

821, 831, 92 Series, 98VOH, H and V Series Drop Chart, Use with size selection charts

Instructions for use of Drop Chart

The drop of the air stream is determined by using the throw and velocity of the register selected. On the drop chart, lay a straight edge connecting these values. The total drop of the air stream will be the sum of the drop due to temperature (D_t) and the drop due to spread (D_s).

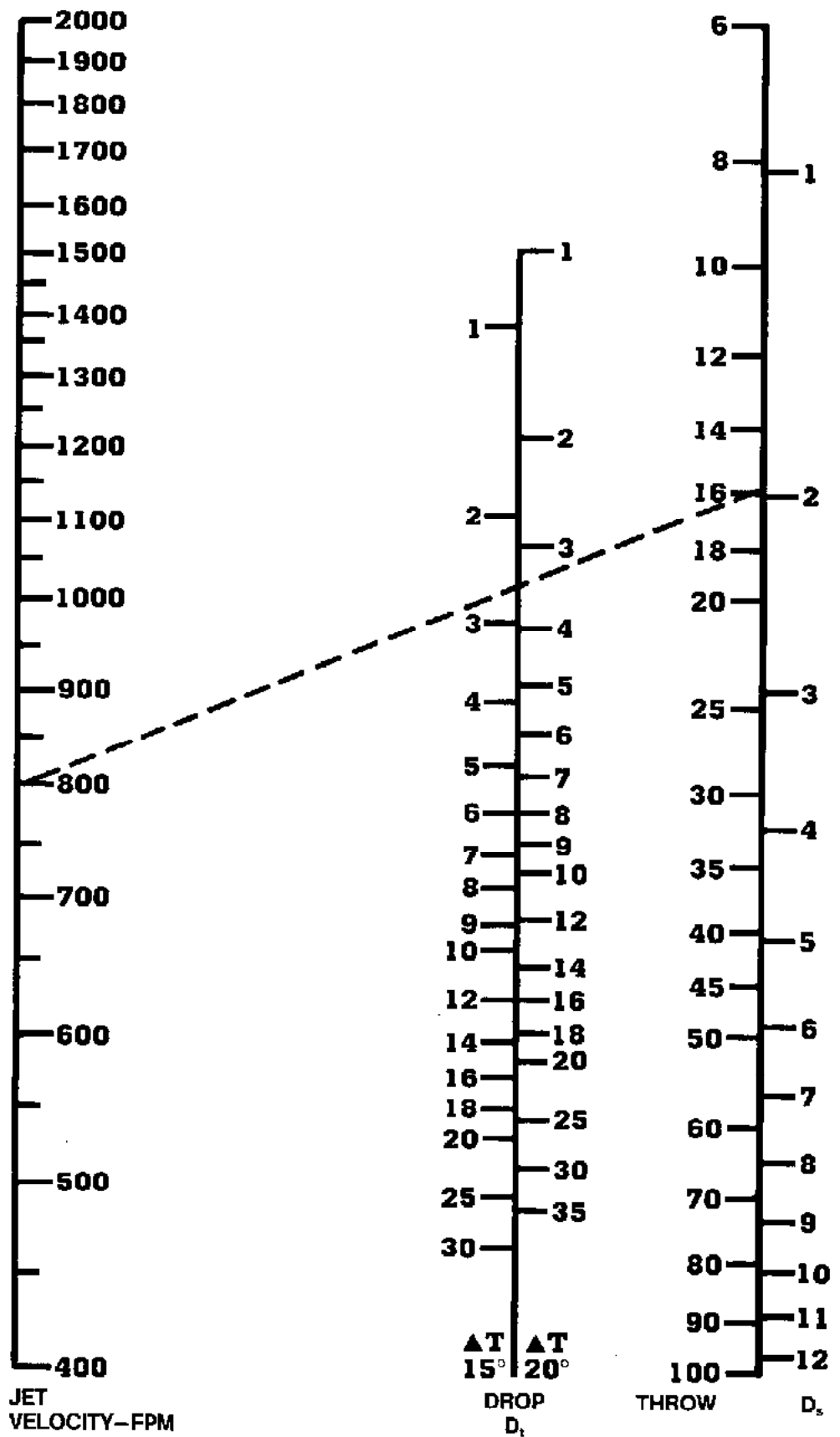
Example: The drop for a 92 Series register "C" deflection 16x5 size has an 800 fpm velocity and a 16 foot throw. Connect these two points on the chart and read the drops as follows:

$$D_t = 2.7' \quad D_s = 2'$$

$$D_{\text{total}} = 2.7 + 2 = 4.7'$$

D_t = Drop along line of throw due to temperature difference.

