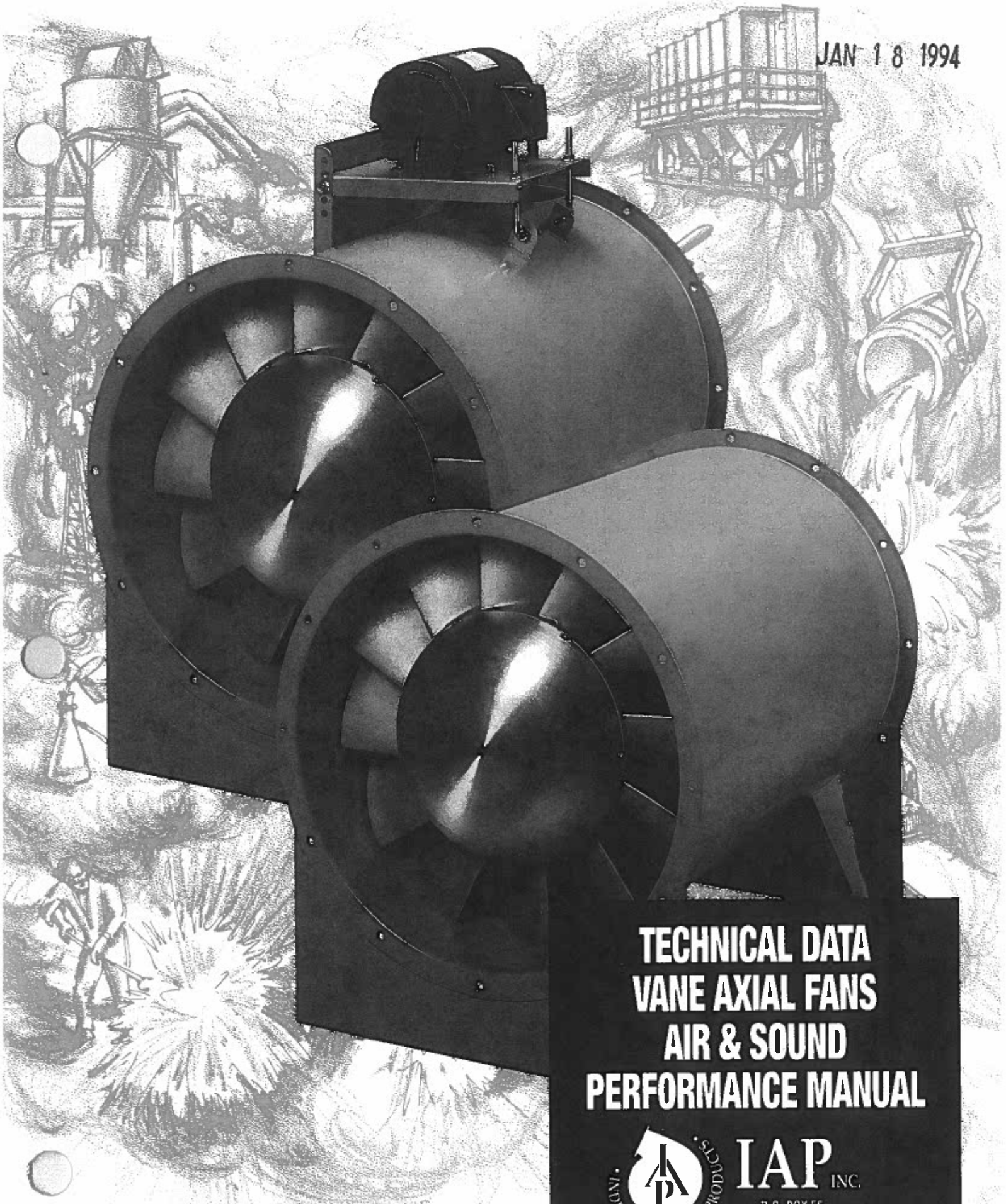


TECHNICAL DATA
VANE AXIAL FANS
AIR & SOUND
PERFORMANCE MANUAL

IAP INC.
INDUSTRIAL • AIR • PRODUCTS
P.O. BOX 56
PHILLIPS, WI 54555
715/339-3024

Table Of Contents

Note:
The following information is printed on each vane axial performance page:

- Maximum RPM for Class I and II (Belt Drive).
- Maximum motor frame size.
- Minimum motor frame size (Direct Drive).
- Tip Speed
- Fan outlet area
- Core outlet area

amca CERTIFIED RATINGS AIR PERFORMANCE AIR MOVEMENT AND CONTROL ASSOCIATION, INC.

IAP Inc. certifies that the belt driven model VABI and direct driven models VADI and VRDI shown herein are licensed to bear the AMCA seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and comply with the requirements of the AMCA Certified Ratings Program.

Factors Affecting Air Performance

System Effect

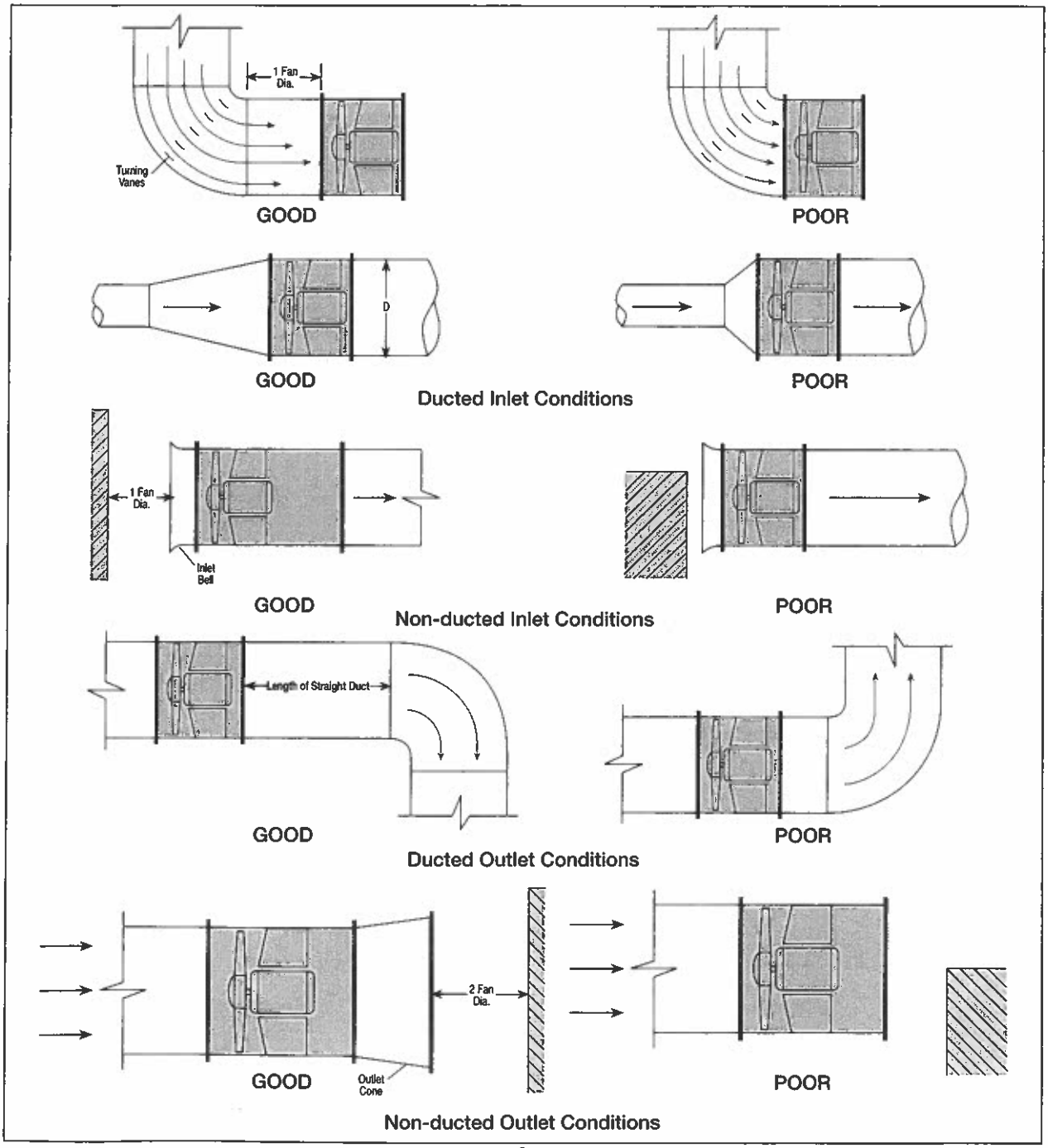
The Air Movement and Control Association (AMCA) defines system effect as "a pressure loss which recognizes the effect of fan inlet restrictions, fan outlet restrictions, or other conditions influencing fan performance when installed in the system."

Duct elbows, transitions or other disruptions to uniform airflow may contribute to system effect.

Unducted fans may be affected by proximity to walls, beams and other obstructions to airflow.

System effect is very difficult to quantify and correct. Frequently the only means to correct the resulting poor performance is to increase fan speed in a belt driven fan or increase the blade pitch in a direct driven fan. These corrections may increase horsepower requirements beyond the capability of the motor. Also, the system effect may be so severe that the fan is not capable of the higher static pressures required. The diagrams below show some more common causes of system effect.

For a quantitative discussion of system effects refer to AMCA Publication 201.



Factors Affecting Air Performance

Outlet Conditions

High outlet velocities associated with vane axial fans create pressure losses which reduce fan efficiency. These velocity pressure losses can be minimized by use of an outlet cone.

An outlet cone reduces velocity pressure losses when installed on the outlet of a vane axial fan. It acts as a diffuser, allowing velocity pressure to be converted to usable static pressure. This is known as "static regain" and increases fan efficiency, reducing horsepower requirements.

The diagrams below show four outlet conditions with and without an outlet cone:

1. **Ducted Outlet With Outlet Cone.** This configuration provides the greatest static regain and least velocity pressure loss. Highly recommended for long term energy savings.

2. **Free Discharge With Outlet Cone.** Relatively small velocity pressure losses when compared to a free discharge without an outlet cone. Recommended for all non-ducted outlets.

3. **Ducted Outlet.** All catalog performance data is based on this configuration.

4. **Free Discharge.** Results in the greatest velocity pressure losses. Not recommended.

Data for calculating velocity pressure is shown on the fan performance pages.

Inlet Conditions

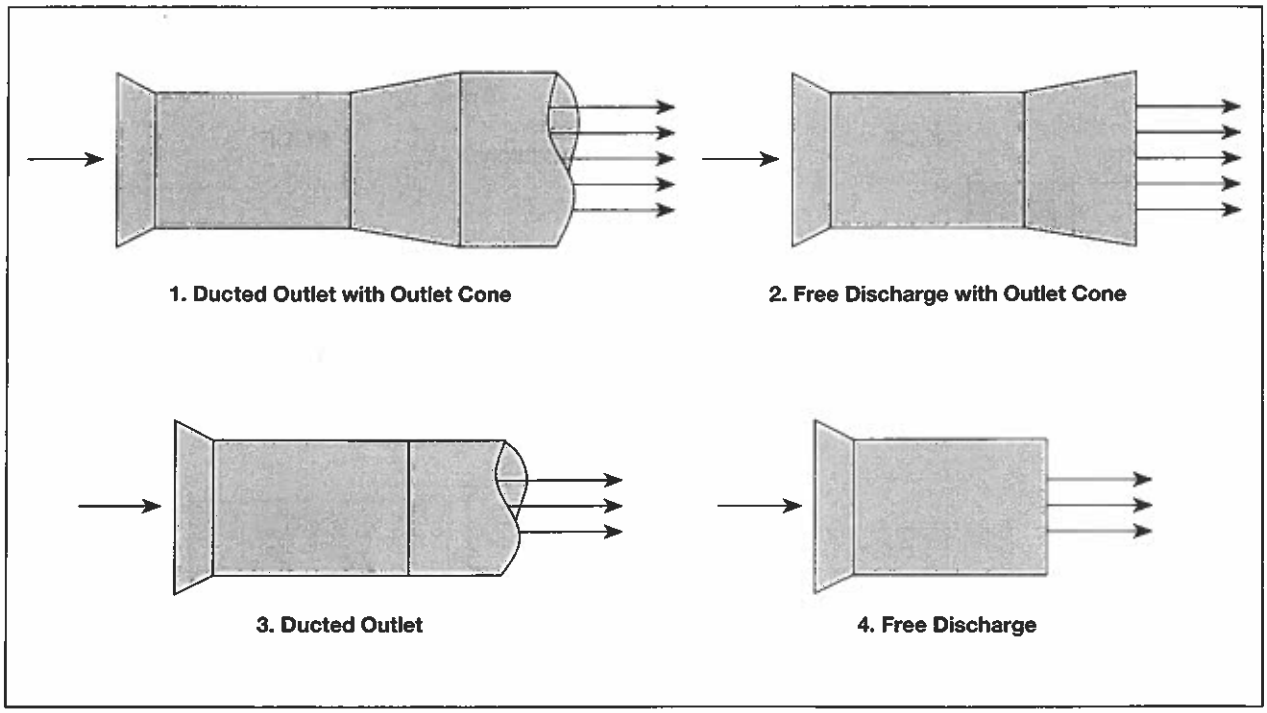
Inlet Conditions must be considered when selecting vane axial fans. Turbulent or non-uniform airflow into the vane axial rotor will result in performance loss, noise and vibration. The following are three inlet configurations found on vane axial fans (not shown):

1. **Ducted Inlet.** A straight ducted inlet with no turns, elbows or irregularities to create non-uniform airflow.

2. **Ducted Inlet With Inlet Cone.** An inlet cone is recommended for a smooth transition from a larger duct diameter to a smaller fan size.

3. **Non-ducted Inlet.** Inlet bells are highly recommended on all non-ducted inlets. An inlet bell smoothes airflow drawn around the fan housing edge and improves the airflow pattern near blade tips. All IAP performance charts are calculated with the use of inlet bells.

Note: All vane axial fans in this brochure were tested with inlet bells and three equivalent diameters (in length) of outlet duct. A long, straight section of inlet ductwork will yield the same air performance as an inlet bell. Be aware that loose flexible connectors at the inlet will create non-uniform airflow and reduce cataloged performance.



Effects of Air Density

When selecting a vane axial fan to operate at a non-standard density using standard air density tables and curves, corrections must be made to static pressure and brake horsepower.

At higher than standard elevations and temperatures, air density will be lower than standard. Therefore, one must determine the static pressure at standard density that will equate to the specified static pressure at the operating density. Since standard air density is greater than operating air density in this instance, one would expect the corrected static pressure to be greater than the operating static pressure.

The following example shows how to select a VABI-48F26 vane axial fan for 40,000 CFM, static pressure 1.5", elevation 8000 ft. and temperature of 200 degrees F.

1. Since the air volume delivered by the fan is not affected by density, CFM remains 40,000.

2. Select the correction factor from the chart for 8000 ft. elevation and 200 deg. F. Correction factor is 1.68.

3. Multiply specified static pressure (1.5") by the correction factor (1.68) to determine standard air density equivalent static pressure. 1.5" x 1.68 = 2.5".

4. Using the performance tables (belt drive for this example), enter with 2.5" static pressure (assuming a ducted outlet) and 40,000 CFM.

5. At the intersection of 2.5" static pressure and 40,000 CFM the Fan RPM is 1140 and Bhp is 27.0.

6. Since the horsepower selected refers to standard air density, this must be corrected to reflect actual Bhp at the lighter operating air. Remember, horsepower is less at a lower air density. Divide the Bhp required (27.0) by the correction factor (1.68) selected previously to determine Bhp at the new operating conditions.
27.0 divided by 1.68 = 16.1 Bhp required.

The following formula is used to determine an air density correction factor for non-standard temperatures and elevations:

Density Correction Factor

$$DCF = \left(\frac{T + 460}{530}\right) \times 1.037^{\frac{E}{1000}}$$

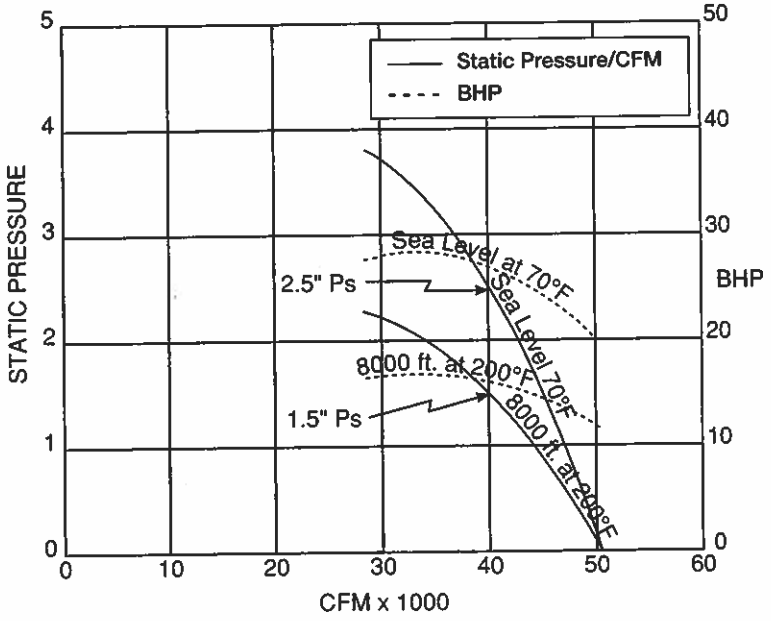
DCF = Density Correction Factor
T = Temperature (degrees F)
E = Elevation above sea level (feet)

$$\text{Air Density (lb/ft}^3\text{)} = \frac{0.075}{DCF}$$

AIR DENSITY CORRECTION FACTORS

Air Temp. °F	Elevation (Feet Above Sea Level)										
	0	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000
0	0.87	0.90	0.984	0.97	1.01	1.05	1.08	1.13	1.17	1.22	1.26
50	0.96	1.00	1.04	1.08	1.11	1.15	1.20	1.24	1.30	1.34	1.40
70	1.00	1.04	1.08	1.12	1.16	1.22	1.25	1.30	1.35	1.40	1.45
100	1.06	1.10	1.14	1.18	1.22	1.27	1.32	1.37	1.42	1.48	1.54
150	1.15	1.19	1.24	1.30	1.33	1.38	1.44	1.49	1.55	1.61	1.67
200	1.25	1.29	1.34	1.40	1.44	1.50	1.56	1.61	1.68	1.75	1.81
250	1.34	1.39	1.44	1.50	1.55	1.61	1.67	1.74	1.80	1.88	1.95
300	1.43	1.49	1.54	1.60	1.66	1.72	1.79	1.86	1.93	2.01	2.08
350	1.53	1.58	1.64	1.71	1.77	1.84	1.91	1.988	2.06	2.14	2.22
400	1.62	1.68	1.75	1.81	1.88	1.94	2.03	2.09	2.19	2.27	2.37

Model VABI-48F26 1140 FRPM
Sea Level Density Correction Factor = 1.0
Density = 0.075 lb. per cu. ft.
8000 ft. and 200°F Density Correction Factor = 1.68
Density = 0.045 lb. per cu. ft.



