

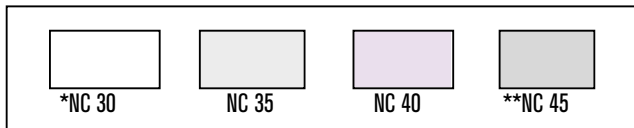
Engineering Data

821, 831, 92 Series and 98VOH (Page 36-38, 41)

Deflection A

Face Velocity	400	500	600	700	800	900	1000	1100	1200	1300	1400	1600	1800	2000
Pressure Loss	.010	.016	.022	.031	.040	.050	.062	.075	.090	.105	.122	.160	.202	.249
8x4 Ak .160	cfm Throw	65 6.5	80 8	100 10	110 11	130 13	145 15	160 16	175 18	190 19	210 21	225 23	255 26	290 29
10x4 Ak .202	cfm Throw	80 7	100 9	120 11	140 13	160 14	180 16	200 18	220 20	240 22	265 24	285 26	325 29	365 33
12x4 Ak .244	cfm Throw	100 8	120 10	145 12	170 14	195 16	220 18	245 20	270 22	295 24	315 26	340 28	390 32	440 36
14x4 Ak .286	cfm Throw	115 8.5	145 11	170 13	200 15	230 17	255 19	285 21	315 22	345 24	370 26	400 28	460 30	515 35
12x5 Ak .312	cfm Throw	125 9	155 11	190 14	220 16	250 18	280 20	310 22	345 25	375 27	405 29	435 31	500 36	560 41
10x6 Ak .314	cfm Throw	125 9	155 11	190 14	220 16	250 18	285 21	315 23	345 25	375 27	410 30	440 32	500 36	565 41
14x5 Ak .366	cfm Throw	145 10	185 12	220 15	255 17	295 20	330 22	365 24	405 27	440 29	475 32	510 34	585 39	660 44
12x6 Ak .379	cfm Throw	150 10	190 12	225 15	265 17	305 20	340 22	380 25	415 27	455 30	495 33	530 35	600 40	665 45
16x5 Ak .419	cfm Throw	170 11	210 13	250 16	295 18	335 21	380 24	420 26	460 29	505 32	545 34	585 37	670 42	755 47
14x6 Ak .444	cfm Throw	180 11	220 13	265 16	310 19	355 22	400 24	445 27	490 30	535 32	575 35	620 38	710 43	800 49
16x6 Ak .510	cfm Throw	205 12	255 15	305 17	355 20	410 23	460 26	510 29	560 32	610 35	665 38	715 41	815 47	920 53
20x5 Ak .526	cfm Throw	210 12	265 15	315 18	370 21	420 24	475 27	525 29	580 32	630 35	685 38	735 41	840 47	945 53
24x5 Ak .634	cfm Throw	255 13	315 16	380 19	445 23	505 26	570 29	635 32	695 35	760 39	825 42	890 45	1015 52	1140 58
20x6 Ak .640	cfm Throw	255 13	320 16	385 19	445 23	510 26	575 29	640 32	705 35	770 38	830 42	895 45	1015 52	1140 58
24x6 Ak .771	cfm Throw	310 14	385 18	465 21	540 25	615 28	695 32	770 35	850 39	925 43	1000 46	1080 50	1235 57	1390 64
20x8 Ak .868	cfm Throw	345 15	435 19	520 23	610 26	695 30	780 34	870 38	955 41	1040 45	1130 49	1215 53	1390 60	1560 68
30x6 Ak .967	cfm Throw	385 16	485 20	580 24	675 28	775 32	870 36	965 40	1065 44	1160 48	1255 51	1355 56	1545 63	1740 71
24x8 Ak 1.045	cfm Throw	420 17	525 21	625 25	730 29	835 33	940 37	1045 41	1150 46	1255 50	1360 54	1465 58	1670 66	1880 74
30x8 Ak 1.310	cfm Throw	525 19	655 23	785 28	915 32	1050 37	1180 42	1310 46	1440 51	1570 56	1705 60	1835 65	2095 74	2360 84
24x10 Ak 1.319	cfm Throw	530 19	660 23	790 28	925 33	1055 37	1185 42	1320 46	1450 51	1585 56	1715 60	1845 65	2110 74	2375 84
36x8 Ak 1.576	cfm Throw	630 20	790 25	945 30	1105 36	1260 41	1420 46	1575 51	1735 56	1890 61	2050 66	2205 71	2520 81	2835 91
24x12 Ak 1.593	cfm Throw	635 20	795 25	995 31	1115 36	1275 41	1435 47	1595 51	1750 56	1910 61	2070 66	2230 71	2550 82	2865 92
30x10 Ak 1.654	cfm Throw	660 21	825 26	990 31	1160 37	1325 42	1490 47	1655 52	1820 57	1985 63	2150 68	2315 73	2645 83	2975 94
36x10 Ak 1.989	cfm Throw	795 23	995 29	1195 34	1390 40	1590 46	1790 51	1990 57	2190 63	2385 68	2585 74	2785 80	3180 91	3580 103
30x12 Ak 1.997	cfm Throw	800 23	1000 29	1200 34	1400 40	1600 45	1800 51	2000 57	2200 63	2395 68	2595 74	2795 80	3195 91	3595 103
36x12 Ak 2.402	cfm Throw	960 25	1200 31	1440 38	1680 44	1920 50	2160 56	2400 63	2640 69	2880 75	3120 81	3365 88	3845 100	4325 113