D_s = Drop resulting from vertical spread.



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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
8 x 4 CFM	65	80	100	110	130	145	160	175	190	210	225	255	290	320
Ak 160 Throw	6.5	8.0	10.0	11.0	13.0	15.0	16.0	18.0	19.0	21.0	23.0	26.0	29.0	32.0
10 x 4 CFM	80	100	120	140	160	180	200	220	240	265	285	325	365	405
Ak 202 Throw	7.0	9.0	11.0	13.0	14.0	16.0	18.0	20.0	22.0	24.0	26.0	29.0	33.0	36.0
12 x 4 CFM	100	120	145	170	195	220	245	270	295	315	340	390	440	490
Ak 244 Throw	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	24.0	26.0	28.0	32.0	36.0	40.0
14 x 4 CFM	115	145	170	200	230	255	285	315	345	370	400	460	515	570
Ak 286 Throw	8.5	11.0	13.0	15.0	17.0	19.0	22.0	24.0	26.0	28.0	30.0	35.0	39.0	43.0
12 x 5 CFM	125	155	190	220	250	280	310	345	375	405	435	500	560	625
Ak 312 Throw	9.0	11.0	14.0	16.0	18.0	20.0	22.0	25.0	27.0	29.0	31.0	36.0	41.0	45.0
10 x 6 CFM	125	155	190	220	250	285	315	345	375	410	440	500	565	630
Ak 314 Throw	9.0	11.0	14.0	16.0	18.0	21.0	23.0	25.0	27.0	30.0	32.0	36.0	41.0	45.0
14 x 5 CFM	145	185	220	255	295	330	365	405	440	475	510	585	660	730
Ak 366 Throw	10.0	12.0	15.0	17.0	20.0	22.0	24.0	27.0	29.0	32.0	34.0	39.0	44.0	49.0
12 x 6 CFM	150	190	225	265	305	340	380	415	455	495	530	605	680	760
Ak 379 Throw	10.0	12.0	15.0	17.0	20.0	22.0	25.0	27.0	30.0	33.0	35.0	40.0	45.0	50.0
16 x 5 CFM	170	210	250	295	335	380	420	460	505	545	585	670	755	840
Ak 419 Throw	11.0	13.0	16.0	18.0	21.0	24.0	26.0	29.0	32.0	34.0	37.0	42.0	47.0	53.0
14 x 6 CFM	180	220	265	310	355	400	445	490	535	575	620	710	800	890
Ak 444 Throw	11.0	13.0	16.0	19.0	22.0	24.0	27.0	30.0	32.0	35.0	38.0	43.0	49.0	54.0
18 x 6 CFM	205	255	305	355	410	460	510	560	610	665	715	815	920	1020
Ak 510 Throw	12.0	15.0	17.0	20.0	23.0	26.0	29.0	32.0	35.0	38.0	41.0	47.0	53.0	58.0
20 x 5 CFM	210	265	315	370	420	475	525	580	630	685	735	840	945	1050
Ak 526 Throw	12.0	15.0	18.0	21.0	23.0	27.0	29.0	32.0	35.0	38.0	41.0	47.0	53.0	59.0
24 x 5 CFM	255	315	380	445	505	570	635	695	760	825	890	1015	1140	1270
Ak 634 Throw	13.0	16.0	19.0	23.0	26.0	29.0	32.0	35.0	39.0	42.0	45.0	52.0	58.0	65.0