Belt Drive Selection

1. Use the **Quick Selection Chart below** to find the most efficient fan.
2. Use the appropriate **Performance Tables (Pages 7 - 17)** to find fan RPM and horsepower.

How to Select a Fan Size

Example: 10000 CFM AT 2.0" S.P.

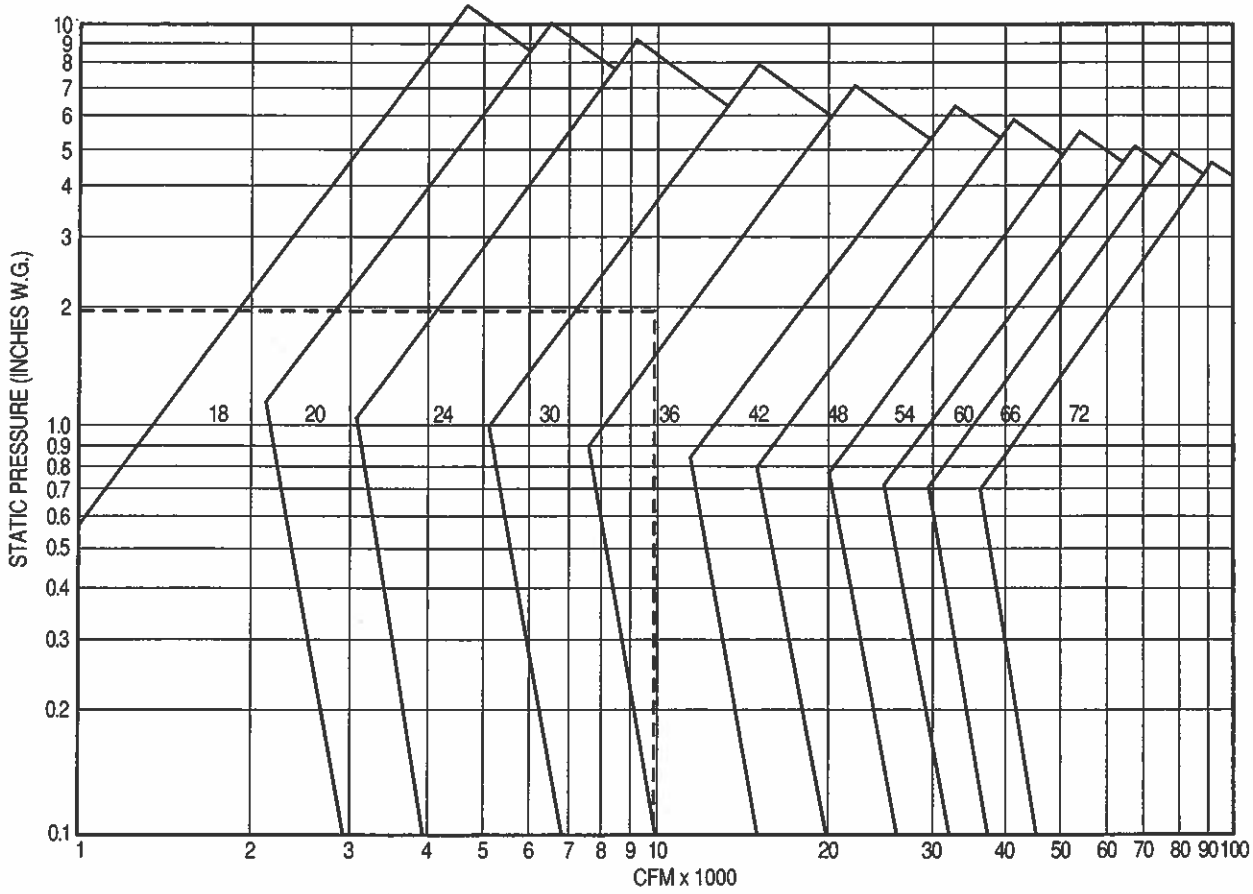
1. Enter the bottom scale with CFM. (10,000 CFM)
2. Enter the Left scale with static pressure - (2.0" Ps).
3. Select fan size at the point where CFM and static pressure intersect - (Fan size 30).

How to Select a Hub Size

1. One or more hub sizes are shown with each fan size in the performance tables.
2. Select the hub size which results in the lowest Bhp for the specified CFM and static pressure. As a rule of thumb use smaller hubs for lower static pressures and larger hubs for higher static pressures.

How to Use the Performance Tables

Outlet Conditions	Procedure
Ducted Without Cone or Free With Cone	Enter the table with CFM and static pressure - no corrections required.
Ducted With Cone	Subtract the "Ducted Cone Regain" from the specified static pressure. Enter the table with corrected static pressure and CFM.
Free without Cone	Not Recommended



QUICK SELECTION CHART - BELT DRIVE VANE AXIAL FANS

VABI–18F14

Maximum RPM Class I = 3440
Maximum RPM Class II = 4332

Maximum Motor Frame Size = 256T
Tip Speed = 4.79 x RPM

Fan Outlet Area = 1.84 sq. ft.
Cone Outlet Area = 2.89 sq. ft.

		Ducted	STATIC PRESSURE IN INCHES W.G.																	
		Cone	.25		.50		1.0		1.5		2.0		3.0		4.0		6.0		8.0	
CFM	OV	Regain	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1500	815	0.02	871	0.15	1002	0.23	1263	0.44												
2000	1087	0.04	1085	0.27	1184	0.37	1379	0.59	1572	0.86	1770	1.19								
2500	1359	0.06	1311	0.47	1392	0.58	1549	0.83	1705	1.12	1861	1.44	2175	2.22						
3000	1630	0.08	1545	0.76	1611	0.89	1742	1.16	1874	1.47	2005	1.81	2264	2.59	2527	3.51				
3500	1902	0.11	1781	1.16	1838	1.31	1953	1.62	2065	1.95	2177	2.31	2400	3.11	2624	4.03	3071	6.24		
4000	2174	0.14	2020	1.68	2071	1.85	2171	2.19	2270	2.55	2369	2.94	2562	3.78	2758	4.72	3144	6.89	3540	9.54
4500	2446	0.18	2260	2.35	2306	2.53	2393	2.91	2485	3.31	2571	3.72	2747	4.62	2919	5.59	3266	7.81	3610	10.4
5000	2717	0.22	2502	3.17	2543	3.38	2623	3.79	2704	4.22	2784	4.67	2940	5.61	3098	6.64	3410	8.92	3723	11.5
5500	2989	0.27	2744	4.17	2782	4.40	2856	4.85	2926	5.31	3002	5.80	3144	6.80	3289	7.89	3572	10.2	3851	12.9
6000	3261	0.32	2986	5.37	3022	5.62	3090	6.11	3156	6.61	3222	7.12	3357	8.21	3484	9.31	3748	11.8	4011	14.5
6500	3533	0.38	3229	6.78	3262	7.05	3326	7.58	3388	8.12	3447	8.66	3573	9.82	3694	11.0	3938	13.6	4174	16.3
7000	3804	0.44	3473	8.43	3504	8.71	3563	9.29	3621	9.86	3677	10.5	3793	11.7	3907	12.9	4131	15.6		
7500	4076	0.50	3717	10.3	3745	10.6	3802	11.2	3856	11.9	3909	12.5	4014	13.7	4124	15.1	4329	17.8		
8000	4348	0.57	3961	12.5	3988	12.8	4041	13.5	4092	14.1	4143	14.8	4240	16.1						
8500	4620	0.65	4205	14.9	4231	15.3	4281	16.0	4329	16.7										

VABI–20F14

Maximum RPM Class I = 3095
Maximum RPM Class II = 3898

Maximum Motor Frame Size = 256T
Tip Speed = 5.32 x RPM

Fan Outlet Area = 2.26 sq. ft.
Cone Outlet Area = 3.41 sq. ft.

		Ducted	STATIC PRESSURE IN INCHES W.G.																	
		Cone	.25		.50		1.0		1.5		2.0		3.0		4.0		6.0		8.0	
CFM	OV	Regain	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
2500	1106	0.04	1005	0.28	1105	0.40	1311	0.69	1510	1.03	1697	1.43								
3000	1327	0.05	1169	0.42	1252	0.56	1422	0.87	1594	1.23	1760	1.65	2072	2.58						
3500	1549	0.07	1338	0.62	1410	0.77	1554	1.10	1701	1.49	1848	1.92	2130	2.90	2396	4.01				
4000	1770	0.09	1511	0.88	1573	1.04	1699	1.40	1827	1.81	1955	2.26	2209	3.28	2454	4.43				
4500	1991	0.12	1686	1.21	1739	1.39	1849	1.77	1963	2.20	2078	2.68	2305	3.73	2529	4.91	2958	7.62		
5000	2212	0.15	1862	1.61	1910	1.81	2010	2.23	2111	2.68	2211	3.17	2418	4.27	2623	5.49	3020	8.27	3395	11.4
5500	2434	0.18	2038	2.10	2083	2.31	2173	2.77	2261	3.24	2356	3.77	2543	4.90	2730	6.16	3095	9.00	3450	12.2
6000	2655	0.21	2216	2.68	2257	2.92	2338	3.40	2422	3.91	2505	4.45	2675	5.63	2845	6.93	3189	9.86	3521	13.2
6500	2876	0.25	2394	3.37	2432	3.62	2505	4.13	2584	4.68	2659	5.25	2817	6.48	2975	7.82	3290	10.8	3602	14.2
7000	3097	0.29	2572	4.17	2608	4.43	2677	4.98	2748	5.56	2820	6.16	2964	7.44	3108	8.82	3403	11.9	3696	15.4
7500	3319	0.33	2751	5.08	2785	5.37	2849	5.95	2914	6.56	2982	7.20	3114	8.52	3251	9.96	3524	13.1	3798	16.6
8000	3540	0.38	2930	6.12	2962	6.43	3023	7.05	3081	7.68	3146	8.36	3269	9.74	3398	11.2	3654	14.5		
8500	3761	0.43	3110	7.30	3139	7.63	3197	8.29	3253	8.95	3312	9.65	3430	11.1	3548	12.6	3787	16.0		
9000	3982	0.48	3289	8.63	3317	8.97	3372	9.67	3425	10.4	3479	11.1	3592	12.6	3699	14.2				
9500	4204	0.53	3469	10.1	3495	10.5	3548	11.2	3599	11.9	3648	12.7	3755	14.3	3859	15.9				
10000	4425	0.59	3649	11.7	3674	12.1	3724	12.9	3773	13.7	3820	14.5								

Performance shown is for Model VABI with inlet and outlet ducts. BHP does not include drive losses.

VABI–24F14

Maximum RPM Class I = 2579
Maximum RPM Class II = 3248

Maximum Motor Frame Size = 286T
Tip Speed = 6.36 x RPM

Fan Outlet Area = 3.24 sq. ft.
Cone Outlet Area = 5.03 sq. ft.

		Ducted	STATIC PRESSURE IN INCHES W.G.																	
		Cone	.25		.50		1.0		1.5		2.0		3.0		4.0		6.0		8.0	
CFM	OV	Regain	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
5000	1543	0.07	882	0.46	976	0.68	1161	1.23	1334	1.88										
6000	1852	0.10	1024	0.68	1101	0.93	1258	1.52	1412	2.21	1557	2.98								
7000	2160	0.14	1173	0.99	1238	1.27	1371	1.90	1505	2.62	1636	3.44	1883	5.26						
8000	2469	0.18	1324	1.39	1378	1.69	1494	2.37	1611	3.13	1730	3.99	1956	5.90	2168	8.03				
9000	2778	0.23	1476	1.89	1524	2.22	1627	2.95	1731	3.77	1833	4.65	2041	6.64	2238	8.86				
10000	3086	0.29	1630	2.51	1674	2.87	1765	3.66	1855	4.51	1952	5.45	2139	7.52	2323	9.82	2669	15.0		
11000	3395	0.35	1784	3.26	1824	3.66	1905	4.49	1990	5.41	2074	6.38	2243	8.52	2415	10.9	2740	16.3	3045	22.2
12000	3704	0.42	1939	4.15	1976	4.58	2048	5.46	2127	6.44	2202	7.46	2361	9.70	2517	12.2	2824	17.7	3114	23.8
13000	4012	0.49	2094	5.20	2129	5.66	2196	6.61	2267	7.63	2338	8.71	2482	11.0	2624	13.6	2910	19.2	3189	25.6
14000	4321	0.57	2250	6.42	2283	6.92	2346	7.93	2408	8.99	2476	10.1	2605	12.5	2743	15.2	3011	21.0		
15000	4630	0.65	2407	7.81	2437	8.35	2496	9.43	2553	10.5	2616	11.7	2738	14.2	2864	17.0	3114	22.9		
16000	4938	0.74	2563	9.41	2592	9.97	2648	11.1	2701	12.3	2757	13.5	2875	16.2	2988	18.9	3223	25.1		
17000	5247	0.83	2720	11.2	2747	11.8	2800	13.0	2851	14.3	2900	15.5	3013	18.3	3119	21.2				
18000	5556	0.93	2877	13.2	2902	13.9	2953	15.1	3001	16.4	3049	17.8	3152	20.6						
19000	5864	1.04	3034	15.5	3058	16.1	3106	17.5	3152	18.9	3198	20.3								

VABI–24F17

Maximum RPM Class I = 2579
Maximum RPM Class II = 3248

Maximum Motor Frame Size = 286T
Tip Speed = 6.36 x RPM

Fan Outlet Area = 3.24 sq. ft.
Cone Outlet Area = 5.03 sq. ft.

		Ducted	STATIC PRESSURE IN INCHES W.G.																	
		Cone	1.0		2.0		3.0		4.0		5.0		6.0		7.0		8.0		9.0	
CFM	OV	Regain	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
4000	1235	0.05	1161	1.09	1435	2.10														
4500	1389	0.06	1244	1.30	1483	2.34														
5000	1543	0.07	1333	1.56	1545	2.62	1766	3.92												
5500	1698	0.09	1428	1.86	1617	2.96	1816	4.29	2018	5.81										
6000	1852	0.10	1526	2.21	1696	3.35	1876	4.71	2060	6.25	2245	7.96								
6500	2006	0.12	1627	2.63	1783	3.81	1945	5.19	2112	6.75	2283	8.49								
7000	2160	0.14	1731	3.10	1871	4.32	2022	5.74	2176	7.33	2333	9.10	2492	11.0						
7500	2315	0.16	1835	3.63	1967	4.91	2103	6.36	2245	7.98	2391	9.77	2539	11.7	2687	13.8				
8000	2469	0.18	1941	4.23	2063	5.56	2190	7.06	2322	8.71	2456	10.5	2591	12.5	2732	14.6	2871	16.8	3008	19.1
8500	2623	0.21	2047	4.90	2161	6.29	2279	7.82	2401	9.51	2528	11.4	2656	13.3	2784	15.5	2915	17.7	3047	20.1
9000	2778	0.23	2155	5.65	2262	7.09	2373	8.68	2488	10.4	2604	12.3	2722	14.3	2845	16.4	2967	18.7	3090	21.1
9500	2932	0.26	2264	6.49	2365	7.99	2469	9.62	2576	11.4	2684	13.3	2798	15.3	2910	17.5	3026	19.8	3142	22.2
10000	3086	0.29	2373	7.41	2469	8.97	2566	10.7	2666	12.5	2771	14.4	2875	16.5	2982	18.7	3091	21.0	3200	23.4
10500	3241	0.32	2483	8.41	2574	10.0	2664	11.8	2761	13.6	2858	15.6	2956	17.7	3059	19.9	3159	22.3		
11000	3395	0.35	2593	9.52	2679	11.2	2766	13.0	2857	14.9	2947	16.9	3043	19.1	3136	21.3	3235	23.7		
11500	3549	0.38	2704	10.7	2785	12.4	2869	14.3	2954	16.3	3041	18.3	3131	20.5	3221	22.8				

Performance shown is for Model VABI with inlet and outlet ducts. BHP does not include drive losses.

VABI–30F14

Maximum RPM Class I = 2064
Maximum RPM Class II = 2599

Maximum Motor Frame Size = 326T
Tip Speed = 7.92 x RPM

Fan Outlet Area = 5.03 sq. ft.
Cone Outlet Area = 7.22 sq. ft.

		Ducted	STATIC PRESSURE IN INCHES W.G.															
		Cone	.25		.50		.75		1.0		1.5		2.0		3.0		4.0		6.0	
CFM	OV	Regain	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
10000	1988	0.12	868	1.24	944	1.72	1017	2.25	1087	2.82	1217	4.08	1338	5.50						
12000	2386	0.17	1013	1.90	1078	2.45	1141	3.04	1201	3.67	1318	5.04	1427	6.54	1629	9.93				
14000	2783	0.23	1161	2.79	1218	3.42	1273	4.08	1326	4.77	1430	6.26	1529	7.86	1715	11.4	1887	15.4		
16000	3181	0.31	1311	3.96	1361	4.66	1411	5.39	1458	6.15	1552	7.76	1642	9.48	1813	13.2	1973	17.4	2269	26.9
18000	3579	0.39	1463	5.44	1508	6.21	1552	7.02	1596	7.85	1680	9.59	1763	11.4	1920	15.4	2069	19.8	2347	29.5
20000	3976	0.48	1616	7.26	1657	8.11	1697	8.99	1736	9.90	1813	11.8	1889	13.7	2035	18.0	2174	22.5	2435	32.7
22000	4374	0.58	1770	9.47	1807	10.4	1844	11.4	1880	12.3	1951	14.4	2021	16.5	2156	20.9	2286	25.7	2532	36.2
24000	4771	0.69	1925	12.1	1958	13.1	1992	14.1	2026	15.2	2092	17.4	2156	19.6	2282	24.3	2403	29.4		
26000	5169	0.81	2080	15.2	2111	16.3	2142	17.4	2173	18.5	2234	20.8	2295	23.2	2412	28.2	2527	33.5		
28000	5567	0.94	2235	18.8	2264	20.0	2293	21.1	2322	22.4	2379	24.8	2436	27.4	2546	32.6				
30000	5964	1.08	2391	22.9	2418	24.2	2445	25.4	2471	26.7	2526	29.4	2578	32.0						

VABI–30F17

Maximum RPM Class I = 2064
Maximum RPM Class II = 2599

Maximum Motor Frame Size = 326T
Tip Speed = 7.92 x RPM

Fan Outlet Area = 5.03 sq. ft.
Cone Outlet Area = 7.22 sq. ft.