Terminal Velocity of 75 fpm



* less than or equal to

** greater than or equal to

Deflection C

Face Velocity	400	500	600	700	800	900	1000	1100	1200	1300	1400	1600	1800	2000
Pressure Loss	.010	.016	.022	.031	.040	.050	.062	.075	.090	.105	.122	.160	.202	.249
8x4 Ak .140	cfm Throw	55 5	70 6	85 7.5	100 8.5	110 9.5	125 11	140 12	155 14	170 15	180 16	195 17	225 20	250 22
10x4 Ak .178	cfm Throw	70 5	90 7	105 8	125 9.5	140 11	160 12	180 14	195 15	215 17	230 18	250 19	285 22	320 25
12x4 Ak .215	cfm Throw	85 6	110 8	130 9	150 11	170 12	195 14	215 15	235 17	260 18	280 20	300 21	345 24	385 27
14x4 Ak .252	cfm Throw	100 8	125 10	150 11	175 13	200 15	225 16	250 18	275 19	300 21	330 22	355 23	405 26	455 30
12x5 Ak .274	cfm Throw	110 7	135 8.5	165 10	190 12	220 14	245 15	275 17	300 19	330 21	355 22	385 24	440 28	495 31
10x6 Ak .276	cfm Throw	110 7	140 8.5	165 10	195 12	220 14	245 15	275 17	305 19	330 21	360 22	385 24	440 27	495 31
14x5 Ak .321	cfm Throw	130 7.5	160 9	195 11	225 13	255 15	290 17	320 18	355 21	385 22	415 24	450 26	515 30	580 34
12x6 Ak .333	cfm Throw	135 7.5	165 9.5	200 11	235 13	265 15	300 17	335 19	365 21	400 23	435 25	465 26	535 30	600 34
16x5 Ak .369	cfm Throw	150 8	185 10	220 12	260 14	295 16	330 18	370 20	405 22	445 24	480 26	515 28	590 32	665 36
14x6 Ak .391	cfm Throw	155 8	195 10	235 12	275 14	315 16	350 18	390 20	430 22	470 24	510 26	545 28	625 32	705 36
16x6 Ak .448	cfm Throw	180 9	225 11	270 13	315 15	360 18	405 20	450 22	495 24	540 26	585 28	625 31	715 35	805 39
20x5 Ak .463	cfm Throw	185 9	230 11	280 13	325 15	370 18	415 20	465 22	510 24	555 26	600 28	650 31	740 35	835 39
24x5 Ak .557	cfm Throw	225 10	280 12	335 15	390 17	445 19	500 22	555 24	610 27	670 29	725 32	780 34	890 40	1005 44
20x6 Ak .563	cfm Throw	225 10	280 12	340 15	395 17	450 20	505 22	565 25	620 27	675 29	730 32	790 34	900 39	1015 44
24x6 Ak .678	cfm Throw	270 11	340 14	405 16	475 19	540 21	610 24	680 27	745 30	815 32	880 35	950 38	1085 43	1220 49
20x8 Ak .763	cfm Throw	305 11	380 14	460 17	535 20	610 23	685 26	765 29	840 32	915 34	990 37	1070 40	1220 46	1375 52
30x6 Ak .850	cfm Throw	340 12	425 15	510 18	595 21	680 24	765 27	850 30	935 33	1020 36	1105 39	1190 42	1360 48	1530 54
24x8 Ak .919	cfm Throw	370 13	460 16	550 19	645 22	735 25	825 28	920 31	1010 34	1105 37	1195 40	1285 44	1470 50	1655 57
30x8 Ak 1.152	cfm Throw	460 14	575 15	690 21	805 25	920 28	1035 32	1150 35	1265 39	1380 42	1500 46	1615 49	1845 56	2075 63
24x10 Ak 1.160	cfm Throw	465 14	580 18	695 21	810 25	930 28	1045 32	1160 35	1275 39	1390 42	1510 46	1625 49	1855 56	2090 64
36x8 Ak 1.386	cfm Throw	555 15	695 19	830 21	970 27	1110 31	1245 35	1385 39	1525 42	1665 46	1800 50	1940 54	2220 62	2495 69
24x12 Ak 1.401	cfm Throw	560 16	700 19	840 23	980 27	1120 31	1260 35	1400 39	1540 43	1680 47	1820 51	1960 55	2240 63	2520 70
30x10 Ak 1.454	cfm Throw	580 16	725 20	870 24	1020 28	1165 32	1310 36	1455 39	1600 43	1745 47	1890 51	2035 55	2325 63	2615 71
36x10 Ak 1.749	cfm Throw	700 17	875 22	1050 26	1225 30	1400 35	1575 39	1750 43	1925 48	2100 52	2275 56	2450 61	2800 69	3150 78
30x12 Ak 1.756	cfm Throw	700 17	880 22	1055 26	1230 30	1405 35	1580 39	1755 43	1930 48	2110 52	2285 56	2460 61	2810 69	3160 78
36x12 Ak 2.112	cfm Throw	845 19	1055 24	1265 28	1480 33	1690 38	1900 43	2110 47	2325 52	2535 57	2745 62	2955 66	3380 76	3800 86