20 x 6 CFM	255	320	385	445	510	575	640	705	770	830	895	1015	1140	1270
Ak 640 Throw	13.0	16.0	19.0	23.0	26.0	29.0	32.0	36.0	39.0	42.0	45.0	52.0	58.0	65.0
24 x 6 CFM	310	385	465	540	615	695	770	850	925	1000	1080	1235	1390	1540
Ak 771 Throw	14.0	18.0	21.0	25.0	28.0	32.0	35.0	39.0	43.0	46.0	50.0	57.0	64.0	71.0
20 x 8 CFM	345	435	520	610	695	780	870	955	1040	1130	1215	1390	1560	1735
Ak 868 Throw	15.0	19.0	23.0	26.0	30.0	34.0	38.0	41.0	45.0	49.0	53.0	60.0	68.0	75.0
30 x 6 CFM	385	485	580	675	775	870	965	1065	1160	1255	1355	1545	1740	1935
Ak 967 Throw	16.0	20.0	24.0	28.0	32.0	36.0	40.0	44.0	48.0	51.0	56.0	63.0	71.0	79.0
24 x 8 CFM	420	525	625	730	835	940	1045	1150	1255	1360	1465	1670	1880	2090
Ak 1045 Throw	17.0	21.0	25.0	29.0	33.0	37.0	41.0	46.0	50.0	54.0	58.0	66.0	74.0	83.0
30 x 8 CFM	525	655	785	915	1050	1190	1330	1470	1615	1760	1905	2160	2415	2670
Ak 1310 Throw	19.0	23.0	28.0	32.0	37.0	42.0	46.0	51.0	56.0	60.0	65.0	74.0	84.0	93.0
24 x 10 CFM	530	660	790	925	1065	1205	1345	1490	1635	1780	1925	2190	2455	2720
Ak 1319 Throw	19.0	23.0	28.0	33.0	37.0	42.0	46.0	51.0	56.0	60.0	65.0	74.0	84.0	93.0
36 x 8 CFM	630	790	945	1105	1260	1420	1575	1735	1890	2050	2205	2520	2835	3150
Ak 1576 Throw	20.0	25.0	30.0	36.0	41.0	46.0	51.0	56.0	61.0	66.0	71.0	81.0	91.0	101.0
24 x 12 CFM	635	795	955	1115	1275	1435	1595	1755	1910	2070	2230	2550	2865	3185
Ak 1593 Throw	20.0	25.0	31.0	36.0	41.0	47.0	51.0	56.0	61.0	66.0	71.0	82.0	92.0	102.0
30 x 10 CFM	660	825	990	1160	1325	1490	1655	1820	1985	2150	2315	2645	2975	3310
Ak 1654 Throw	21.0	26.0	31.0	37.0	42.0	47.0	52.0	57.0	63.0	68.0	73.0	83.0	94.0	104.0
36 x 10 CFM	795	995	1195	1390	1590	1790	1990	2190	2385	2585	2785	3180	3580	3980
Ak 1989 Throw	23.0	29.0	34.0	40.0	46.0	51.0	57.0	63.0	68.0	74.0	80.0	91.0	103.0	114.0
30 x 12 CFM	800	1000	1200	1400	1600	1800	2000	2200	2395	2595	2795	3195	3595	3995
Ak 1997 Throw	23.0	29.0	34.0	40.0	45.0	51.0	57.0	63.0	68.0	74.0	80.0	91.0	103.0	114.0
36 x 12 CFM	960	1200	1440	1680	1920	2160	2400	2640	2880	3120	3365	3845	4325	4805
Ak 2402 Throw	25.0	31.0	38.0	44.0	50.0	56.0	63.0	69.0	75.0	81.0	88.0	100.0	113.0	125.0