		Ducted	STATIC PRESSURE IN INCHES W.G.															
		Cone	.50		.75		1.0		1.5		2.0		3.0		4.0		6.0		8.0	
CFM	OV	Regain	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
8000	1590	0.08	856	1.26	922	1.67	988	2.13	1117	3.16	1241	4.33								
10000	1988	0.12	1011	1.95	1063	2.41	1116	2.90	1222	4.01	1326	5.24	1527	8.08	1716	11.3				
12000	2386	0.17	1175	2.92	1218	3.44	1262	3.98	1350	5.17	1438	6.48	1612	9.44	1780	12.8				
14000	2783	0.23	1344	4.23	1381	4.80	1418	5.40	1494	6.69	1569	8.08	1720	11.2	1868	14.7	2155	22.7	2423	31.8
16000	3181	0.31	1516	5.93	1549	6.57	1581	7.23	1647	8.62	1713	10.1	1845	13.4	1977	17.0	2235	25.3	2482	34.7
18000	3579	0.39	1691	8.08	1719	8.77	1748	9.50	1805	11.0	1865	12.6	1982	16.1	2100	19.9	2332	28.4	2560	38.0
20000	3976	0.48	1866	10.7	1892	11.5	1918	12.3	1970	13.9	2022	15.6	2127	19.3	2233	23.2	2445	32.1		
22000	4374	0.58	2043	13.9	2067	14.8	2089	15.6	2137	17.4	2184	19.2	2281	23.1	2377	27.2	2569	36.4		

VABI–30F21

Maximum RPM Class I = 2064
Maximum RPM Class II = 2599

Maximum Motor Frame Size = 326T
Tip Speed = 7.92 x RPM

Fan Outlet Area = 5.03 sq. ft.
Cone Outlet Area = 7.22 sq. ft.

		Ducted	STATIC PRESSURE IN INCHES W.G.															
		Cone	1.0		1.5		2.0		3.0		4.0		5.0		6.0		7.0		8.0	
CFM	OV	Regain	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
6000	1193	0.04	931	1.54	1061	2.31	1181	3.15												
8000	1590	0.08	1099	2.36	1190	3.17	1286	4.09	1476	6.20										
10000	1988	0.12	1298	3.64	1364	4.50	1434	5.45	1588	7.68	1743	10.2	1891	13.0						
12000	2386	0.17	1510	5.45	1564	6.41	1618	7.42	1737	9.72	1863	12.4	1993	15.3	2122	18.5	2245	21.8	2363	25.2
14000	2783	0.23	1732	7.91	1775	8.96	1821	10.1	1917	12.5	2017	15.2	2125	18.2	2237	21.5	2347	25.0	2458	28.7
16000	3181	0.31	1959	11.1	1993	12.2	2032	13.5	2111	16.1	2198	18.9	2284	21.9	2380	25.3	2473	28.8	2573	32.7
18000	3579	0.39	2187	15.2	2218	16.4	2248	17.7	2320	20.5	2389	23.5	2468	26.7	2545	30.1				
20000	3976	0.48	2416	20.2	2445	21.6	2473	23.0	2532	25.9	2597	29.1								

Performance shown is for Model VABI with inlet and outlet ducts. BHP does not include drive losses.

VABI–36F14

Maximum RPM Class I = 1719
Maximum RPM Class II = 2165

Maximum Motor Frame Size = 326T
Tip Speed = 9.49 x RPM

Fan Outlet Area = 7.22 sq. ft.
Cone Outlet Area = 10.56 sq. ft.

		Ducted	STATIC PRESSURE IN INCHES W.G.																	
		Cone	.25		.50		.75		1.0		1.5		2.0		3.0		4.0		5.0	
CFM	OV	Regain	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
12000	1662	0.08	676	1.13	758	1.74	835	2.42	910	3.15										
14000	1939	0.11	763	1.57	834	2.24	903	2.98	969	3.77	1096	5.50								
16000	2216	0.15	853	2.13	916	2.86	977	3.66	1037	4.51	1152	6.37	1261	8.38						
18000	2493	0.19	944	2.82	1001	3.62	1056	4.48	1110	5.40	1215	7.38	1316	9.52						
20000	2770	0.23	1037	3.67	1088	4.53	1138	5.46	1188	6.44	1285	8.54	1378	10.8	1555	15.7				
22000	3047	0.28	1131	4.69	1178	5.63	1224	6.62	1269	7.66	1358	9.88	1444	12.3	1611	17.5	1768	23.0		
24000	3324	0.34	1225	5.91	1268	6.91	1310	7.96	1353	9.07	1436	11.4	1516	13.9	1671	19.4	1820	25.2	1962	31.4
26000	3601	0.39	1320	7.33	1360	8.40	1400	9.53	1439	10.7	1515	13.2	1591	15.8	1737	21.5	1877	27.6	2012	34.1
28000	3878	0.46	1416	8.97	1453	10.1	1490	11.3	1526	12.5	1598	15.1	1669	17.9	1807	23.8	1939	30.2	2068	37.0
30000	4155	0.52	1512	10.9	1547	12.1	1581	13.3	1615	14.6	1683	17.4	1749	20.2	1879	26.4	2005	33.0	2126	40.0
32000	4432	0.60	1608	13.0	1641	14.3	1673	15.6	1706	17.0	1769	19.8	1832	22.9	1954	29.3	2074	36.1		
34000	4709	0.67	1705	15.4	1736	16.8	1766	18.2	1797	19.6	1856	22.6	1916	25.7	2033	32.4	2148	39.5		
36000	4986	0.75	1802	18.1	1831	19.6	1859	21.0	1889	22.8	1945	25.7	2002	28.9	2112	35.8				
38000	5263	0.84	1898	21.1	1926	22.7	1954	24.2	1981	25.8	2035	29.1	2088	32.4						
40000	5540	0.93	1995	24.5	2022	26.1	2048	27.7	2074	29.4	2126	32.8								

VABI–36F17

Maximum RPM Class I = 1719
Maximum RPM Class II = 2165

Maximum Motor Frame Size = 326T
Tip Speed = 9.49 x RPM

Fan Outlet Area = 7.22 sq. ft.
Cone Outlet Area = 10.56 sq. ft.

		Ducted	STATIC PRESSURE IN INCHES W.G.																	
		Cone	.25		.50		.75		1.0		1.5		2.0		3.0		4.0		6.0	
CFM	OV	Regain	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
12000	1662	0.08	713	1.20	778	1.76	843	2.40	907	3.09	1032	4.66	1158	6.47						
13500	1870	0.11	786	1.55	845	2.16	903	2.84	960	3.57	1073	5.19	1184	7.03						
15000	2078	0.13	860	1.97	914	2.64	967	3.35	1019	4.12	1121	5.81	1221	7.69	1422	12.0				
16500	2285	0.16	936	2.48	985	3.19	1034	3.96	1081	4.77	1175	6.53	1267	8.48	1449	12.9	1632	18.0		
18000	2493	0.19	1012	3.07	1058	3.84	1102	4.65	1146	5.51	1233	7.36	1318	9.37	1486	13.9	1653	19.0		
19500	2701	0.22	1089	3.77	1131	4.59	1173	5.45	1214	6.35	1295	8.29	1374	10.4	1530	15.0	1683	20.2		
21000	2909	0.26	1167	4.57	1206	5.45	1245	6.36	1283	7.31	1358	9.32	1432	11.5	1578	16.3	1721	21.6	2009	33.8
22500	3116	0.29	1245	5.49	1281	6.42	1317	7.38	1354	8.38	1425	10.5	1494	12.7	1631	17.6	1766	23.1	2033	35.5
24000	3324	0.34	1323	6.54	1357	7.51	1392	8.53	1426	9.58	1492	11.8	1557	14.1	1687	19.2	1814	24.7	2064	37.3
25500	3532	0.38	1402	7.71	1434	8.73	1466	9.81	1498	10.9	1561	13.2	1623	15.6	1745	20.9	1866	26.6	2103	39.3
27000	3740	0.42	1480	9.03	1510	10.1	1541	11.2	1572	12.4	1632	14.8	1691	17.3	1807	22.7	1921	28.5	2146	41.5
28500	3947	0.47	1559	10.5	1588	11.6	1617	12.8	1646	14.0	1703	16.5	1759	19.1	1870	24.7	1979	30.7		
30000	4155	0.52	1639	12.1	1666	13.3	1693	14.5	1721	15.8	1775	18.4	1829	21.1	1934	26.8	2038	33.0		
31500	4363	0.58	1718	13.9	1744	15.1	1770	16.4	1796	17.7	1848	20.4	1900	23.2	2000	29.1	2100	35.5		

Performance shown is for Model VABI with inlet and outlet ducts. BHP does not include drive losses.

VABI–36F21

Maximum RPM Class I = 1719
Maximum RPM Class II = 2165

Maximum Motor Frame Size = 365T
Tip Speed = 9.49 x RPM

Fan Outlet Area = 7.22 sq. ft.
Cone Outlet Area = 10.56 sq. ft.

		Ducted	STATIC PRESSURE IN INCHES W.G.																	
		Cone	.50		1.0		1.5		2.0		3.0		4.0		5.0		6.0		7.0	
CFM	OV	Regain	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
9000	1247	0.05	656	1.19	787	2.23	912	3.48												
10500	1454	0.06	724	1.52	838	2.61	949	3.92	1056	5.40										
12000	1662	0.08	798	1.93	896	3.09	995	4.44	1093	5.98	1276	9.48								
13500	1870	0.11	875	2.45	962	3.67	1050	5.09	1138	6.66	1308	10.3								
15000	2078	0.13	954	3.06	1032	4.37	1110	5.84	1190	7.48	1347	11.2	1497	15.4						
16500	2285	0.16	1036	3.80	1105	5.19	1177	6.73	1249	8.42	1392	12.2	1533	16.5	1667	21.3				
18000	2493	0.19	1118	4.67	1181	6.14	1246	7.75	1312	9.51	1444	13.4	1575	17.8	1702	22.6	1825	27.9	1943	33.4
19500	2701	0.22	1201	5.67	1259	7.23	1319	8.92	1379	10.7	1501	14.8	1622	19.3	1742	24.2	1860	29.5	1973	35.2
21000	2909	0.26	1284	6.82	1338	8.48	1394	10.3	1449	12.2	1562	16.3	1676	20.9	1788	25.9	1899	31.3	2007	37.1
22500	3116	0.29	1369	8.15	1419	9.89	1470	11.8	1522	13.7	1627	18.0	1733	22.7	1838	27.8	1943	33.4	2046	39.2
24000	3324	0.34	1454	9.65	1501	11.5	1548	13.4	1597	15.5	1694	19.9	1793	24.7	1893	30.0	1991	35.6	2089	41.5
25500	3532	0.38	1540	11.3	1583	13.3	1627	15.3	1673	17.4	1765	22.0	1858	27.0	1951	32.3	2045	38.0	2137	44.1
27000	3740	0.42	1626	13.2	1666	15.2	1708	17.4	1751	19.6	1837	24.3	1924	29.4	2012	34.9	2100	40.7		
28500	3947	0.47	1712	15.3	1749	17.4	1790	19.6	1829	21.9	1910	26.8	1993	32.1	2077	37.7	2160	43.6		
30000	4155	0.52	1798	17.6	1833	19.8	1872	22.1	1909	24.5	1986	29.6	2065	35.0	2143	40.7				
31500	4363	0.58	1884	20.2	1918	22.5	1954	24.9	1990	27.3	2063	32.6	2137	38.1						

VABI–36F26

Maximum RPM Class I = 1719
Maximum RPM Class II = 2165

Maximum Motor Frame Size = 365T
Tip Speed = 9.49 x RPM

Fan Outlet Area = 7.22 sq. ft.
Cone Outlet Area = 10.56 sq. ft.

		Ducted	STATIC PRESSURE IN INCHES W.G.																	
		Cone	1.0		2.0		3.0		4.0		5.0		6.0		7.0		8.0		9.0	
CFM	OV	Regain	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
9000	1247	0.05	802	2.51	979	4.70														
10000	1385	0.06	854	2.96	1014	5.20														
11000	1524	0.07	908	3.49	1055	5.81	1199	8.61												
12000	1662	0.08	966	4.12	1099	6.51	1233	9.36	1365	12.7										
13000	1801	0.10	1025	4.83	1148	7.32	1272	10.2	1394	13.5	1515	17.3								
14000	1939	0.11	1085	5.64	1200	8.23	1314	11.2	1429	14.6	1543	18.3								
15000	2078	0.13	1147	6.57	1254	9.26	1361	12.3	1468	15.7	1575	19.5	1680	23.7						
16000	2216	0.15	1210	7.60	1309	10.4	1410	13.5	1511	17.0	1610	20.8	1710	25.0	1809	29.5				
17000	2355	0.17	1273	8.76	1367	11.7	1462	14.9	1557	18.5	1651	22.3	1745	26.5	1837	31.0	1932	35.9		
18000	2493	0.19	1337	10.0	1426	13.1	1516	16.4	1605	20.0	1694	24.0	1782	28.2	1872	32.7	1959	37.6	2048	42.8
19000	2632	0.21	1402	11.5	1486	14.6	1571	18.1	1654	21.8	1740	25.8	1825	30.1	1908	34.6	1993	39.5	2076	44.6
20000	2770	0.23	1467	13.0	1546	16.3	1627	19.9	1708	23.7	1789	27.8	1868	32.1	1949	36.7	2028	41.6	2108	46.8
21000	2909	0.26	1532	14.7	1609	18.2	1685	21.8	1762	25.7	1838	29.9	1915	34.3	1991	39.0	2067	43.9	2144	49.1
22000	3047	0.28	1598	16.6	1671	20.2	1745	23.9	1817	28.0	1890	32.2	1964	36.7	2036	41.4	2110	46.4		
23000	3186	0.31	1665	18.7	1735	22.3	1804	26.2	1873	30.3	1944	34.7	2013	39.3	2084	44.1	2153	49.1		
24000	3324	0.34	1731	20.9	1798	24.7	1864	28.7	1932	32.9	1999	37.4	2065	42.0	2133	47.0				

Performance shown is for Model VABI with inlet and outlet ducts. BHP does not include drive losses.

VABI–42F17

Maximum RPM Class I = 1474
Maximum RPM Class II = 1856

Maximum Motor Frame Size = 326T
Tip Speed = 11.09 x RPM

Fan Outlet Area = 9.85 sq. ft.
Cone Outlet Area = 14.75 sq. ft.

		Ducted	STATIC PRESSURE IN INCHES W.G.																	
		Cone	.25		.50		.75		1.0		1.5		2.0		3.0		4.0		5.0	
CFM	OV	Regain	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
16000	1624	0.08	605	1.48	673	2.26	739	3.14	803	4.13	921	6.31								
20000	2030	0.12	726	2.41	781	3.29	835	4.28	888	5.35	991	7.74	1089	10.4						
24000	2437	0.18	852	3.74	897	4.74	942	5.83	987	6.99	1076	9.57	1163	12.4	1325	18.8	1474	25.8		
28000	2843	0.24	980	5.56	1019	6.67	1057	7.86	1096	9.15	1173	11.9	1249	14.9	1397	21.7	1535	29.1	1665	37.2
32000	3249	0.32	1110	7.92	1143	9.15	1177	10.5	1210	11.9	1279	14.8	1347	18.1	1479	25.1	1606	33.0	1728	41.5
36000	3655	0.40	1241	10.9	1270	12.3	1300	13.7	1331	15.2	1391	18.4	1451	21.8	1570	29.3	1687	37.5	1800	46.4
40000	4061	0.50	1373	14.6	1399	16.1	1425	17.7	1453	19.3	1507	22.7	1562	26.4	1670	34.2	1776	42.8		
44000	4467	0.60	1505	19.1	1529	20.8	1553	22.5	1577	24.2	1627	27.9	1675	31.6	1774	39.9				
48000	4873	0.72	1638	24.5	1660	26.3	1682	28.1	1704	29.9	1749	33.9	1794	37.9						
52000	5279	0.84	1770	30.8	1791	32.7	1812	34.7	1832	36.7										

VABI–42F21

Maximum RPM Class I = 1474
Maximum RPM Class II = 1856

Maximum Motor Frame Size = 365T
Tip Speed = 11.09 x RPM

Fan Outlet Area = 9.85 sq. ft.
Cone Outlet Area = 14.75 sq. ft.

		Ducted	STATIC PRESSURE IN INCHES W.G.																	
		Cone	.50		1.0		1.5		2.0		3.0		4.0		5.0		6.0		7.0	
CFM	OV	Regain	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
12000	1218	0.04	566	1.50	698	2.96														
16000	1624	0.08	676	2.32	777	3.95	878	5.87	974	7.98										
20000	2030	0.12	799	3.57	880	5.36	962	7.43	1043	9.75	1198	14.9								
24000	2437	0.18	929	5.32	996	7.29	1064	9.53	1133	12.0	1267	17.6	1397	23.7	1522	30.3				
28000	2843	0.24	1063	7.68	1121	9.88	1179	12.3	1237	14.9	1353	20.8	1469	27.3	1582	34.4	1691	41.8	1796	49.6
32000	3249	0.32	1200	10.7	1250	13.2	1301	15.8	1352	18.6	1454	24.7	1555	31.6	1657	39.0	1757	46.9	1853	55.2
36000	3655	0.40	1338	14.6	1381	17.2	1428	20.1	1472	23.1	1564	29.6	1655	36.8	1744	44.4	1836	52.8		
40000	4061	0.50	1477	19.4	1517	22.3	1558	25.3	1599	28.5	1680	35.4	1761	42.8	1844	50.9				

VABI–42F26

Maximum RPM Class I = 1474
Maximum RPM Class II = 1856

Maximum Motor Frame Size = 365T
Tip Speed = 11.09 x RPM

Fan Outlet Area = 9.85 sq. ft.
Cone Outlet Area = 14.75 sq. ft.

