02	0.02
200	0.89	0.57	0.42	0.33	0.19	0.12	0.09	0.08	0.06
300	2.01	1.27	0.94	0.74	0.44	0.28	0.21	0.17	0.14
400	3.57	2.26	1.66	1.32	0.78	0.49	0.38	0.3	0.25
500	5.57	3.53	2.6	2.06	1.21	0.77	0.59	0.47	0.4
600	8.02	5.09	3.74	2.97	1.75	1.11	0.85	0.68	0.57

1-1/4 INCH ELIMINATOR

#/HR	PRESSURE (PSIG)								
	25	50	75	100	200	300	400	500	600
500	0.69	0.44	0.32	0.26	0.15	0.1	0.07	0.06	0.05
750	1.56	0.99	0.73	0.58	0.34	0.22	0.16	0.13	0.11
1100	3.36	2.13	1.57	1.24	0.73	0.46	0.35	0.29	0.24
1250	4.34	2.75	2.02	1.6	0.95	0.6	0.46	0.37	0.31
1500	6.25	3.96	2.91	2.31	1.36	0.86	0.66	0.53	0.45
1750	8.5	5.39	3.97	3.14	1.85	1.17	0.9	0.72	0.61
2000	11.11	7.04	5.18	4.11	2.42	1.53	1.17	0.94	0.79

2 INCH ELIMINATOR

#/HR	PRESSURE (PSIG)								
	25	50	75	100	200	300	400	500	600
1000	0.54	0.34	0.25	0.2	0.12	0.07	0.06	0.05	0.04
2000	2.17	1.37	1.01	0.8	0.47	0.3	0.23	0.18	0.16
3000	4.88	3.09	2.28	1.8	1.06	0.67	0.51	0.41	0.35
4000	8.67	5.5	4.04	3.21	1.89	1.2	0.91	0.74	0.62
5000	13.55	8.59	6.32	5.01	2.95	1.87	1.43	1.15	0.97
6000	19.51	12.37	9.1	7.22	4.25	2.69	2.06	1.66	1.4

3 INCH ELIMINATOR

#/HR	PRESSURE (PSIG)								
	25	50	75	100	200	300	400	500	600
2000	0.45	0.28	0.21	0.17	0.1	0.06	0.05	0.04	0.03
4000	1.79	1.13	0.83	0.66	0.39	0.25	0.19	0.15	0.13
6000	4.02	2.55	1.87	1.49	0.88	0.55	0.42	0.34	0.29
8000	7.15	4.53	3.33	2.64	1.56	0.99	0.75	0.61	0.51
10000	11.17	7.08	5.21	4.13	2.43	1.54	1.18	0.95	0.8
12000	16.08	10.19	7.5	5.95	3.5	2.22	1.69	1.37	1.15
14000	21.89	13.87	10.21	8.09	4.77	3.02	2.31	1.86	1.56

6 INCH ELIMINATOR

#/HR	PRESSURE (PSIG)								
	25	50	75	100	200	300	400	500	600
5000	0.18	0.11	0.08	0.07	0.04	0.02	0.02	0.02	0.01
10000	0.72	0.46	0.33	0.27	0.16	0.1	0.08	0.06	0.05
15000	1.62	1.02	0.75	0.6	0.35	0.22	0.17	0.14	0.12
20000	2.87	1.82	1.34	1.06	0.63	0.4	0.3	0.24	0.21
25000	4.49	2.85	2.09	1.66	0.98	0.62	0.47	0.38	0.32
30000	6.46	4.1	3.01	2.39	1.41	0.89	0.68	0.55	0.46
35000	8.8	5.58	4.1	3.25	1.92	1.21	0.93	0.75	0.63

SIZING ELIMINATOR STEAM SEPARATORS

SIZING FOR AIR APPLICATIONS

Using your system pressure and capacity, select a size from the Pressure Drop Tables below that will yield a pressure drop in **boldface** type. This will provide the most efficient separation with velocities between 8 and 60 ft/s for sizes up to 2½" and between 8 and 50 ft/s for sizes 3" and above.

EXAMPLE

For a system under 400 PSIG with a capacity of 500 SCFM, a 2" or 2½" separator is recommended.

- A 2" separator will provide a 0.12 PSIG pressure drop.
- A 2½" separator will provide a 0.06 PSIG pressure drop.

ELIMINATOR PRESSURE DROP TABLES – AIR

1/2 INCH ELIMINATOR

SCFM	PRESSURE (PSIG)								
	25	50	75	100	200	300	400	500	600
10	0.07	0.04	0.03	0.02	0.01	0.01	0.01	0.01	0
20	0.27	0.17	0.12	0.09	0.05	0.03	0.03	0.02	0.02
30	0.61	0.37	0.27	0.21	0.11	0.08	0.06	0.05	0.04
40	1.08	0.66	0.48	0.37	0.2	0.14	0.1	0.08	0.07
50	1.69	1.03	0.75	0.58	0.31	0.21	0.16	0.13	0.11
60	2.43	1.49	1.07	0.84	0.45	0.31	0.23	0.19	0.16

1 INCH ELIMINATOR

SCFM	PRESSURE (PSIG)								
	25	50	75	100	200	300	400	500	600
25	0.05	0.03	0.02	0.02	0.01	0.01	0	0	0
50	0.2	0.12	0.09	0.07	0.04	0.03	0.02	0.02	0.01
75	0.45	0.28	0.2	0.16	0.08	0.06	0.04	0.03	0.03
100	0.8	0.49	0.36	0.28	0.15	0.1	0.08	0.06	0.05
125	1.26	0.77	0.56	0.43	0.23	0.16	0.12	0.1	0.08
150	1.81	1.11	0.8	0.63	0.33	0.23	0.17	0.14	0.12