Terminal Velocity of 75 fpm

See Alternate Sizing Graph on Page 160.

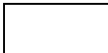
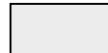
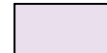
See Deflections on Page 158.

821, 831, 92 Series and 98VOH (Page 36-38, 41)

Deflection E

Face Velocity	400	500	600	700	800	900	1000	1100	1200	1300	1400	1600	1800	2000
Pressure Loss	.010	.016	.022	.031	.040	.050	.062	.075	.090	.105	.122	.160	.202	.249
8x4 Ak .124	cfm 3.5	cfm 4.5	cfm 5.5	cfm 6	cfm 7.5	cfm 8	cfm 9	cfm 10	cfm 11	cfm 12	cfm 13	cfm 15	cfm 16	cfm 18
10x4 Ak .157	cfm 4	cfm 5	cfm 6	cfm 7	cfm 8	cfm 9	cfm 10	cfm 11	cfm 12	cfm 13	cfm 14	cfm 16	cfm 19	cfm 20
12x4 Ak .190	cfm 4.5	cfm 5.5	cfm 6.5	cfm 7.5	cfm 8.5	cfm 9.5	cfm 10.5	cfm 11.5	cfm 12.5	cfm 13.5	cfm 14.5	cfm 16.5	cfm 19.5	cfm 22
14x4 Ak .222	cfm 5	cfm 6	cfm 7	cfm 8	cfm 9	cfm 10	cfm 11	cfm 12	cfm 13	cfm 14	cfm 15	cfm 17	cfm 20	cfm 24
12x5 Ak .242	cfm 5	cfm 6.5	cfm 7.5	cfm 8.5	cfm 9.5	cfm 10.5	cfm 11.5	cfm 12.5	cfm 13.5	cfm 14.5	cfm 15.5	cfm 17.5	cfm 20.5	cfm 25
10x6 Ak .244	cfm 5	cfm 6.5	cfm 7.5	cfm 8.5	cfm 9.5	cfm 10.5	cfm 11.5	cfm 12.5	cfm 13.5	cfm 14.5	cfm 15.5	cfm 17.5	cfm 20.5	cfm 26
14x5 Ak .284	cfm 5.5	cfm 7	cfm 8	cfm 9	cfm 10	cfm 11	cfm 12	cfm 13	cfm 14	cfm 15	cfm 16	cfm 18	cfm 22	cfm 28
12x6 Ak .294	cfm 5.5	cfm 7	cfm 8	cfm 9	cfm 10	cfm 11	cfm 12	cfm 13	cfm 14	cfm 15	cfm 16	cfm 18	cfm 22	cfm 28
16x5 Ak .325	cfm 6	cfm 7.5	cfm 9	cfm 10	cfm 12	cfm 13	cfm 15	cfm 16	cfm 18	cfm 19	cfm 21	cfm 24	cfm 26	cfm 29
14x6 Ak .345	cfm 6	cfm 7.5	cfm 9	cfm 11	cfm 12	cfm 14	cfm 15	cfm 17	cfm 18	cfm 20	cfm 21	cfm 24	cfm 27	cfm 30
16x6 Ak .396	cfm 6.5	cfm 8	cfm 10	cfm 11	cfm 13	cfm 15	cfm 16	cfm 18	cfm 19	cfm 21	cfm 23	cfm 26	cfm 29	cfm 32