		Ducted	STATIC PRESSURE IN INCHES W.G.																	
		Cone	.50		1.0		1.5		2.0		3.0		4.0		5.0		6.0		7.0	
CFM	OV	Regain	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
10000	1015	0.03	564	1.29	687	2.52														
12500	1269	0.05	650	1.82	748	3.14	847	4.71	938	6.43										
15000	1523	0.07	745	2.57	825	3.97	908	5.63	991	7.51	1143	11.6								
17500	1777	0.10	846	3.57	912	5.06	982	6.81	1054	8.77	1194	13.2	1324	18.0						
20000	2030	0.12	951	4.86	1007	6.47	1066	8.29	1128	10.3	1253	15.0	1375	20.2	1489	25.7				
22500	2284	0.16	1056	6.47	1105	8.20	1156	10.1	1210	12.2	1321	17.1	1432	22.5	1540	28.3	1642	34.5	1738	40.8
25000	2538	0.20	1164	8.45	1208	10.3	1253	12.4	1300	14.6	1398	19.5	1497	25.1	1597	31.2	1695	37.7	1788	44.5
27500	2792	0.24	1272	10.9	1312	12.9	1351	15.0	1394	17.3	1480	22.4	1570	28.2	1662	34.4	1752	41.2	1842	48.3
30000	3046	0.28	1382	13.7	1417	15.8	1453	18.1	1491	20.5	1569	25.8	1651	31.7	1734	38.2	1817	45.1		

Performance shown is for Model VABI with inlet and outlet ducts. BHP does not include drive losses.

VABI–48F21

Maximum RPM Class I = 1290
Maximum RPM Class II = 1624

Maximum Motor Frame Size = 365T
Tip Speed = 12.66 x RPM

Fan Outlet Area = 12.83 sq. ft.
Cone Outlet Area = 20.46 sq. ft.

		Ducted	STATIC PRESSURE IN INCHES W.G.																	
		Cone	.25		.50		.75		1.0		1.5		2.0		3.0		4.0		5.0	
CFM	OV	Regain	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
25000	1949	0.12	552	2.70	605	3.88	657	5.20	708	6.66	807	9.93	900	13.6						
30000	2338	0.17	643	4.10	687	5.43	731	6.89	775	8.45	860	11.9	943	15.8						
35000	2728	0.23	737	5.99	775	7.48	813	9.08	850	10.8	925	14.5	998	18.6	1138	27.8	1270	38.3		
40000	3118	0.29	832	8.44	865	10.1	898	11.8	932	13.7	997	17.7	1062	22.0	1189	31.6	1310	42.5	1427	54.4
45000	3507	0.37	929	11.5	958	13.4	987	15.3	1016	17.3	1075	21.5	1134	26.2	1248	36.2	1359	47.4	1467	59.6
50000	3897	0.46	1026	15.4	1052	17.4	1079	19.5	1105	21.6	1158	26.2	1210	31.0	1315	41.6	1417	53.2	1516	65.8
55000	4287	0.56	1123	20.0	1147	22.2	1171	24.4	1196	26.8	1243	31.6	1292	36.8	1387	47.9	1482	60.0	1574	73.0
60000	4677	0.66	1221	25.5	1243	27.9	1265	30.3	1287	32.8	1331	38.0	1375	43.4	1463	55.1	1550	67.6		
65000	5066	0.78	1319	32.0	1340	34.6	1360	37.2	1380	39.8	1421	45.4	1461	51.0	1543	63.3				
70000	5456	0.90	1418	39.5	1437	42.3	1456	45.1	1474	47.9	1513	53.8	1550	59.8						
75000	5846	1.04	1516	48.2	1534	51.1	1552	54.1	1569	57.1	1605	63.3								

VABI–48F26

Maximum RPM Class I = 1290
Maximum RPM Class II = 1624

Maximum Motor Frame Size = 365T
Tip Speed = 12.66 x RPM

Fan Outlet Area = 12.83 sq. ft.
Cone Outlet Area = 20.46 sq. ft.

		Ducted	STATIC PRESSURE IN INCHES W.G.																	
		Cone	.50		1.0		1.35		2.0		3.0		4.0		5.0		6.0		7.0	
CFM	OV	Regain	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
20000	1559	0.07	545	2.88	640	4.99	705	6.72												
25000	1949	0.12	639	4.35	715	6.69	768	8.55	865	12.4										
30000	2338	0.17	740	6.43	802	9.01	846	11.0	928	15.2	1053	22.4	1173	30.5						
35000	2728	0.23	844	9.19	897	12.1	935	14.2	1005	18.7	1113	26.3	1220	34.8	1324	44.1				
40000	3118	0.29	951	12.8	997	16.0	1029	18.3	1090	23.0	1185	31.1	1280	40.0	1373	49.7	1464	60.0	1554	71.1
45000	3507	0.37	1060	17.3	1100	20.8	1129	23.3	1182	28.4	1266	36.8	1350	46.1	1435	56.2	1518	67.0	1599	78.4
50000	3897	0.46	1169	22.9	1204	26.6	1231	29.4	1278	34.8	1354	43.8	1430	53.5	1504	63.9	1581	75.2		
55000	4287	0.56	1279	29.6	1311	33.7	1334	36.7	1379	42.5	1446	51.9	1514	62.1	1584	73.1				

VABI–48F30

Maximum RPM Class I = 1290
Maximum RPM Class II = 1624

Maximum Motor Frame Size = 365T
Tip Speed = 12.66 x RPM

Fan Outlet Area = 12.83 sq. ft.
Cone Outlet Area = 20.46 sq. ft.

		Ducted	STATIC PRESSURE IN INCHES W.G.																	
		Cone	1.0		1.5		2.0		3.0		4.0		5.0		6.0		7.0		8.0	
CFM	OV	Regain	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
15000	1169	0.04	582	3.63																
20000	1559	0.07	655	5.00	733	7.23	810	9.73												
25000	1949	0.12	750	7.02	812	9.45	874	12.2	998	18.2										
30000	2338	0.17	857	9.83	906	12.5	958	15.4	1062	21.8	1165	29.0	1265	36.8						
35000	2728	0.23	970	13.5	1011	16.4	1053	19.5	1142	26.4	1231	34.0	1320	42.2	1408	51.0	1492	60.3		
40000	3118	0.29	1087	18.3	1123	21.5	1159	24.8	1234	32.1	1311	40.0	1390	48.7	1467	57.9	1545	67.7	1621	77.8
45000	3507	0.37	1206	24.2	1237	27.7	1270	31.3	1335	39.0	1402	47.4	1471	56.4	1541	66.0	1610	76.2		
50000	3897	0.46	1326	31.4	1355	35.2	1383	39.1	1441	47.4	1501	56.2	1562	65.6						
55000	4287	0.56	1449	40.1	1474	44.2	1500	48.4	1553	57.3	1606	66.6								

Performance shown is for Model VABI with inlet and outlet ducts. BHP does not include drive losses.

VABI–54F21

Maximum RPM Class I = 1145
Maximum RPM Class II = 1442

Maximum Motor Frame Size = 365T
Tip Speed = 14.35 x RPM

Fan Outlet Area = 16.50 sq. ft.
Cone Outlet Area = 24.67 sq. ft.

		Ducted	STATIC PRESSURE IN INCHES W.G.																	
		Cone	.25		.50		.75		1.0		1.5		2.0		3.0		4.0		5.0	
CFM	OV	Regain	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
24000	1455	0.06	433	1.97	496	3.24	560	4.71	620	6.36										
30000	1818	0.10	508	3.07	561	4.50	614	6.11	666	7.88	763	11.9	853	16.4						
36000	2182	0.14	590	4.63	634	6.23	679	7.99	723	9.91	809	14.2	890	18.9	1041	29.7				
42000	2545	0.20	675	6.71	713	8.51	751	10.4	789	12.5	865	17.0	938	22.0	1077	33.3	1204	46.1		
48000	2909	0.26	761	9.43	794	11.4	828	13.5	861	15.8	928	20.6	993	25.9	1120	37.7	1240	50.9	1352	65.4
54000	3273	0.32	849	12.9	878	15.1	907	17.3	937	19.8	996	24.9	1056	30.5	1171	42.8	1283	56.5	1389	71.5
60000	3636	0.40	937	17.1	963	19.5	990	22.0	1016	24.6	1069	30.1	1123	36.0	1229	48.9	1332	63.1	1431	78.5
66000	4000	0.48	1026	22.2	1049	24.8	1073	27.5	1097	30.3	1146	36.2	1195	42.4	1292	55.9	1387	70.6		
72000	4364	0.58	1115	28.3	1137	31.1	1158	34.0	1181	37.0	1225	43.3	1269	49.8	1358	63.9				
78000	4727	0.68	1205	35.5	1225	38.5	1244	41.6	1265	44.8	1305	51.4	1347	58.4	1429	73.1				
84000	5091	0.79	1294	43.8	1313	47.0	1331	50.3	1350	53.7	1388	60.8	1426	68.1						
90000	5455	0.90	1384	53.3	1402	56.8	1419	60.3	1435	63.9										

VABI–54F26

Maximum RPM Class I = 1145
Maximum RPM Class II = 1442

Maximum Motor Frame Size = 405T
Tip Speed = 14.35 x RPM

Fan Outlet Area = 16.50 sq. ft.
Cone Outlet Area = 24.67 sq. ft.

		Ducted	STATIC PRESSURE IN INCHES W.G.																	
		Cone	.50		.75		1.0		1.5		2.0		3.0		4.0		5.0		6.0	
CFM	OV	Regain	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
18000	1091	0.04	451	2.29	516	3.46	577	4.78												
24000	1455	0.06	523	3.34	574	4.63	624	6.07	719	9.33	808	13.0								
30000	1818	0.10	608	4.89	649	6.34	690	7.90	770	11.4	848	15.3	993	24.2						
36000	2182	0.14	699	7.03	734	8.64	768	10.4	836	14.1	903	18.3	1032	27.7	1154	38.3				
42000	2545	0.20	794	9.86	824	11.7	853	13.6	912	17.7	970	22.0	1085	31.9	1195	42.9	1301	55.1	1402	68.1
48000	2909	0.26	892	13.5	917	15.5	944	17.6	995	22.0	1047	26.7	1149	37.1	1248	48.6	1345	61.2	1439	74.6
54000	3273	0.32	991	18.1	1014	20.3	1037	22.5	1083	27.3	1129	32.3	1221	43.3	1310	55.3	1398	68.3		
60000	3636	0.40	1091	23.7	1112	26.1	1133	28.5	1175	33.7	1216	39.1	1299	50.7	1380	63.2				
66000	4000	0.48	1193	30.4	1212	33.1	1231	35.7	1268	41.2	1306	47.0	1381	59.2						

VABI–54F30

Maximum RPM Class I = 1145
Maximum RPM Class II = 1442

Maximum Motor Frame Size = 405T
Tip Speed = 14.35 x RPM

Fan Outlet Area = 16.50 sq. ft.
Cone Outlet Area = 24.67 sq. ft.

		Ducted	STATIC PRESSURE IN INCHES W.G.																	
		Cone	.50		1.0		1.5		2.0		3.0		4.0		5.0		6.0		7.0	
CFM	OV	Regain	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
18000	1091	0.04	434	2.21	542	4.43														
24000	1455	0.06	516	3.41	598	5.84	678	8.73	757	12.0										
30000	1818	0.10	610	5.21	673	7.87	739	11.0	804	14.5	931	22.4	1049	31.2						
36000	2182	0.14	709	7.74	761	10.7	814	14.0	868	17.7	978	26.1	1084	35.5	1186	45.7				
42000	2545	0.20	812	11.1	856	14.4	901	18.0	946	21.9	1040	30.7	1133	40.5	1224	51.3	1314	62.9	1400	75.0
48000	2909	0.26	917	15.6	955	19.2	993	23.1	1033	27.3	1114	36.5	1196	46.7	1277	57.9	1357	69.8	1437	82.6
54000	3273	0.32	1023	21.1	1055	25.1	1090	29.4	1124	33.8	1195	43.5	1268	54.2	1341	65.8	1412	78.1		
60000	3636	0.40	1129	28.0	1159	32.3	1190	36.9	1221	41.7	1284	51.9	1346	63.0	1413	75.1				
66000	4000	0.48	1236	36.2	1263	41.0	1290	45.8	1319	51.0	1374	61.8	1433	73.5						

Performance shown is for Model VABI with inlet and outlet ducts. BHP does not include drive losses.

VABI–60F26

Maximum RPM Class I = 1032
Maximum RPM Class II = 1299

Maximum Motor Frame Size = 405T
Tip Speed = 15.91 x RPM

Fan Outlet Area = 20.29 sq. ft.
Cone Outlet Area = 30.68 sq. ft.

		Ducted	STATIC PRESSURE IN INCHES W.G.																	
		Cone	.25		.50		.75		1.0		1.5		2.0		2.5		3.0		4.0	
CFM	OV	Regain	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
30000	1479	0.07	425	2.72	482	4.28	538	6.06	589	8.06										
35000	1725	0.09	479	3.74	528	5.44	576	7.35	623	9.44	712	14.2								
40000	1971	0.12	533	5.03	576	6.88	619	8.93	662	11.2	744	16.1	819	21.7						
45000	2218	0.15	591	6.64	629	8.67	667	10.9	704	13.2	779	18.4	850	24.1	918	30.4	980	37.2		
50000	2464	0.18	649	8.62	682	10.8	716	13.1	751	15.7	819	21.1	885	27.0	949	33.5	1009	40.5		
55000	2711	0.22	708	11.0	737	13.3	769	15.9	799	18.5	862	24.2	924	30.4	983	37.1	1041	44.2	1149	59.9
60000	2957	0.26	767	13.8	793	16.3	823	19.0	851	21.8	908	27.8	965	34.3	1021	41.1	1076	48.5	1179	64.5
65000	3204	0.31	826	17.1	851	19.8	877	22.6	904	25.6	956	31.9	1009	38.6	1062	45.8	1112	53.3	1212	69.8
70000	3450	0.36	886	20.9	909	23.8	932	26.7	958	29.9	1005	36.5	1056	43.5	1103	50.9	1153	58.8	1247	75.6
75000	3696	0.41	946	25.2	968	28.3	989	31.5	1012	34.8	1058	41.7	1104	49.0	1150	56.7	1195	64.8	1284	82.0
80000	3943	0.47	1006	30.2	1027	33.4	1047	36.8	1067	40.2	1111	47.5	1152	55.0	1197	63.2	1239	71.5		
85000	4189	0.53	1067	35.7	1086	39.2	1105	42.7	1124	46.3	1165	54.0	1205	61.9	1245	70.2	1286	78.9		
90000	4436	0.60	1127	42.0	1146	45.6	1164	49.4	1182	53.1	1219	61.1	1258	69.4	1294	77.8				
95000	4682	0.66	1188	48.9	1206	52.8	1223	56.7	1240	60.7	1274	68.9								
100000	4929	0.74	1248	56.6	1265	60.7	1282	64.8	1298	68.9										

VABI–60F30

Maximum RPM Class I = 1032
Maximum RPM Class II = 1299

Maximum Motor Frame Size = 405T
Tip Speed = 15.91 x RPM

Fan Outlet Area = 20.29 sq. ft.
Cone Outlet Area = 30.68 sq. ft.

		Ducted	STATIC PRESSURE IN INCHES W.G.																	
		Cone	.50		.75		1.0		1.5		2.0		2.5		3.0		4.0		5.0	
CFM	OV	Regain	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
24000	1183	0.04	452	3.16	506	4.58	558	6.14												
27000	1331	0.05	482	3.73	532	5.23	579	6.87	667	10.5										
30000	1479	0.07	516	4.42	560	5.97	603	7.70	687	11.5										
33000	1626	0.08	551	5.23	590	6.83	630	8.63	709	12.6	783	16.9								
36000	1774	0.10	587	6.16	623	7.84	660	9.70	733	13.8	803	18.3	869	23.2						
39000	1922	0.11	625	7.25	658	9.00	691	10.9	759	15.2	825	19.9	889	24.9	949	30.2				
42000	2070	0.13	664	8.49	694	10.31	725	12.3	787	16.7	850	21.5	911	26.7	969	32.2				
45000	2218	0.15	703	9.88	731	11.8	760	13.8	818	18.3	876	23.3	934	28.7	990	34.4	1096	46.5		
48000	2366	0.17	743	11.4	769	13.5	795	15.6	849	20.2	904	25.3	959	30.8	1013	36.7	1116	49.1		
51000	2514	0.19	783	13.2	808	15.3	832	17.5	882	22.2	934	27.5	986	33.1	1037	39.1	1136	52.0	1230	65.7
54000	2661	0.21	824	15.1	847	17.3	870	19.6	917	24.5	965	29.9	1014	35.7	1064	41.8	1159	55.0	1250	69.0
57000	2809	0.24	865	17.3	886	19.6	908	22.0	953	27.0	997	32.4	1045	38.4	1090	44.7	1182	58.1	1270	72.6
60000	2957	0.26	906	19.7	926	22.0	947	24.5	988	29.7	1032	35.3	1075	41.3	1120	47.8	1207	61.6	1293	76.3
63000	3105	0.29	948	22.3	966	24.7	986	27.3	1026	32.7	1067	38.5	1107	44.5	1150	51.1	1234	65.2		
66000	3253	0.32	990	25.2	1007	27.7	1026	30.3	1064	35.9	1102	41.8	1141	48.1	1181	54.7	1261	69.0		
69000	3401	0.35	1031	28.3	1048	30.9	1065	33.6	1102	39.4	1138	45.4	1176	51.9	1212	58.5	1290	73.2		

Performance shown is for Model VABI with inlet and outlet ducts. BHP does not include drive losses.

VABI–66F26

Maximum RPM Class I = 938
Maximum RPM Class II = 1181

Maximum Motor Frame Size = 405T
Tip Speed = 17.48 x RPM

Fan Outlet Area = 24.48 sq. ft.
Cone Outlet Area = 36.67 sq. ft.

