



# 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

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

Cv Formula

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

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

$Q = \text{SCFM}$ $A = \frac{\pi D^2}{4}$ L = Length (Stroke) $T = \frac{\text{Length}}{\text{Speed (in/s)}}$	$C_R = \frac{P_2 + 14.7}{14.7}$ P <sub>2</sub> = 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**

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