



CYLINDER BORE IN INCHES



	1/4	3/8	1/2	5/8	3/4	1	1-1/2	2	2-1/2	3-1/4	4	5	6	8
1	.0004	.0009	.002	.003	.004	.007	.015	.026	.042	.07	.11	.17	.24	.43
2	.0006	.0017	.003	.005	.008	.013	.030	.053	.082	.14	.21	.33	.48	.85
3	.001	.003	.005	.008	.011	.020	.045	.082	.125	.21	.32	.50	.72	1.3
4	.002	.004	.007	.011	.015	.026	.058	.106	.17	.28	.43	.67	.96	1.7
5	.002	.005	.008	.013	.019	.033	.077	.135	.21	.35	.53	.83	1.2	2.1
6	.003	.006	.010	.016	.022	.040	.091	.16	.25	.42	.64	1.0	1.4	2.6
7	.003	.007	.012	.018	.026	.047	.106	.19	.29	.49	.75	1.2	1.7	3.0
8	.003	.008	.013	.021	.030	.053	.120	.21	.33	.56	.85	1.3	1.9	3.4
9	.004	.009	.015	.024	.034	.058	.135	.24	.38	.63	.96	1.5	2.2	3.8
10	.004	.009	.017	.026	.038	.067	.15	.26	.42	.70	1.1	1.7	2.4	4.3
11	.005	.010	.018	.029	.041	.072	.16	.29	.46	.77	1.2	1.83	2.6	4.7
12	.005	.011	.020	.031	.045	.082	.18	.32	.50	.85	1.3	2.0	2.9	5.1
13	.005	.012	.022	.034	.048	.087	.20	.35	.54	.91	1.4	2.2	3.1	5.6
14	.006	.013	.024	.037	.053	.091	.21	.38	.58	.99	1.5	2.3	3.4	6.0
15	.006	.014	.025	.039	.058	.101	.23	.40	.63	1.1	1.6	2.5	3.6	6.4
16	.007	.015	.026	.042	.058	.106	.24	.43	.67	1.13	1.7	2.7	3.8	6.8
17	.007	.016	.028	.044	.063	.115	.25	.45	.71	1.2	1.8	2.8	4.1	7.3
18	.008	.017	.030	.047	.067	.120	.27	.48	.75	1.3	1.9	3.0	4.3	7.7
19	.008	.018	.032	.050	.072	.125	.28	.51	.79	1.3	2.0	3.2	4.6	8.1
20	.008	.019	.033	.052	.077	.135	.30	.53	.83	1.4	2.1	3.3	4.8	8.5
22	.009	.021	.037	.058	.082	.144	.33	.59	.92	1.6	2.3	3.7	5.3	9.4
24	.010	.023	.040	.063	.091	.159	.36	.64	1.0	1.7	2.6	4.0	5.8	10.2
26	.011	.024	.043	.067	.096	.173	.39	.69	1.1	1.8	2.7	4.3	6.2	11.1
28	.012	.026	.047	.072	.106	.188	.42	.75	1.2	2.0	3.0	4.7	6.7	11.9
30	.013	.028	.050	.077	.111	.202	.45	.80	1.3	2.1	3.2	5.0	7.2	12.8

LEGEND

Cv

→ Cv is based on 70 PSI inlet pressure and 7 PSI pressure drop.

SCFM

→ SCFM is calculated for F.R.L. sizing.

Cv to .20
Cv to .30
Cv to .70
Cv to 1.2
Cv to 2.0
Cv to 3.6
Cv to 5.7
Cv to 10
Cv to >10

The purpose of this chart is to give a quick reference guide to sizing pneumatic components. It does not take into account other accessory components, which could affect results.

SCFM Formula

$$Q^* = \frac{A \cdot L}{T} \times C_R$$

* Multiply by $\frac{60}{1728}$ to convert inches to feet for SCFM.

Cv Formula

$$Cv = \frac{1.024 \times Q}{\sqrt{\Delta P(P_2 + 14.7)}}$$

Q=SCFM
 $A = \frac{\pi D^2}{4}$
 L= Length (Stroke)
 T= Length Speed (in/s)

$C_R = \frac{P_2 + 14.7}{14.7}$
 P₂= Pressure at Cylinder
 D= Bore Diameter
 P= Main Line Pressure
 $\Delta P = P - P_2$



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Valve Series		Cv Factor
VQ0000		0.11 — 0.20
VQ/VQC1000		0.20 — 0.35
VQ/VQC2000		0.80 — 0.90
SV/VQ/VQC4000		1.80 — 2.20
VQ/VQC5000		4.00 — 5.00
VQZ1000		0.20 — 0.35
VQZ2000		0.60 — 0.70
VQZ3000		0.90 — 1.20

Valve Series		Cv Factor
SV1000/SY3000		0.30
SV2000/SY5000		0.70
SV3000/SY7000		1.20
SYJ3000		0.05 — 0.10
SYJ5000		0.17 — 0.25
SYJ7000		0.48 — 0.70

Valve Series		Cv Factor
NVFS/R1000		0.50
NVFS/R2000		0.83 — 1.00
NVFS/R3000		2.0
NVFS/R4000		3.6
NVFS/R5000		5.7
NVFS/R6000		9.00 — 10.0

Valve Series		Flow (SCFM)
NAC1000		3
NAC2000		18
NAC2500		50
NAC3000		70
NAC4000		140
NAC4000-N06		160



LEGEND