		Ducted	STATIC PRESSURE IN INCHES W.G.																	
		Cone	.25		.50		.75		1.0		1.5		2.0		2.5		3.0		4.0	
CFM	OV	Regain	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
36000	1471	0.07	392	3.17	448	5.09	502	7.32	553	9.84										
42000	1716	0.09	441	4.32	489	6.41	536	8.76	582	11.4	668	17.4								
48000	1961	0.12	491	5.77	532	8.05	575	10.6	616	13.3	695	19.5	770	26.6						
54000	2206	0.15	542	7.58	579	10.1	617	12.8	654	15.7	726	22.1	796	29.3	862	37.3				
60000	2451	0.18	595	9.77	628	12.5	662	15.4	695	18.4	762	25.1	826	32.6	888	40.7	947	49.6		
66000	2696	0.22	647	12.4	678	15.3	709	18.4	739	21.6	800	28.7	859	36.3	918	44.8	974	53.7	1082	73.8
72000	2941	0.26	701	15.5	729	18.7	757	22.0	785	25.4	841	32.8	896	40.7	951	49.3	1004	58.6	1106	78.7
78000	3186	0.31	755	19.1	781	22.5	807	26.1	832	29.7	884	37.4	936	45.7	987	54.5	1036	64.0	1134	84.6
84000	3431	0.36	810	23.3	834	26.9	857	30.7	882	34.6	929	42.6	978	51.3	1025	60.5	1072	70.1	1164	91.2
90000	3676	0.41	864	28.1	886	32.0	909	36.0	931	40.1	976	48.5	1021	57.5	1066	67.0	1110	77.0		
96000	3922	0.47	919	33.6	939	37.6	961	41.9	982	46.2	1023	55.1	1065	64.4	1108	74.3	1150	84.6		
102000	4167	0.53	974	39.8	993	44.0	1013	48.5	1033	53.0	1072	62.4	1112	72.1	1151	82.3				
108000	4412	0.59	1029	46.7	1047	51.2	1066	55.8	1085	60.6	1122	70.4	1159	80.5						
114000	4657	0.66	1084	54.4	1102	59.1	1119	63.9	1137	69.0	1172	79.2								
120000	4902	0.73	1140	62.9	1156	67.8	1172	72.9												

VABI–66F30

Maximum RPM Class I = 938
Maximum RPM Class II = 1181

Maximum Motor Frame Size = 405T
Tip Speed = 17.48 x RPM

Fan Outlet Area = 24.48 sq. ft.
Cone Outlet Area = 36.67 sq. ft.

		Ducted	STATIC PRESSURE IN INCHES W.G.																	
		Cone	.50		.75		1.0		1.5		2.0		2.5		3.0		4.0		5.0	
CFM	OV	Regain	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
30000	1225	0.05	435	3.95	487	5.72	537	7.68	628	12.1										
34000	1389	0.06	466	4.73	512	6.55	559	8.63	645	13.3	723	18.4								
38000	1552	0.07	501	5.68	542	7.61	583	9.70	664	14.5	739	19.9	808	25.7						
42000	1716	0.09	538	6.81	574	8.81	612	11.0	687	16.0	758	21.6	824	27.5	887	34.0				
46000	1879	0.11	577	8.13	609	10.2	643	12.5	711	17.6	779	23.4	843	29.6	903	36.2				
50000	2042	0.13	616	9.66	646	11.9	676	14.2	739	19.5	802	25.4	863	31.8	922	38.7	1030	53.3		
54000	2206	0.15	657	11.4	684	13.7	712	16.2	769	21.7	826	27.6	885	34.3	941	41.2	1047	56.4	1144	72.9
58000	2369	0.17	698	13.4	723	15.9	748	18.4	801	24.0	855	30.2	909	36.9	963	44.2	1066	59.8	1160	76.4
62000	2533	0.19	739	15.6	762	18.2	786	20.9	835	26.7	885	33.1	935	39.8	987	47.3	1085	63.2	1178	80.5
66000	2696	0.22	781	18.2	803	20.9	825	23.7	870	29.7	917	36.2	965	43.2	1011	50.5	1107	67.0		
70000	2859	0.25	823	21.0	844	23.8	864	26.8	906	32.9	950	39.6	995	46.9	1040	54.4	1130	71.1		
74000	3023	0.28	866	24.1	886	27.1	905	30.1	945	36.5	985	43.4	1027	50.8	1069	58.6	1154	75.4		
78000	3186	0.31	909	27.6	927	30.6	946	33.8	983	40.5	1021	47.6	1060	55.1	1101	63.1	1180	80.0		
82000	3350	0.34	953	31.4	969	34.5	987	37.9	1022	44.8	1058	52.0	1095	59.8	1133	68.0				
86000	3513	0.37	996	35.6	1011	38.8	1028	42.3	1061	49.5	1096	57.0	1131	64.9	1166	73.2				
90000	3676	0.41	1040	40.1	1054	43.5	1070	47.1	1102	54.5	1135	62.3	1167	70.3						

Performance shown is for Model VABI with inlet and outlet ducts. BHP does not include drive losses.

VABI–72F26

Maximum RPM Class I = 859
Maximum RPM Class II = 1082

Maximum Motor Frame Size = 405T
Tip Speed = 19.05 x RPM

Fan Outlet Area = 29.07 sq. ft.
Cone Outlet Area = 43.20 sq. ft.

		Ducted	STATIC PRESSURE IN INCHES W.G.																	
		Cone	.25		.50		.75		1.0		1.5		2.0		2.5		3.0		4.0	
CFM	OV	Regain	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
35000	1204	0.04	325	2.58	390	4.74	451	7.41												
42000	1445	0.06	361	3.48	419	5.80	474	8.55	525	11.7										
49000	1686	0.09	404	4.67	454	7.19	502	10.1	549	13.3	637	20.8								
56000	1926	0.11	448	6.17	492	8.89	535	12.0	577	15.3	658	22.9								
63000	2167	0.14	494	8.02	533	11.0	571	14.2	610	17.8	684	25.6	754	34.5						
70000	2408	0.18	541	10.3	575	13.5	610	16.9	646	20.6	713	28.7	780	38.0	842	47.9	903	59.3		
77000	2649	0.21	588	12.9	620	16.4	651	20.1	683	24.0	746	32.5	808	41.9	867	52.2	923	63.2		
84000	2890	0.25	636	16.1	665	19.9	694	23.8	723	27.8	782	36.8	838	46.4	894	57.0	948	68.4	1051	93.4
91000	3130	0.30	684	19.8	711	23.8	738	28.0	765	32.3	819	41.6	872	51.7	924	62.3	976	74.1	1073	99.3
98000	3371	0.34	733	24.1	758	28.3	783	32.8	808	37.4	858	47.0	908	57.5	957	68.6	1005	80.4		
105000	3612	0.40	782	29.0	805	33.5	828	38.2	852	43.1	898	53.1	945	64.0	992	75.5	1037	87.6		
112000	3853	0.45	831	34.6	853	39.3	875	44.2	897	49.4	940	60.0	984	71.1	1028	83.1	1071	95.6		
119000	4094	0.51	881	40.8	900	45.8	921	51.0	942	56.4	988	67.5	1024	79.0	1065	91.4				
126000	4334	0.57	930	47.9	949	53.0	969	58.5	988	64.1	1027	75.8	1066	87.8						
133000	4575	0.63	980	55.7	998	61.1	1016	66.8	1035	72.7	1072	84.9								
140000	4816	0.70	1030	64.3	1047	70.0	1064	75.9												

VABI–72F30

Maximum RPM Class I = 859
Maximum RPM Class II = 1082

Maximum Motor Frame Size = 405T
Tip Speed = 19.05 x RPM

Fan Outlet Area = 29.07 sq. ft.
Cone Outlet Area = 43.20 sq. ft.

		Ducted	STATIC PRESSURE IN INCHES W.G.																	
		Cone	.50		.75		1.0		1.5		2.0		2.5		3.0		4.0		5.0	
CFM	OV	Regain	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
36000	1238	0.05	400	4.78	446	6.87	492	9.21	573	14.4										
40000	1376	0.06	424	5.56	466	7.70	509	10.2	587	15.6	657	21.6								
44000	1514	0.07	451	6.50	489	8.76	527	11.2	602	16.9	670	23.1	733	29.9						
48000	1651	0.08	479	7.58	513	9.91	549	12.5	619	18.3	685	24.8	745	31.7	802	39.2				
52000	1789	0.10	509	8.83	540	11.2	572	13.9	637	19.8	700	26.5	760	33.8	815	41.3				
56000	1926	0.11	539	10.2	567	12.8	596	15.5	656	21.5	717	28.5	775	35.9	829	43.8	928	60.8		
60000	2064	0.13	569	11.8	596	14.5	623	17.3	679	23.6	735	30.5	791	38.2	844	46.3	940	63.6		
64000	2202	0.15	601	13.6	625	16.4	650	19.3	703	25.8	754	32.7	808	40.7	859	48.9	955	66.8	1042	86.1
68000	2339	0.17	633	15.6	655	18.5	679	21.5	727	28.1	777	35.4	826	43.2	876	51.9	970	70.2	1055	89.8
72000	2477	0.19	665	17.9	686	20.8	708	24.0	753	30.7	800	38.3	845	46.0	893	54.9	984	73.7	1069	93.9
76000	2614	0.21	697	20.3	717	23.4	738	26.6	780	33.6	824	41.3	868	49.4	912	58.0	1001	77.4		
80000	2752	0.23	730	23.0	749	26.2	768	29.6	808	36.7	849	44.5	892	53.0	932	61.6	1018	81.4		
84000	2890	0.25	763	25.9	781	29.3	799	32.7	837	40.1	876	48.1	916	56.8	956	65.7	1036	85.4		
88000	3027	0.28	796	29.2	813	32.7	830	36.2	866	43.9	903	52.0	940	60.7	979	70.1	1054	89.6		
92000	3165	0.30	829	32.7	846	36.3	862	40.0	896	47.8	931	56.2	965	65.0	1003	74.6	1075	94.4		
96000	3302	0.33	863	36.5	878	40.2	894	44.1	926	52.1	959	60.6	993	69.7	1027	79.3				

Performance shown is for Model VABI with inlet and outlet ducts. BHP does not include drive losses.

Direct Drive Selection

1. Use the **Quick Selection Chart** on page 21 to find the most efficient fan, hub and speed combinations. An example of the Quick Selection Chart is shown below.
2. Use the **Outlet Conditions Correction Chart** to determine the total pressure required. An example is shown on page 19. Outlet Conditions Correction Charts are the first chart within each group of performance charts.
3. Use the **Performance Charts** (pages 22-95) to determine blade pitch, total efficiency and horsepower.

Example: 41,000 CFM, 1.6" Ps

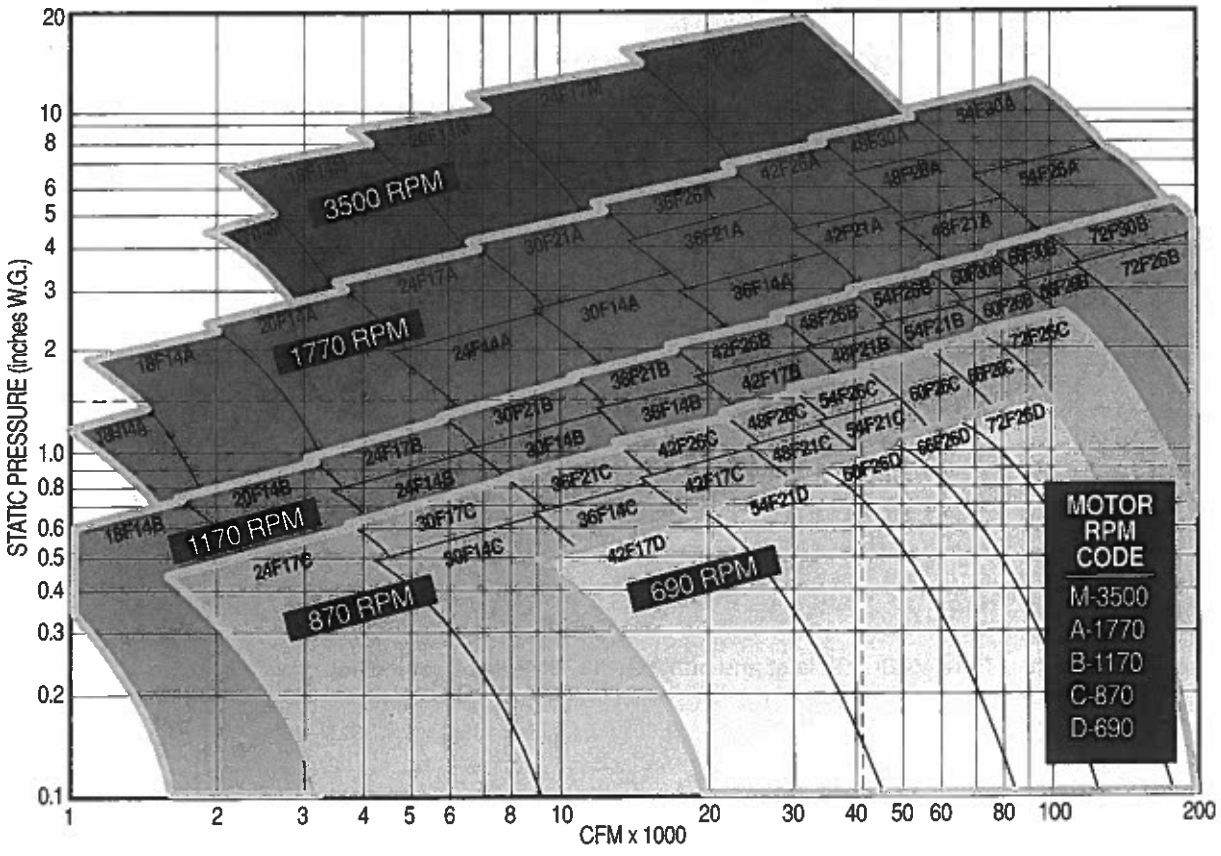
1. Enter the bottom scale with CFM - (41,000 CFM).
2. Enter the left scale with static pressure - (1.6" Ps).
3. Select the most efficient fan where CFM and static pressure intersect - (Fan size 54F26C). Smaller, higher speed fans above this intersection should also be considered.
4. Go to the direct drive performance charts for the blade pitch and horsepower required.

Full-Bladed Fans

Model numbers with "F" identify full-bladed fans. Full-bladed fans have all rotor blades installed and are designed for moderate to high pressure systems. Example: VADI-36F14.

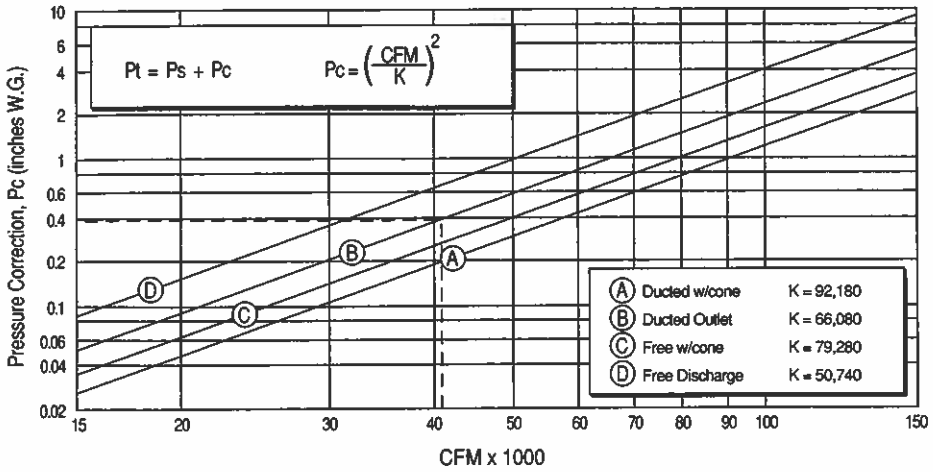
Half-Bladed Fans

Model numbers with "H" identify half-bladed fans. Half-bladed fans have half the standard number of blades for better efficiencies at low pressures. Example: VADI-36H14.

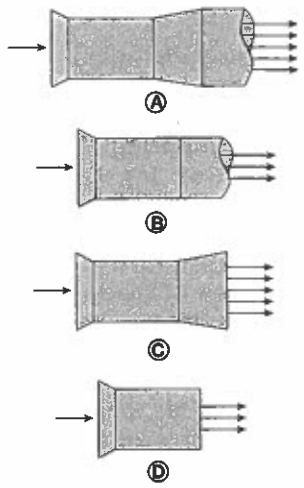


EXAMPLE QUICK SELECTION CHART - DIRECT DRIVE VANE AXIAL FANS

Direct Drive Selection, Cont.



Outlet Conditions

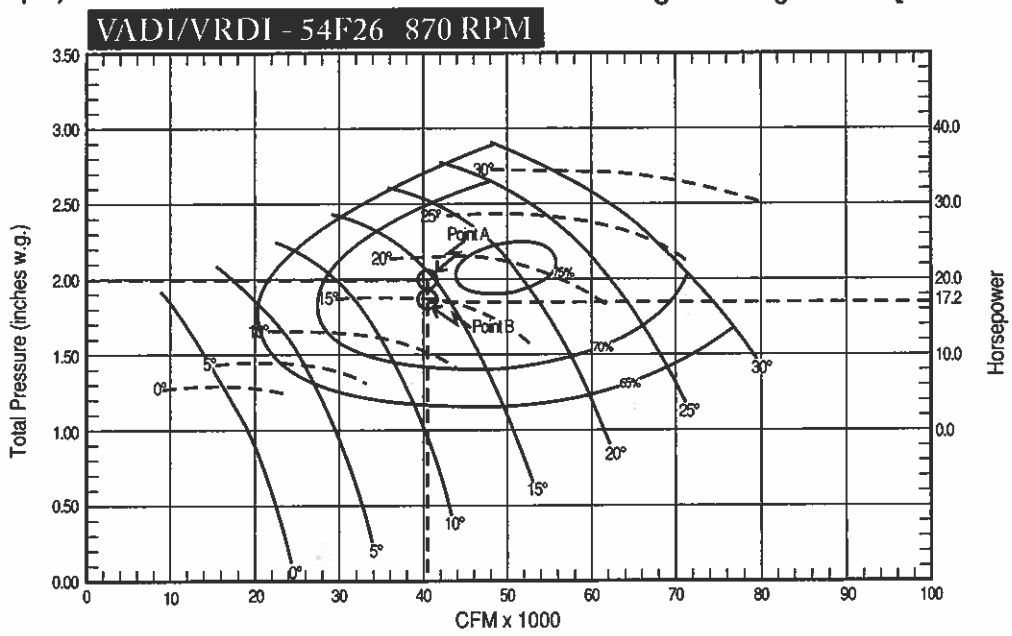


EXAMPLE OUTLET CONDITIONS CHART

An outlet condition correction chart is shown for each group of fan and hub combinations. Since outlet conditions greatly affect fan performance, a correction must be added to system static pressure to obtain total pressure before entering the performance charts.