20x5 Ak .408	cfm 6.5	cfm 8.5	cfm 10	cfm 11	cfm 13	cfm 15	cfm 17	cfm 18	cfm 20	cfm 21	cfm 23	cfm 26	cfm 30	cfm 33
24x5 Ak .492	cfm 7	cfm 9	cfm 11	cfm 13	cfm 14	cfm 16	cfm 18	cfm 20	cfm 22	cfm 23	cfm 25	cfm 29	cfm 32	cfm 36
20x6 Ak .497	cfm 7.5	cfm 9	cfm 11	cfm 13	cfm 15	cfm 16	cfm 18	cfm 20	cfm 22	cfm 24	cfm 25	cfm 29	cfm 33	cfm 36
24x6 Ak .598	cfm 8	cfm 10	cfm 12	cfm 14	cfm 16	cfm 18	cfm 20	cfm 22	cfm 24	cfm 26	cfm 28	cfm 32	cfm 36	cfm 40
20x8 Ak .673	cfm 8.5	cfm 11	cfm 13	cfm 15	cfm 17	cfm 19	cfm 21	cfm 23	cfm 25	cfm 27	cfm 30	cfm 34	cfm 38	cfm 42
30x6 Ak .750	cfm 9	cfm 11	cfm 13	cfm 16	cfm 18	cfm 20	cfm 22	cfm 25	cfm 27	cfm 29	cfm 31	cfm 36	cfm 40	cfm 45
24x8 Ak .811	cfm 9.5	cfm 12	cfm 14	cfm 16	cfm 19	cfm 21	cfm 23	cfm 25	cfm 28	cfm 30	cfm 32	cfm 37	cfm 42	cfm 46
30x8 Ak 1.017	cfm 11	cfm 13	cfm 16	cfm 18	cfm 21	cfm 23	cfm 26	cfm 29	cfm 31	cfm 34	cfm 36	cfm 42	cfm 47	cfm 52
24x10 Ak 1.023	cfm 10	cfm 13	cfm 16	cfm 18	cfm 21	cfm 23	cfm 26	cfm 29	cfm 31	cfm 34	cfm 36	cfm 42	cfm 47	cfm 52
36x8 Ak 1.222	cfm 11	cfm 14	cfm 17	cfm 20	cfm 23	cfm 26	cfm 28	cfm 31	cfm 34	cfm 37	cfm 40	cfm 46	cfm 51	cfm 57
24x12 Ak 1.236	cfm 11	cfm 14	cfm 17	cfm 20	cfm 23	cfm 26	cfm 29	cfm 31	cfm 34	cfm 37	cfm 40	cfm 46	cfm 51	cfm 57
30x10 Ak 1.283	cfm 12	cfm 15	cfm 17	cfm 20	cfm 23	cfm 26	cfm 29	cfm 32	cfm 35	cfm 38	cfm 42	cfm 46	cfm 52	cfm 58
36x10 Ak 1.543	cfm 13	cfm 16	cfm 19	cfm 22	cfm 26	cfm 29	cfm 32	cfm 35	cfm 38	cfm 42	cfm 45	cfm 51	cfm 57	cfm 64
30x12 Ak 1.550	cfm 13	cfm 16	cfm 19	cfm 22	cfm 26	cfm 29	cfm 32	cfm 35	cfm 38	cfm 42	cfm 45	cfm 51	cfm 57	cfm 64
36x12 Ak 1.864	cfm 14	cfm 18	cfm 21	cfm 25	cfm 28	cfm 32	cfm 35	cfm 39	cfm 42	cfm 46	cfm 49	cfm 56	cfm 63	cfm 70