1-1/2 INCH ELIMINATOR

SCFM	PRESSURE (PSIG)								
	25	50	75	100	200	300	400	500	600
50	0.04	0.02	0.02	0.01	0.01	0	0	0	0
100	0.14	0.09	0.06	0.05	0.03	0.02	0.01	0.01	0.01
150	0.32	0.2	0.14	0.11	0.06	0.04	0.03	0.02	0.02
200	0.57	0.35	0.25	0.2	0.11	0.07	0.05	0.04	0.04
250	0.89	0.55	0.39	0.31	0.16	0.11	0.09	0.07	0.06
300	1.28	0.79	0.57	0.44	0.24	0.16	0.12	0.1	0.08

2-1/2 INCH ELIMINATOR

SCFM	PRESSURE (PSIG)								
	25	50	75	100	200	300	400	500	600
100	0.03	0.02	0.01	0.01	0	0	0	0	0
250	0.16	0.1	0.07	0.06	0.03	0.02	0.02	0.01	0.01
500	0.64	0.39	0.28	0.22	0.12	0.08	0.06	0.05	0.04
750	1.43	0.88	0.63	0.5	0.26	0.18	0.14	0.11	0.09
1000	2.54	1.56	1.13	0.88	0.47	0.32	0.24	0.2	0.16
1250	3.97	2.44	1.76	1.38	0.73	0.5	0.38	0.31	0.26

4 INCH ELIMINATOR

SCFM	PRESSURE (PSIG)								
	25	50	75	100	200	300	400	500	600
250	0.02	0.01	0.01	0.01	0	0	0	0	0
500	0.09	0.05	0.04	0.03	0.02	0.01	0.01	0.01	0.01
1000	0.36	0.22	0.16	0.12	0.07	0.04	0.03	0.03	0.02
1500	0.8	0.49	0.35	0.28	0.15	0.1	0.08	0.06	0.05
2000	1.42	0.87	0.63	0.49	0.26	0.18	0.14	0.11	0.09
2500	2.22	1.36	0.98	0.77	0.41	0.28	0.21	0.17	0.14

3/4 INCH ELIMINATOR

SCFM	PRESSURE (PSIG)								
	25	50	75	100	200	300	400	500	600
10	0.02	0.01	0.01	0.01	0	0	0	0	0
25	0.13	0.08	0.06	0.05	0.02	0.02	0.01	0.01	0.01
50	0.53	0.33	0.23	0.18	0.1	0.07	0.05	0.04	0.03
70	1.04	0.64	0.46	0.36	0.19	0.13	0.1	0.08	0.07
90	1.72	1.05	0.76	0.59	0.32	0.22	0.16	0.13	0.11
110	2.57	1.58	1.14	0.89	0.47	0.32	0.25	0.2	0.17

1-1/4 INCH ELIMINATOR

SCFM	PRESSURE (PSIG)								
	25	50	75	100	200	300	400	500	600
50	0.07	0.04	0.03	0.02	0.01	0.01	0.01	0.01	0
100	0.26	0.16	0.12	0.09	0.05	0.03	0.03	0.02	0.02
150	0.59	0.37	0.26	0.21	0.11	0.08	0.06	0.05	0.04
200	1.06	0.65	0.47	0.37	0.2	0.13	0.1	0.08	0.07
250	1.65	1.01	0.73	0.57	0.31	0.21	0.16	0.13	0.11
300	2.38	1.46	1.05	0.82	0.44	0.3	0.23	0.18	0.15

2 INCH ELIMINATOR

SCFM	PRESSURE (PSIG)								
	25	50	75	100	200	300	400	500	600
100	0.05	0.03	0.02	0.02	0.01	0.01	0	0	0
200	0.21	0.13	0.09	0.07	0.04	0.03	0.02	0.02	0.01
300	0.46	0.29	0.21	0.16	0.09	0.06	0.04	0.04	0.03
400	0.83	0.51	0.37	0.29	0.15	0.1	0.08	0.06	0.05
500	1.29	0.79	0.57	0.45	0.24	0.16	0.12	0.1	0.08
600	1.86	1.14	0.82	0.64	0.34	0.23	0.18	0.14	0.12

3 INCH ELIMINATOR

SCFM	PRESSURE (PSIG)								
	25	50	75	100	200	300	400	500	600
200	0.04	0.03	0.02	0.01	0.01	0.01	0	0	0
400	0.17	0.1	0.08	0.06	0.03	0.02	0.02	0.01	0.01
600	0.38	0.23	0.17	0.13	0.07	0.05	0.04	0.03	0.02
800	0.68	0.42	0.3	0.24	0.13	0.09	0.07	0.05	0.04
1000	1.06	0.65	0.47	0.37	0.2	0.13	0.1	0.08	0.07
1200	1.53	0.94	0.68	0.53	0.28	0.19	0.15	0.12	0.1

6 INCH ELIMINATOR

SCFM	PRESSURE (PSIG)								
	25	50	75	100	200	300	400	500	600
500	0.02	0.01	0.01	0.01	0	0	0	0	0
1000	0.07	0.04	0.03	0.02	0.01	0.01	0.01	0.01	0
2000	0.27	0.17	0.12	0.09	0.05	0.03	0.03	0.02	0.02
3000	0.62	0.38	0.27	0.21	0.11	0.08	0.06	0.05	0.04
4000	1.09	0.67	0.48	0.38	0.2	0.14	0.1	0.08	0.07
5000	1.71	1.05	0.76	0.59	0.32	0.22	0.16	0.13	0.11



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