Example: VADI-54F26, 41,000 CFM, 1.6" P_s

1. Determine the fan outlet condition: A, B, C or D as shown on the chart above - (Use B in example).
2. Enter the bottom scale with CFM (41,000).
3. Go vertically up until intersecting with the diagonal line **"B"** representing the outlet condition determined in step 1.
4. Read the outlet condition correction on the left scale (0.4"). Add this correction to the system static pressure before entering the appropriate performance chart with total pressure.
   1.6" P_s + 0.4" P_c = 2.0" P_t.



EXAMPLE PERFORMANCE CHART

How to Determine Blade Pitch Setting

1. Enter the bottom scale with CFM (41,000) and go vertically up.
2. Enter left scale with total pressure (2.0") and go horizontally right.
3. Where CFM and total pressure intersect is the operating point. Select the blade pitch angle (15°) from this point (Point A). **Solid lines represent fan total pressure vs. CFM. Lines are labeled for various pitch settings.**

How to Determine Brake Horsepower

1. Starting at the operating point found in step 3, follow the CFM line up or down **until intersecting the dashed line** corresponding to the blade pitch found in step 3 (Point B). **Dashed lines represent horsepower vs. CFM and are labeled for various pitch settings.**
2. From this point go horizontally right and read brake horsepower (17.2 Bhp) on the horsepower scale. Use this brake horsepower to select motor horsepower.

Response Control Turn-down

Turn-down Range

Response control vane axial turn-down ratio is an important consideration when making a selection for variable air volume systems. Selecting a proper blade pitch setting will determine if the fan is capable of its design range of turn-down or is limited to a few degrees of blade movement. The proper blade pitch setting will also assure the fan is operating in an area of highest efficiency during turn-down.

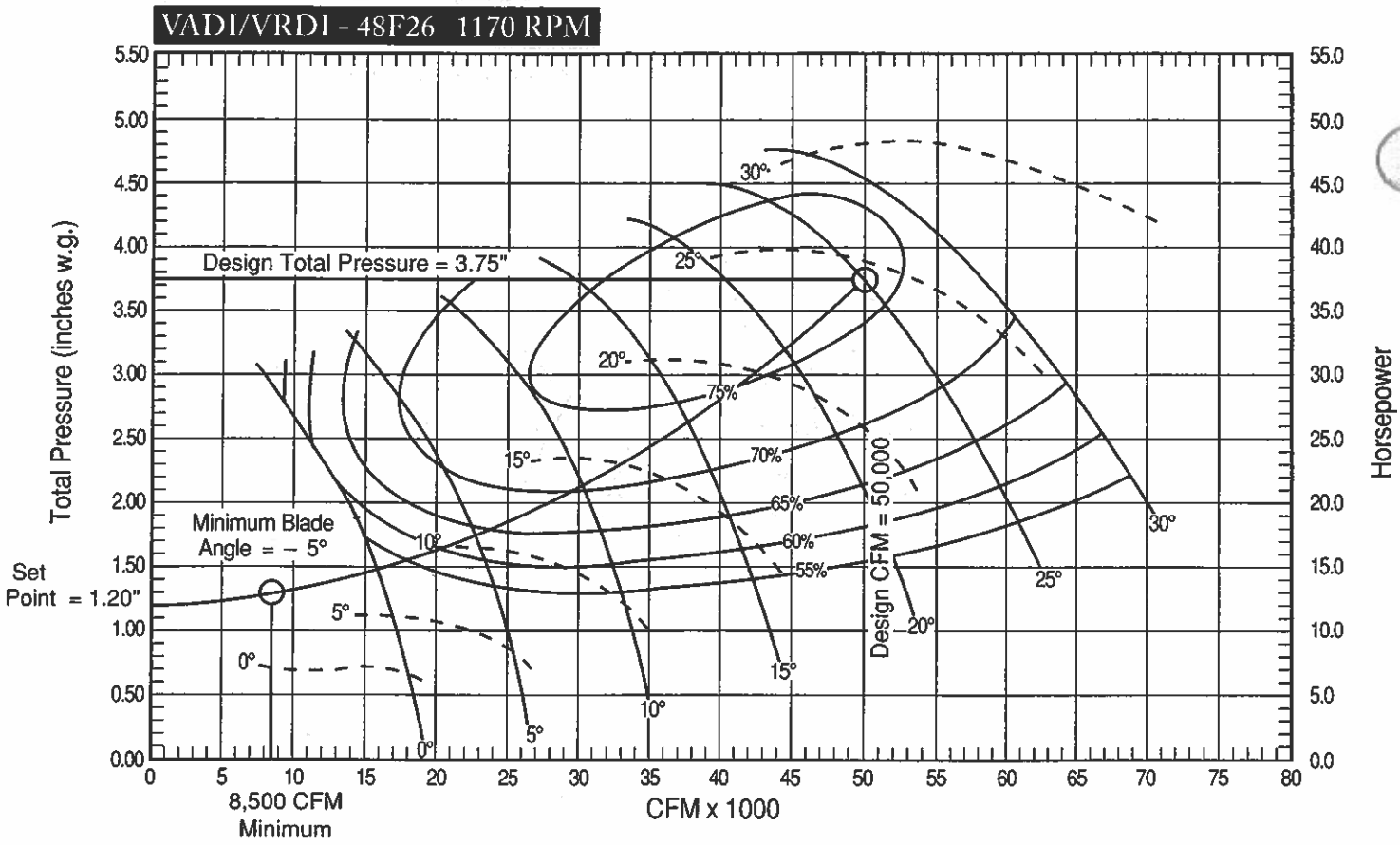
IAP Response Control vane axial fan blades are capable of rotating 30 degrees during turn-down. This 30 degree rotation may be restricted by the minimum blade pitch setting of specific fans. Therefore, a fan operating at 35 degrees blade pitch would be able to turn down to 5 degrees. However, a fan operating at 10 degrees of blade pitch would be limited by the minimum blade pitch setting shown on the performance chart.

Static Pressure Set-Points

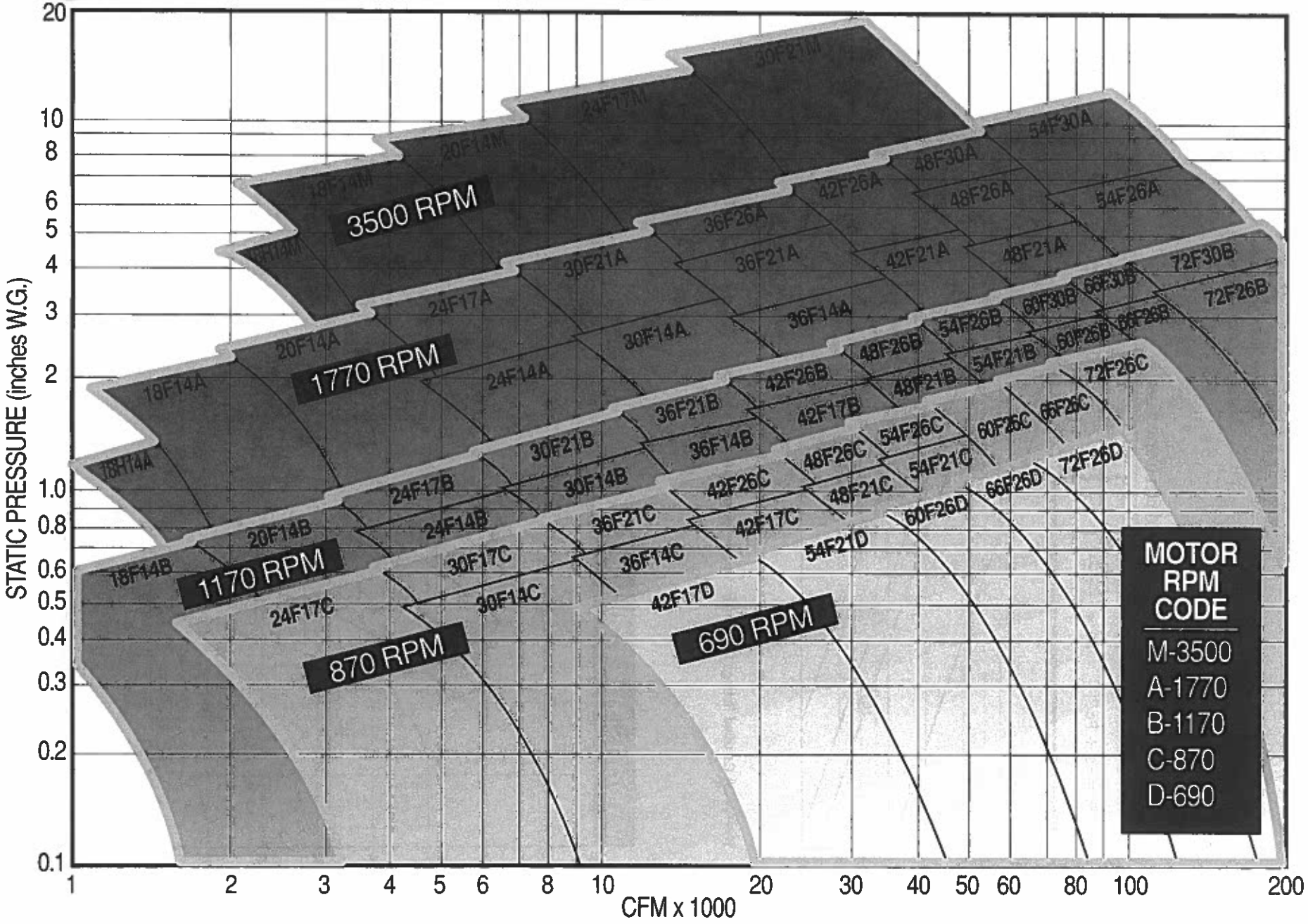
A unique feature of Response Control vane axial fans is the ability to maintain a specified static pressure while providing minimum air volume. The turn-down curve is plotted from the operating point to the specified static pressure set-point as shown in the example below.

Fan Efficiency During Turn-down

Fan efficiency during turn-down is another important consideration when selecting an operating point and blade pitch setting. The rule of thumb is to select an operating point which is above and to the right of the area of highest efficiency. This will result in the fan operating within this area of high efficiency during turn-down.



Turn-down curve passing through area of highest efficiency



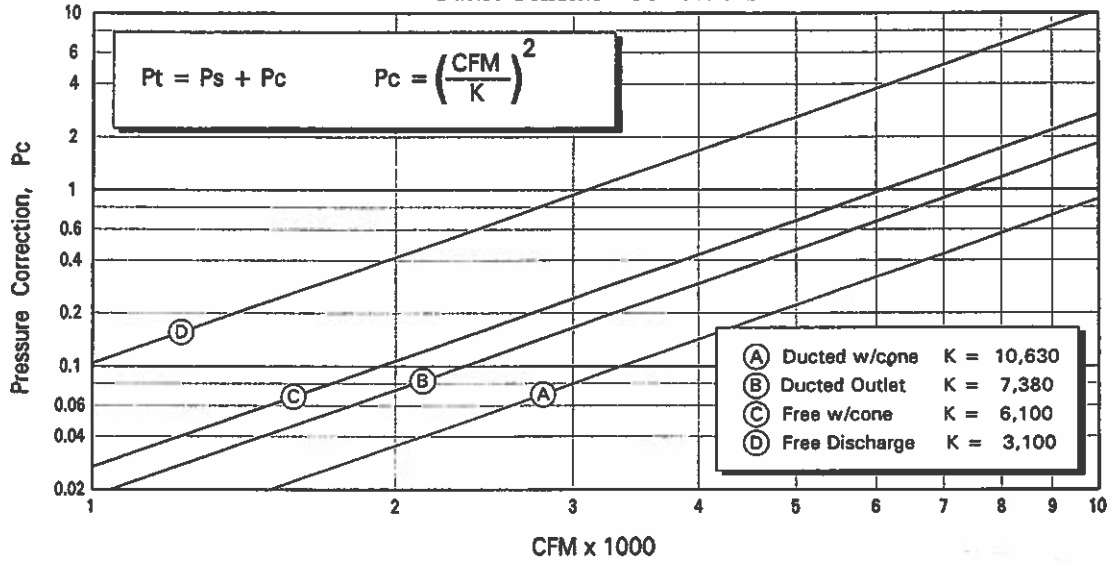
QUICK SELECTION CHART – DIRECT DRIVE VANE AXIAL FANS

VADI- 18H14

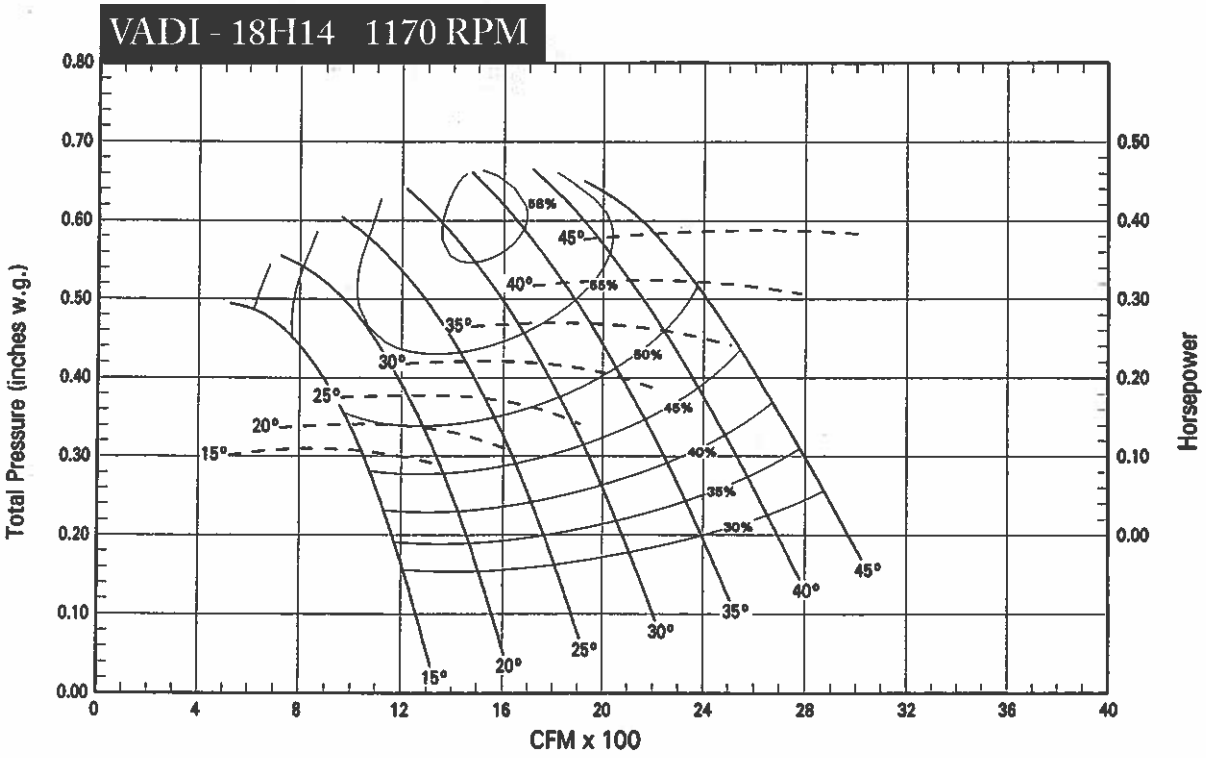
Fan Outlet Area = 1.84 sq.ft.
Cone Outlet Area = 2.89 sq.ft.
Tip Speed = 4.79 x RPM