For sizes not listed and sizing tips see page 76

Terminal Velocity of 75 FPM

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
8 x 4 CFM	55	70	85	100	110	125	140	155	170	180	195	225	250	280
Ak 140 Throw	5.0	6.0	7.5	8.5	9.5	11.0	12.0	14.0	15.0	16.0	17.0	20.0	22.0	24.0
10 x 4 CFM	70	90	105	125	140	160	180	195	215	230	250	285	320	355
Ak 178 Throw	5.0	7.0	8.0	9.5	11.0	12.0	14.0	15.0	17.0	18.0	19.0	22.0	25.0	28.0
12 x 4 CFM	85	110	130	150	170	190	215	235	260	280	300	345	385	430
Ak 215 Throw	6.0	8.0	9.0	11.0	12.0	14.0	15.0	17.0	18.0	20.0	21.0	24.0	27.0	30.0
14 x 4 CFM	100	125	150	175	200	225	250	275	300	330	355	405	455	505
Ak 252 Throw	6.5	8.0	10.0	11.0	13.0	15.0	16.0	18.0	20.0	22.0	23.0	26.0	30.0	33.0
12 x 5 CFM	110	135	165	190	220	245	275	300	330	355	385	440	495	550
Ak 274 Throw	7.0	8.5	10.0	12.0	14.0	15.0	17.0	19.0	21.0	22.0	24.0	28.0	31.0	34.0
10 x 6 CFM	110	140	165	195	220	245	275	305	330	360	385	440	495	550
Ak 276 Throw	7.0	8.5	10.0	12.0	14.0	15.0	17.0	19.0	21.0	22.0	24.0	27.0	31.0	34.0
14 x 5 CFM	130	160	195	225	255	290	320	355	385	415	450	515	580	645
Ak 321 Throw	7.5	9.0	11.0	13.0	15.0	17.0	18.0	21.0	22.0	24.0	26.0	30.0	34.0	37.0
12 x 6 CFM	135	165	200	235	265	300	335	365	400	435	465	535	600	665
Ak 333 Throw	7.5	9.5	11.0	13.0	15.0	17.0	19.0	21.0	23.0	25.0	26.0	30.0	34.0	38.0
16 x 5 CFM	150	185	220	260	295	330	370	405	445	480	515	590	665	740
Ak 369 Throw	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	24.0	26.0	28.0	32.0	36.0	40.0
14 x 6 CFM	155	195	235	275	315	350	390	430	470	510	545	625	705	780
Ak 391 Throw	8.0	10.0	12.0	14.0	17.0	18.0	20.0	23.0	25.0	27.0	29.0	33.0	37.0	41.0
18 x 6 CFM	180	225	270	315	360	405	450	495	540	580	625	715	805	895
Ak 448 Throw	9.0	11.0	13.0	15.0	18.0	20.0	22.0	24.0	26.0	28.0				