Terminal Velocity of 75 fpm

			
*NC 30	NC 35	NC 40	**NC 45

* less than or equal to

** greater than or equal to

Deflection G

Face Velocity	400	500	600	700	800	900	1000	1100	1200	1300	1400	1600	1800	2000
Pressure Loss	.010	.016	.022	.031	.040	.050	.062	.075	.090	.105	.122	.160	.202	.249
8x4 Ak .119	cfm 2.5	cfm 3	cfm 4	cfm 4.5	cfm 5	cfm 5.5	cfm 6.5	cfm 7	cfm 8	cfm 8.5	cfm 9	cfm 10	cfm 12	cfm 13
10x4 Ak .143	cfm 2.5	cfm 3.5	cfm 4	cfm 5	cfm 5.5	cfm 6.5	cfm 7	cfm 7.5	cfm 8	cfm 9	cfm 9.5	cfm 11	cfm 12	cfm 14
12x4 Ak .173	cfm 3	cfm 3.5	cfm 4.5	cfm 5.5	cfm 6	cfm 7	cfm 7.5	cfm 8.5	cfm 9	cfm 10	cfm 11	cfm 12	cfm 14	cfm 15
14x4 Ak .202	cfm 3	cfm 4	cfm 5	cfm 5.5	cfm 6.5	cfm 7	cfm 8	cfm 9	cfm 10	cfm 11	cfm 12	cfm 13	cfm 15	cfm 16
12x5 Ak .220	cfm 3.5	cfm 4.5	cfm 5	cfm 6	cfm 7	cfm 8	cfm 8.5	cfm 9.5	cfm 10	cfm 11	cfm 12	cfm 14	cfm 15	cfm 17
10x6 Ak .222	cfm 3.5	cfm 4.5	cfm 5	cfm 6	cfm 7	cfm 7.5	cfm 8.5	cfm 9.5	cfm 10	cfm 11	cfm 12	cfm 14	cfm 15	cfm 17
14x5 Ak .258	cfm 4	cfm 5	cfm 5.5	cfm 6.5	cfm 7.5	cfm 8.5	cfm 9.5	cfm 10	cfm 11	cfm 12	cfm 13	cfm 15	cfm 17	cfm 18
12x6 Ak .268	cfm 4	cfm 5	cfm 5.5	cfm 6.5	cfm 7.5	cfm 8.5	cfm 9.5	cfm 10	cfm 11	cfm 12	cfm 13	cfm 15	cfm 17	cfm 19
16x5 Ak .296	cfm 4	cfm 5	cfm 6	cfm 7	cfm 8	cfm 9	cfm 10	cfm 11	cfm 12	cfm 13	cfm 14	cfm 16	cfm 18	cfm 20
14x6 Ak .314	cfm 4	cfm 5	cfm 6	cfm 7	cfm 8	cfm 9	cfm 10	cfm 11	cfm 12	cfm 13	cfm 14	cfm 16	cfm 18	cfm 20
16x6 Ak .360	cfm 4.5	cfm 5.5	cfm 6.5	cfm 7.5	cfm 8.5	cfm 9.5	cfm 10	cfm 11	cfm 12	cfm 13	cfm 14	cfm 16	cfm 18	cfm 22
20x5 Ak .372	cfm 4.5	cfm 5.5	cfm 6.5	cfm 7.5	cfm 8.5	cfm 9.5	cfm 10	cfm 11	cfm 12	cfm 13	cfm 14	cfm 16	cfm 18	cfm 22