Minimum Motor Frame Size = 182T
Maximum Motor Frame Size = 256T

Outlet Condition Corrections

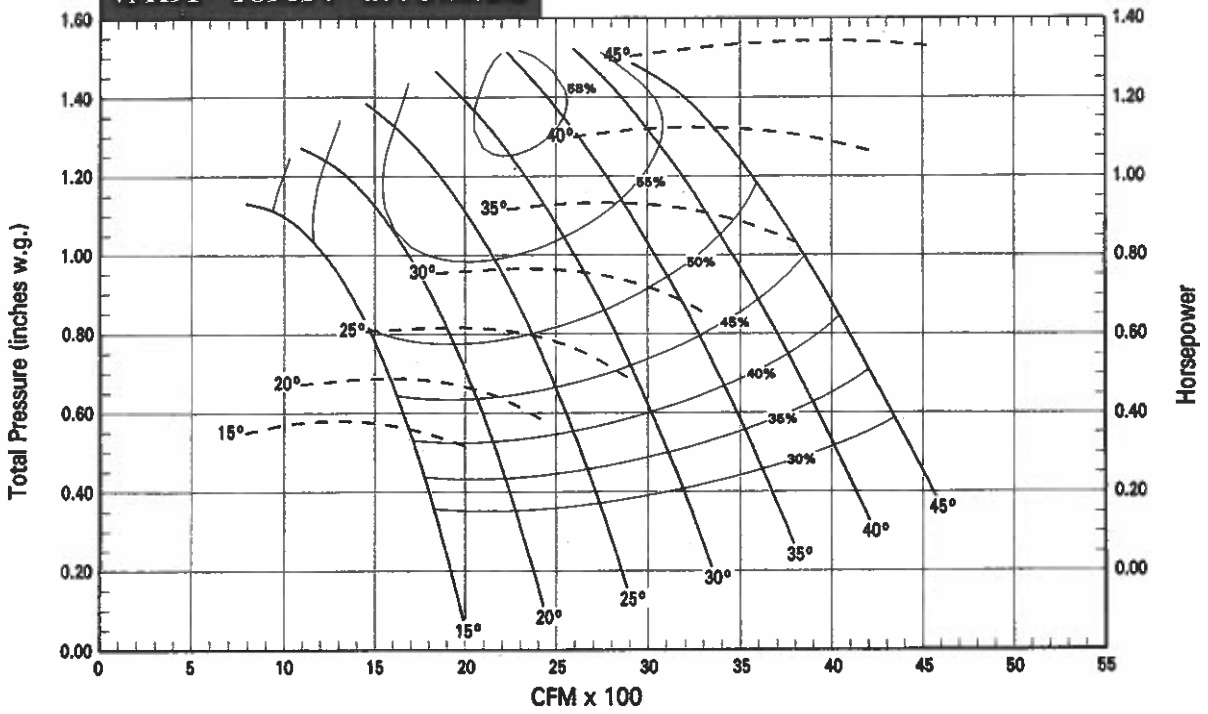


The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



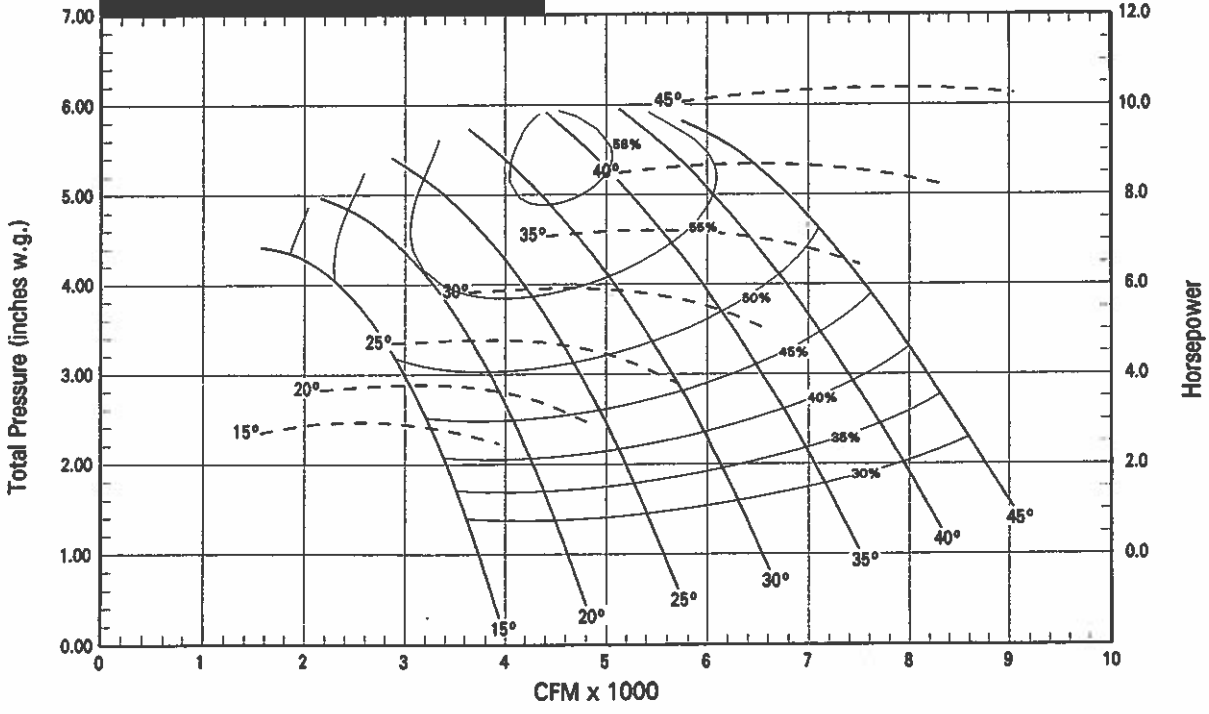
Performance shown is for Model VADI with inlet and outlet ducts.

VADI - 18H14 1770 RPM



Performance shown is for Model VADI with inlet and outlet ducts.

VADI - 18H14 3500 RPM



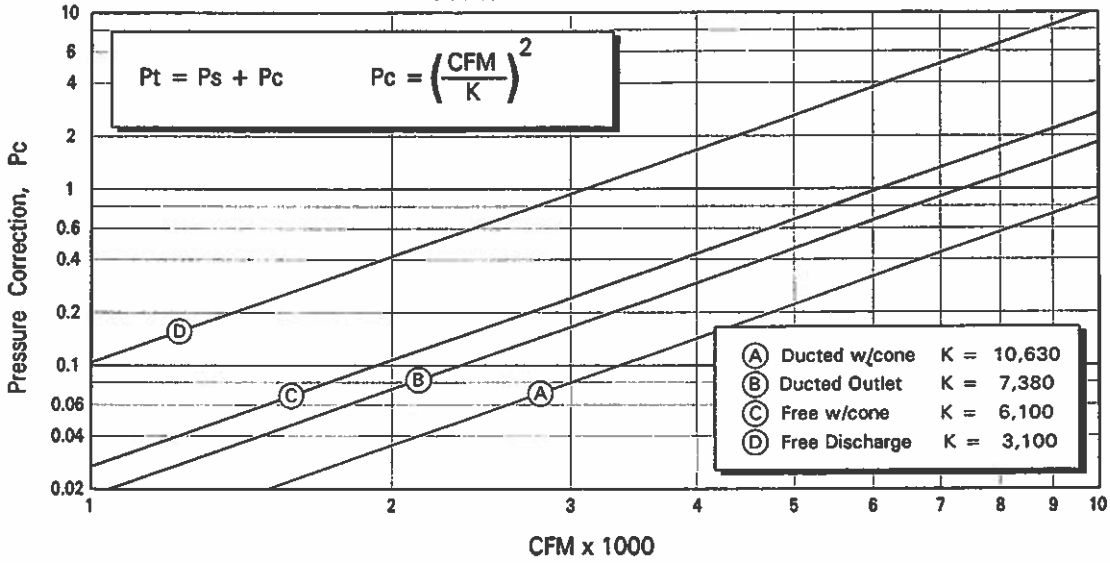
Performance shown is for Model VADI with inlet and outlet ducts.

VADI- 18F14

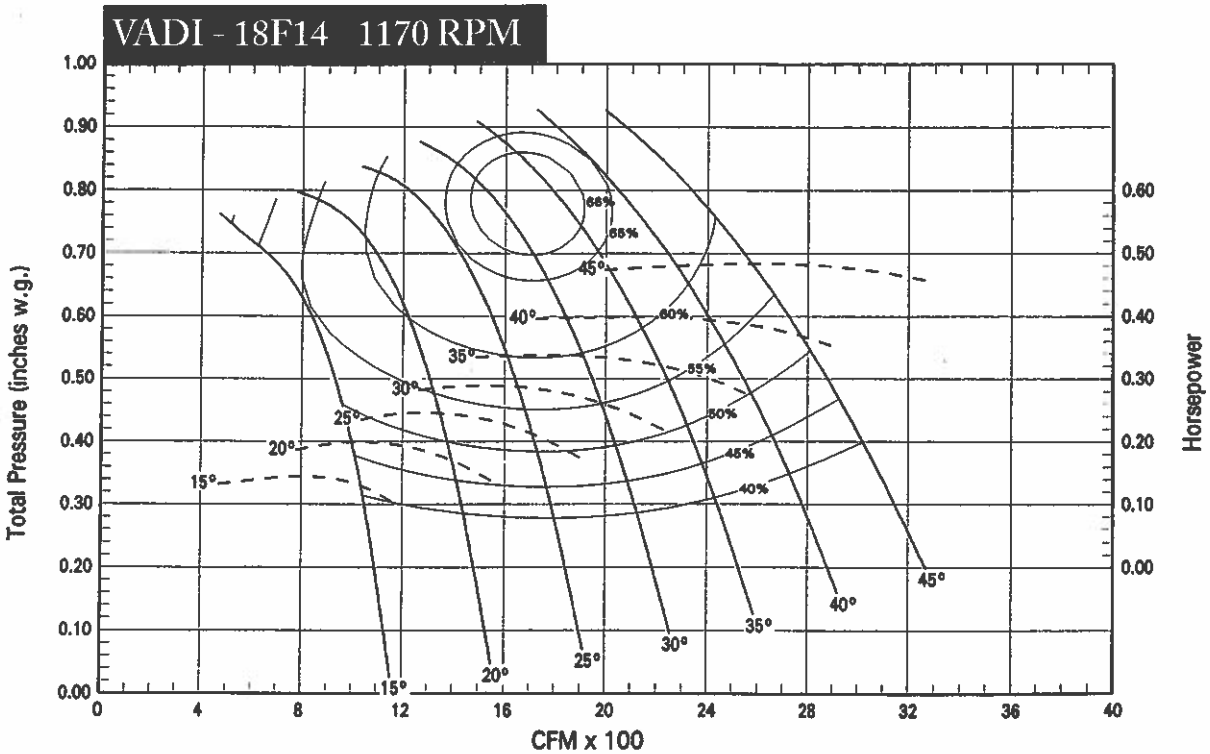
Fan Outlet Area = 1.84 sq.ft.
Cone Outlet Area = 2.89 sq.ft.
Tip Speed = 4.79 x RPM

Minimum Motor Frame Size = 182T
Maximum Motor Frame Size = 256T

Outlet Condition Corrections

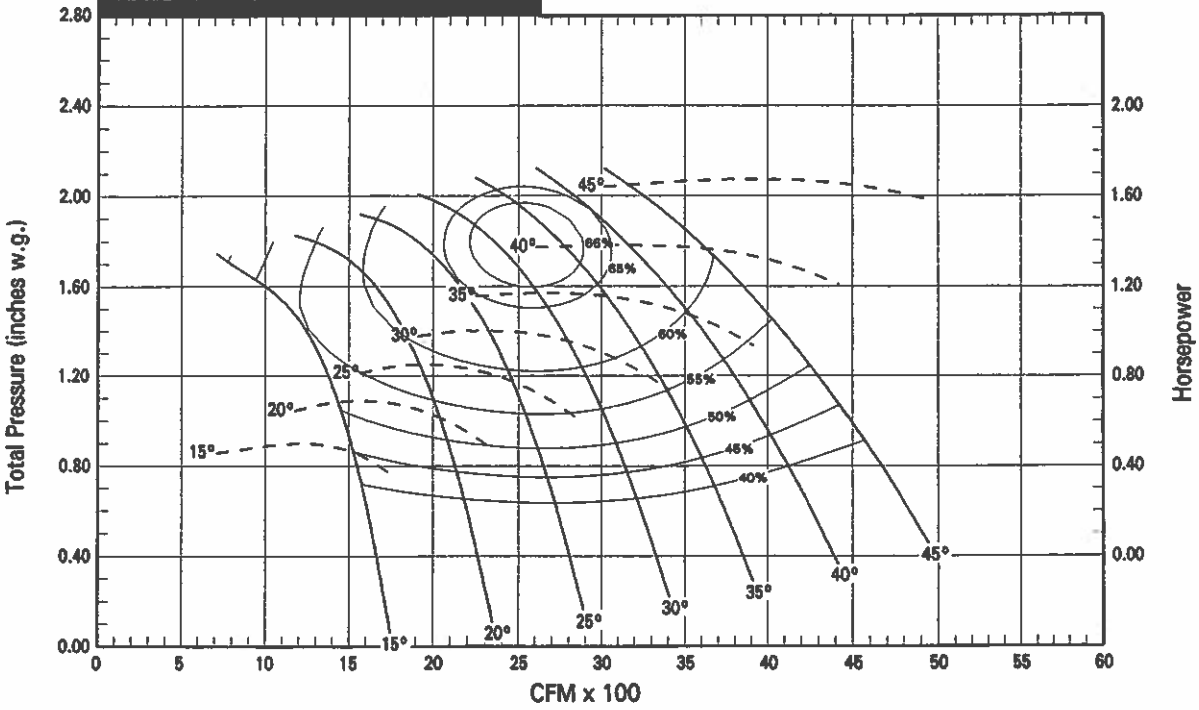


The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



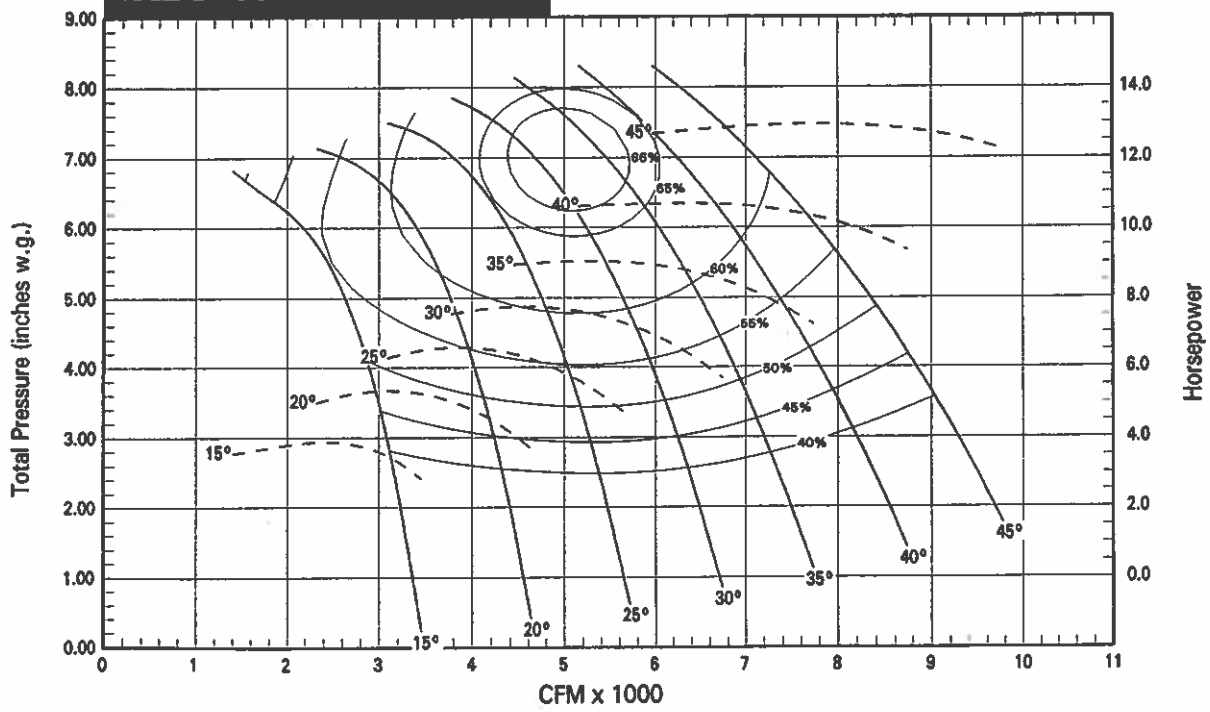
Performance shown is for Model VADI with inlet and outlet ducts.

VADI - 18F14 1770 RPM



Performance shown is for Model VADI with inlet and outlet ducts.

VADI - 18F14 3500 RPM

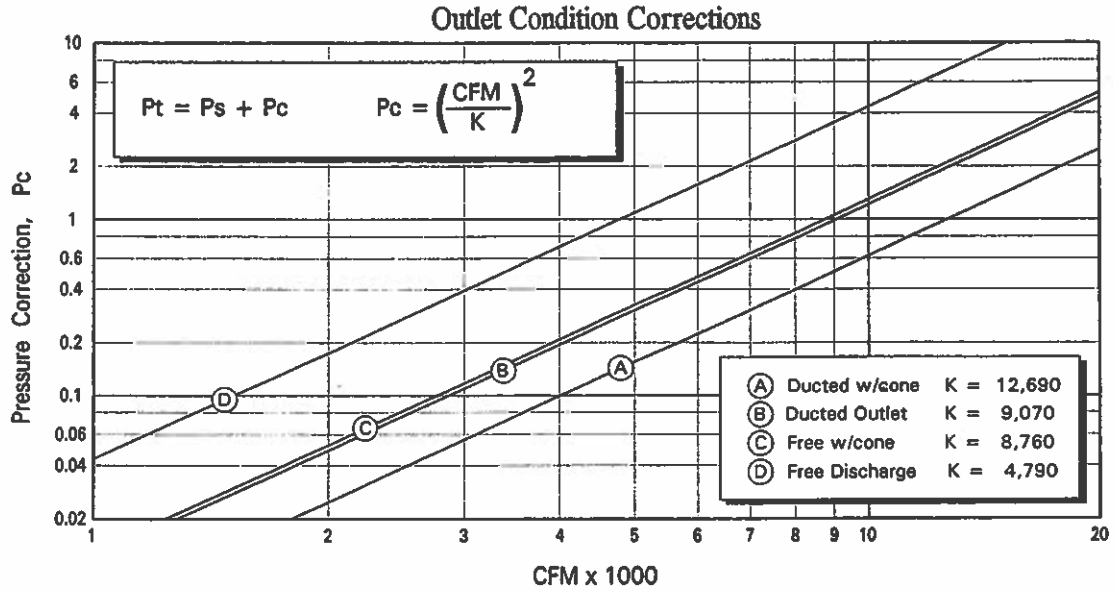


Performance shown is for Model VADI with inlet and outlet ducts.