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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
8 x 4 CFM	50	60	75	85	100	110	125	135	150	160	175	200	225	250
Ak_124 Throw	3.5	4.5	5.5	6.0	7.5	8.0	9.0	10.0	11.0	12.0	13.0	15.0	16.0	18.0
10 x 4 CFM	65	80	95	110	125	140	155	175	190	205	220	250	285	315
Ak_157 Throw	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	16.0	19.0	20.0
12 x 4 CFM	75	95	115	135	150	170	190	210	230	245	265	305	340	380
Ak_190 Throw	4.5	5.5	7.0	8.0	9.0	10.0	11.0	12.0	14.0	15.0	16.0	18.0	20.0	22.0
14 x 4 CFM	90	110	135	155	180	200	220	245	265	290	310	355	400	445
Ak_224 Throw	5.0	6.0	7.5	8.5	10.0	11.0	12.0	13.0	14.0	15.0	17.0	19.0	22.0	24.0
12 x 5 CFM	95	120	145	170	195	220	240	265	290	315	340	385	435	485
Ak_242 Throw	5.0	6.0	7.5	9.0	10.0	12.0	13.0	14.0	15.0	17.0	18.0	20.0	23.0	25.0
10 x 6 CFM	100	120	145	170	195	220	245	270	295	315	340	390	440	490
Ak_244 Throw	5.0	6.5	7.5	9.0	10.0	11.0	12.0	14.0	15.0	16.0	18.0	20.0	23.0	26.0
14 x 5 CFM	115	140	170	200	225	255	285	310	340	370	400	455	510	570
Ak_284 Throw	5.5	7.0	8.0	9.5	11.0	12.0	14.0	15.0	16.0	18.0	19.0	22.0	25.0	28.0
12 x 6 CFM	120	145	175	205	235	265	295	325	355	380	410	470	530	590
Ak_294 Throw	5.5	7.0	8.5	9.5	11.0	12.0	14.0	15.0	17.0	18.0	19.0	22.0	25.0	28.0
16 x 5 CFM	130	165	195	230	260	295	325	360	390	425	455	520	585	650
Ak_325 Throw	6.0	7.5	9.0	10.0	12.0	13.0	15.0	16.0	18.0	19.0	21.0	24.0	26.0	29.0
14 x 6 CFM	140	175	205	240	275	310	345	380	415	450	485	550	620	690
Ak_345 Throw	6.0	7.5	9.0	11.0	12.0	14.0	15.0	17.0	18.0	20.0	21.0	24.0	27.0	30.0
16 x 6 CFM	160	200	240	275	315	355	395	435	475	515	555	635	715	790
Ak_396 Throw	6.5	8.0	10.0	11.0	13.0	15.0	16.0	18.0	19.0	21.0	23.0	26.0	29.0	32.0
20 x 5 CFM	165	205	245	285	325	365	410	450	490	530	570	655	735	815
Ak_408 Throw	6.5	8.5	10.0	11.0	13.0	15.0	17.0	18.0	20.0	21.0	23.0	26.0	30.0	33.0
24 x 5 CFM	195	245	295	345	395	445	490	540	590	640	690	785	885	985
Ak_492 Throw	7.0	9.0	11.0	13.0	14.0	16.0	18.0	20.0	22.0	23.0	25.0	29.0	32.0	36.0
20 x 6 CFM	200	250	300	350	400	445	495	545	595	645	695	795	895	995
Ak_497 Throw	7.5	9.0	11.0	13.0	15.0	16.0	18.0	20.0	22.0	24.0	25.0	29.0	33.0	36.0
24 x 6 CFM	240	300	360	420	480	540	600	660	720	775	835	955	1075	1195
Ak_598 Throw	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	24.0	26.0	28.0	32.0	36.0	40.0
20 x 8 CFM	270	335	405	470	540	605	675	740	810	875	940	1075	1210	1345
Ak_673 Throw	8.5	11.0	13.0	15.0	17.0	19.0	21.0	23.0	25.0	27.0	30.0	34.0	38.0	42.0
30 x 6 CFM	300	375	450	525	600	675	750	825	900	975	1050	1200	1350	1500
Ak_750 Throw	9.0	11.0	13.0	16.0	18.0	20.0	22.0	25.0	27.0	29.0	31.0	36.0	40.0	45.0
24 x 8 CFM	325	405	485	570	650	730	810	890	975	1055	1135	1300	1460	1620
Ak_811 Throw	9.5	12.0	14.0	16.0	19.0	21.0	23.0	25.0	28.0	30.0	32.0	37.0	42.0	46.0
30 x 8 CFM	405	510	610	710	815	915	1015	1120	1220	1320	1425	1625	1830	2035
Ak_1017 Throw	11.0	13.0	16.0	18.0	21.0	23.0	26.0	29.0	31.0	34.0	36.0	42.0	47.0	52.0
24 x 10 CFM	410	510	615	715	820	920	1025	1125	1230	1330	1430	1635	1840	2045
Ak_1023 Throw	10.0	13.0	16.0	18.0	21.0	23.0	26.0	29.0	31.0	34.0	36.0	42.0	47.0	52.0
36 x 8 CFM	490	610	735	855	980	1100	1220	1345	1465	1590	1710	1955	2200	2445
Ak_1222 Throw	11.0	14.0	17.0	20.0	23.0	26.0	28.0	31.0	34.0	37.0	40.0	46.0	51.0	57.0
24 x 12 CFM	495	620	740	865	990	1110	1235	1360	1485	1605	1730	1975	2220	2470
Ak_1236 Throw	11.0	14.0	17.0	20.0	23.0	26.0	29.0	32.0	34.0	37.0	40.0	46.0	52.0	57.0
30 x 10 CFM	515	640	770	900	1025	1155	1285	1410	1540	1670	1795	2055	2310	2565
Ak_1283 Throw	12.0	15.0	17.0	20.0	23.0	26.0	29.0	32.0	35.0	38.0	42.0	46.0	52.0	58.0
36 x 10 CFM	615	770	925	1080	1235	1390	1545	1700	1850	2005	2160	2470	2775	3085
Ak_1543 Throw	13.0	16.0	19.0	22.0	26.0	29.0	32.0	35.0	38.0	42.0	45.0	51.0	57.0	64.0
30 x 12 CFM	620	775	930	1085	1240	1395	1550	1705	1860	2015	2170	2480	2790	3100
Ak_1550 Throw	13.0	16.0	19.0	22.0	26.0	29.0	32.0	35.0	39.0	42.0	45.0	51.0	58.0	64.0
36 x 12 CFM	745	930	1120	1305	1490	1680	1865	2050	2235	2420	2610	2980	3355	3730
Ak_1864 Throw	14.0	18.0	21.0	25.0	28.0	32.0	35.0	39.0	42.0	46.0	49.0	56.0	63.0	70.0