24x5 Ak .448	cfm 5	cfm 6	cfm 7	cfm 8	cfm 9	cfm 10	cfm 11	cfm 12	cfm 13	cfm 14	cfm 15	cfm 17	cfm 19	cfm 24
20x6 Ak .453	cfm 5	cfm 6	cfm 7	cfm 8	cfm 9	cfm 10	cfm 11	cfm 12	cfm 13	cfm 14	cfm 15	cfm 17	cfm 19	cfm 25
24x6 Ak .545	cfm 5.5	cfm 7	cfm 8	cfm 9	cfm 10	cfm 11	cfm 12	cfm 13	cfm 14	cfm 15	cfm 16	cfm 18	cfm 21	cfm 27
20x8 Ak .614	cfm 5.5	cfm 7	cfm 8.5	cfm 10	cfm 11	cfm 12	cfm 13	cfm 14	cfm 15	cfm 16	cfm 17	cfm 19	cfm 22	cfm 29
30x6 Ak .683	cfm 6	cfm 7.5	cfm 9	cfm 10	cfm 11	cfm 12	cfm 13	cfm 14	cfm 15	cfm 16	cfm 17	cfm 19	cfm 22	cfm 30
24x8 Ak .739	cfm 6.5	cfm 8	cfm 9.5	cfm 11	cfm 13	cfm 14	cfm 16	cfm 17	cfm 19	cfm 20	cfm 22	cfm 25	cfm 28	cfm 31
30x8 Ak .926	cfm 7	cfm 9	cfm 10	cfm 12	cfm 14	cfm 16	cfm 17	cfm 19	cfm 21	cfm 23	cfm 24	cfm 28	cfm 31	cfm 35
24x10 Ak .932	cfm 7	cfm 9	cfm 11	cfm 12	cfm 14	cfm 16	cfm 18	cfm 19	cfm 21	cfm 23	cfm 25	cfm 28	cfm 32	cfm 35
36x8 Ak 1.114	cfm 7.5	cfm 9.5	cfm 12	cfm 13	cfm 15	cfm 17	cfm 19	cfm 21	cfm 23	cfm 25	cfm 27	cfm 31	cfm 35	cfm 39
24x12 Ak 1.126	cfm 7.5	cfm 9.5	cfm 12	cfm 14	cfm 15	cfm 17	cfm 19	cfm 21	cfm 23	cfm 25	cfm 27	cfm 31	cfm 35	cfm 39
30x10 Ak 1.169	cfm 8	cfm 10	cfm 12	cfm 14	cfm 16	cfm 18	cfm 20	cfm 22	cfm 24	cfm 26	cfm 27	cfm 31	cfm 35	cfm 39
36x10 Ak 1.406	cfm 8.5	cfm 11	cfm 13	cfm 15	cfm 17	cfm 19	cfm 22	cfm 24	cfm 26	cfm 28	cfm 30	cfm 35	cfm 39	cfm 43
30x12 Ak 1.412	cfm 8.5	cfm 11	cfm 13	cfm 15	cfm 17	cfm 19	cfm 22	cfm 24	cfm 26	cfm 28	cfm 30	cfm 35	cfm 39	cfm 43
36x12 Ak 1.698	cfm 9.5	cfm 12	cfm 14	cfm 17	cfm 19	cfm 21	cfm 24	cfm 26	cfm 29	cfm 31	cfm 33	cfm 38	cfm 43	cfm 48

See Alternate Sizing Graph on Page 160.
See Deflections on Page 158.