For sizes not listed and sizing tips see page 76
Terminal Velocity of 75 FPM

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
8 x 4 CFM	50	60	70	85	95	105	120	130	145	155	165	190	215	240
Ak_119 Throw	2.5	3.0	4.0	4.5	5.0	5.5	6.5	7.0	8.0	8.5	9.0	10.0	12.0	13.0
10 x 4 CFM	55	70	85	100	115	130	145	155	170	185	200	230	255	285
Ak_143 Throw	2.5	3.5	4.0	5.0	5.5	6.5	7.0	7.5	8.0	9.0	9.5	11.0	12.0	14.0
12 x 4 CFM	70	85	105	120	140	155	175	190	210	225	240	275	310	345
Ak_173 Throw	3.0	3.5	4.5	5.5	6.0	7.0	7.5	8.5	9.0	10.0	11.0	12.0	14.0	15.0
14 x 4 CFM	80	100	120	140	160	180	200	220	240	265	285	325	365	405
Ak_202 Throw	3.0	4.0	5.0	5.5	6.5	7.0	8.0	9.0	9.5	11.0	12.0	13.0	15.0	16.0
12 x 5 CFM	90	110	130	155	175	200	220	240	265	285	310	350	395	440
Ak_222 Throw	3.5	4.5	5.0	6.0	7.0	8.0	8.5	9.5	10.0	11.0	12.0	14.0	15.0	17.0
10 x 6 CFM	90	110	135	155	180	200	220	245	265	290	310	355	400	445
Ak_222 Throw	3.5	4.5	5.0	6.0	7.0	7.5	8.5	9.5	10.0	11.0	12.0	14.0	15.0	17.0
14 x 5 CFM	105	130	155	180	205	230	260	285	310	335	360	415	465	515
Ak_258 Throw	4.0	4.5	5.5	6.5	7.5	8.5	9.5	10.0	11.0	12.0	13.0	15.0	17.0	18.0
12 x 6 CFM	105	135	160	190	215	240	270	295	320	350	375	430	480	535
Ak_268 Throw	4.0	5.0	5.5	6.5	7.5	8.5	9.5	10.0	11.0	12.0	13.0	15.0	17.0	19.0
16 x 5 CFM	120	150	180	205	235	265	295	325	355	385	415	475	535	590
Ak_296 Throw	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	16.0	18.0	20.0
14 x 6 CFM	125	155	190	220	250	285	315	345	375	410	440	500	565	630
Ak_314 Throw	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	16.0	18.0	20.0
16 x 6 CFM	145	180	215	250	290	325	360	395	430	470	505	575	650	720
Ak_360 Throw	4.5	5.5	6.5	7.5	9.0	10.0	11.0	12.0	13.0	14.0	15.0	17.0	20.0	22.0
20 x 5 CFM	150	185	225	260	300	335	370	410	445	48				

Screw Hole Location Chart 92 Series, 94 Series, 98 Series (Pages 37-41) 821, 831 (Page 36)

		W I D T H																							
		6	8	10	12	14	15	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	
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