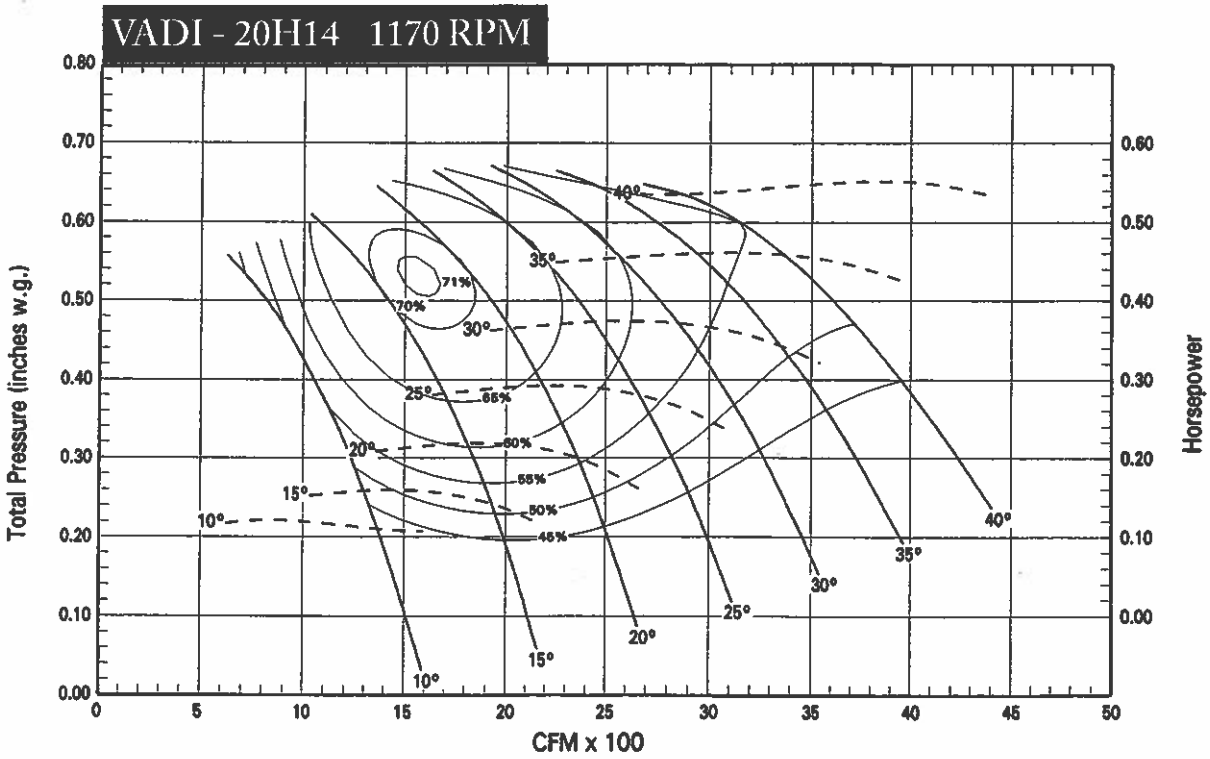
VADI- 20H14

Fan Outlet Area = 2.26 sq.ft.
Cone Outlet Area = 3.41 sq.ft.
Tip Speed = 5.32 x RPM

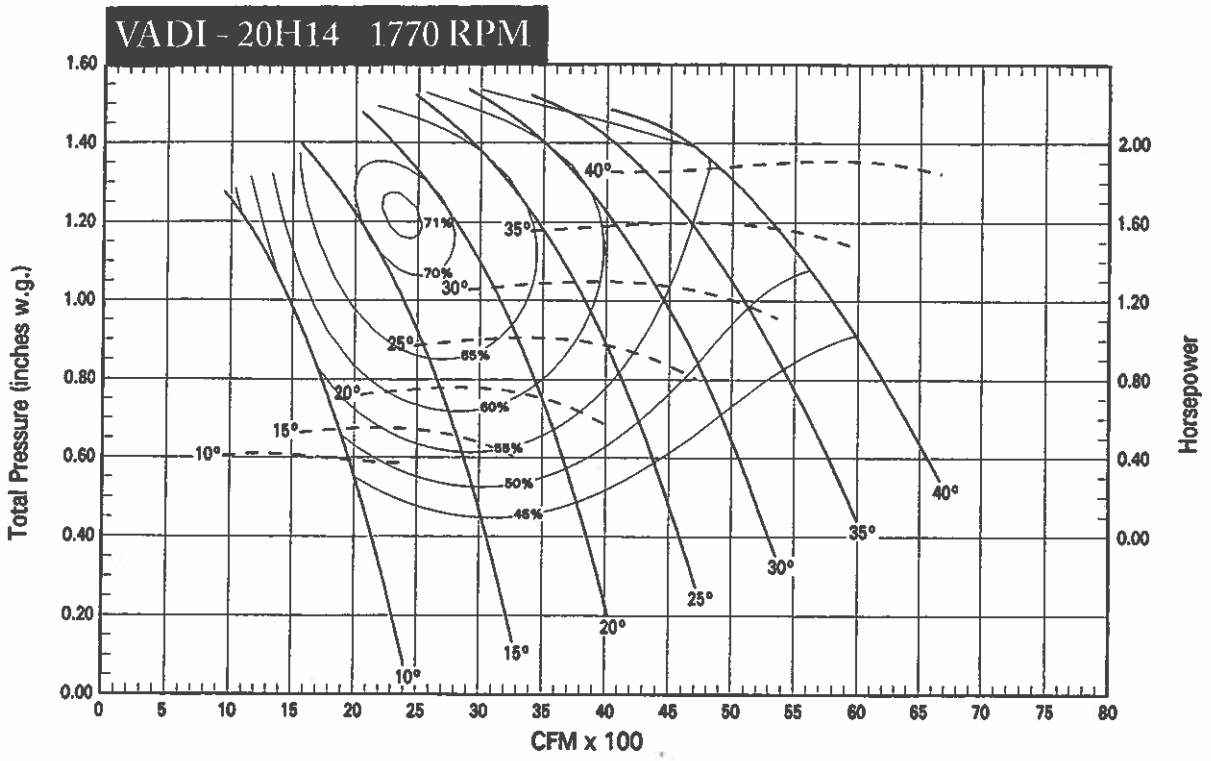
Minimum Motor Frame Size = 182T
Maximum Motor Frame Size = 256T



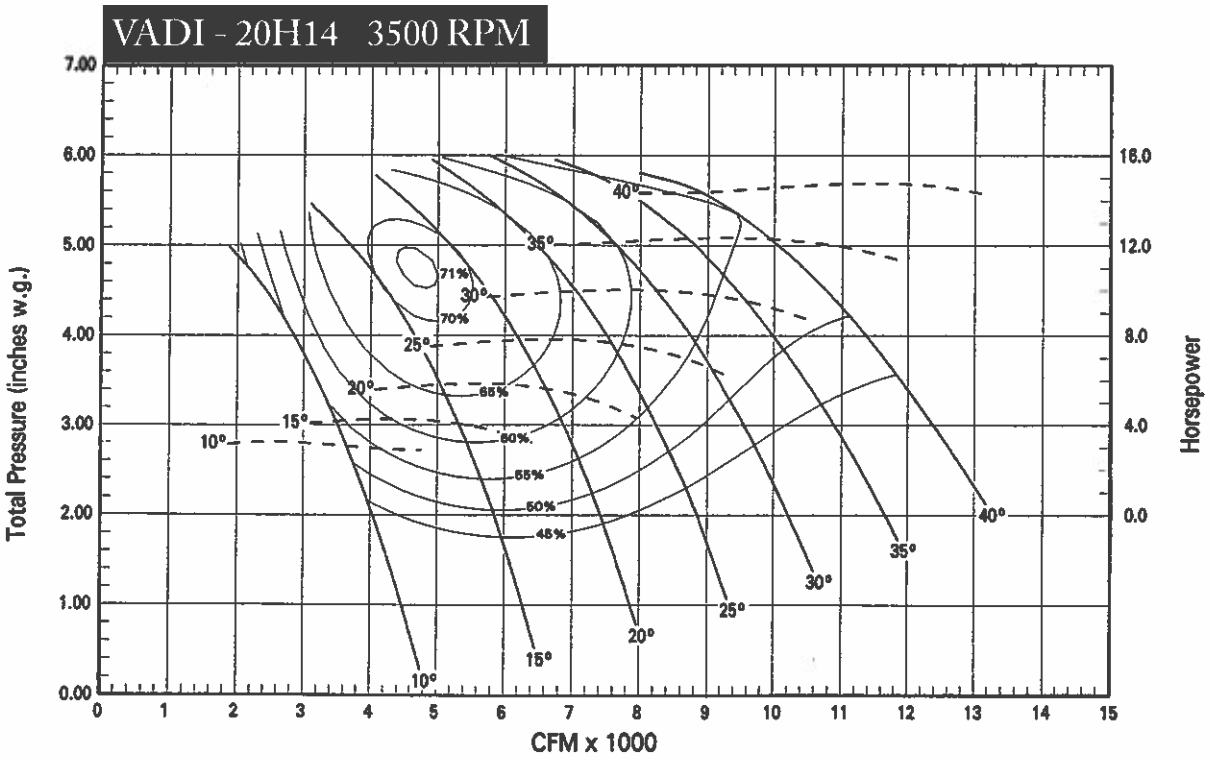
The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



Performance shown is for Model VADI with inlet and outlet ducts.



Performance shown is for Model VADI with inlet and outlet ducts.

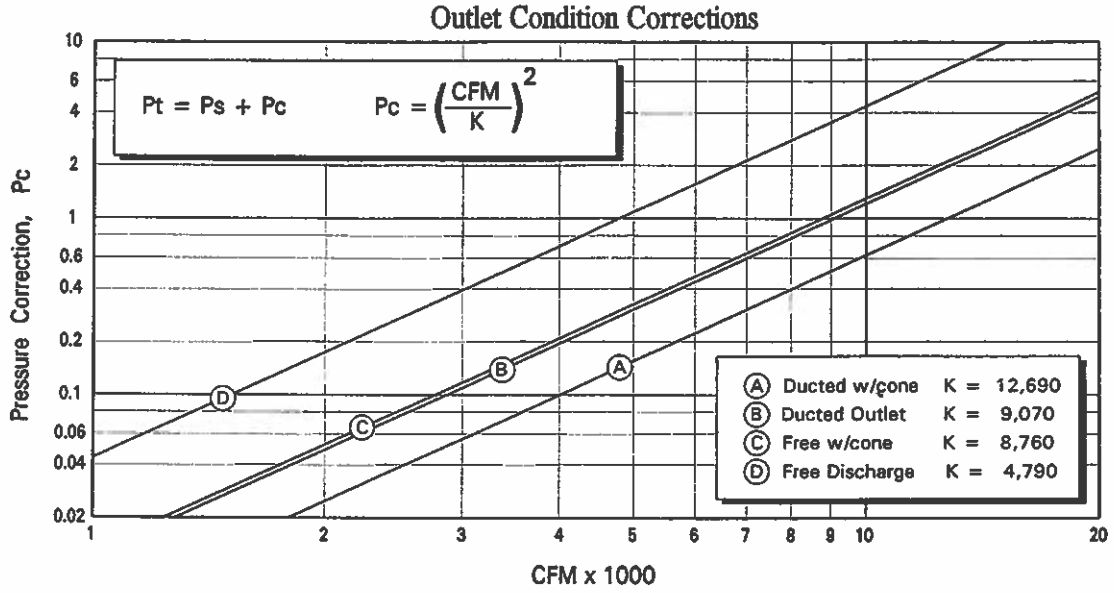


Performance shown is for Model VADI with inlet and outlet ducts.

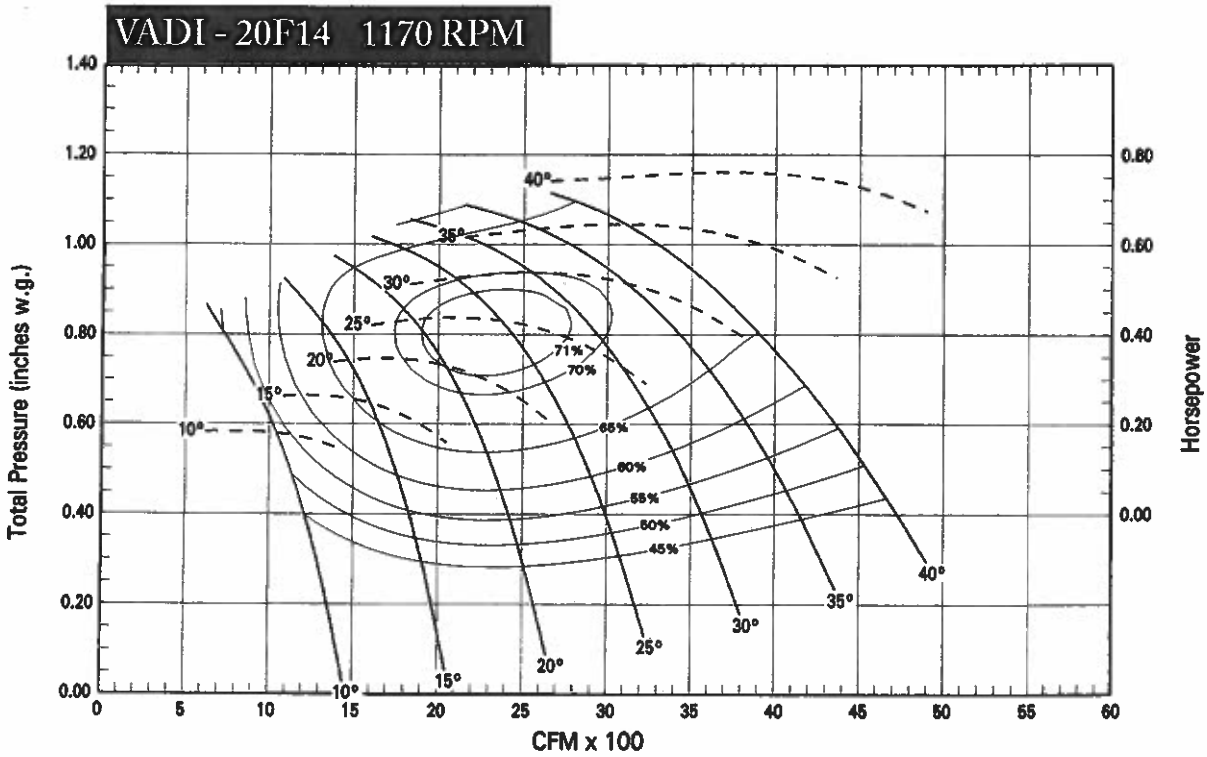
VADI- 20F14

Fan Outlet Area = 2.26 sq.ft.
Cone Outlet Area = 3.41 sq.ft.
Tip Speed = 5.32 x RPM

Minimum Motor Frame Size = 182T
Maximum Motor Frame Size = 256T

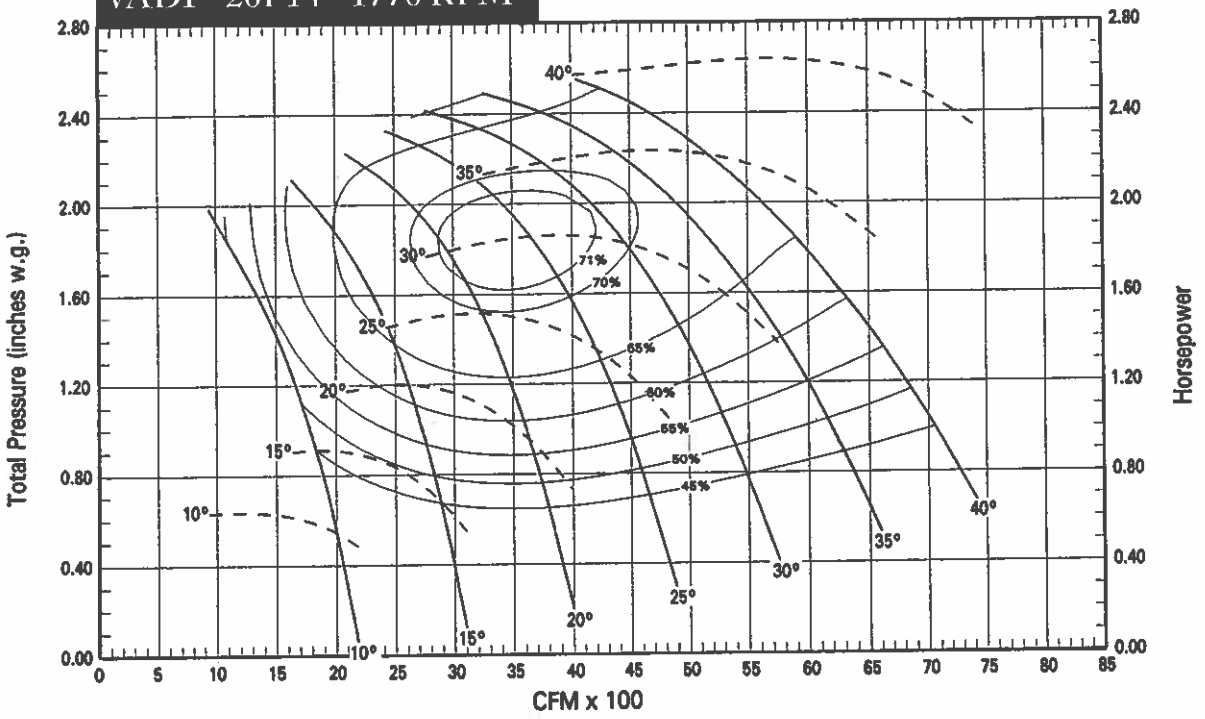


The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



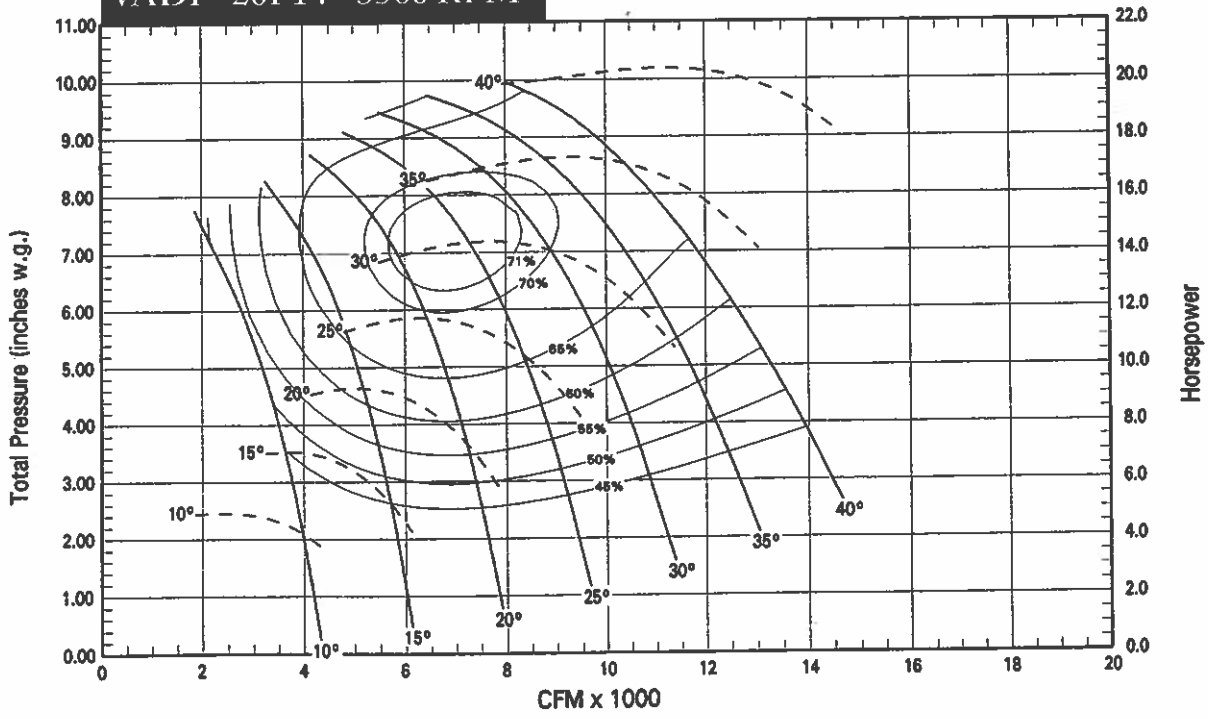
Performance shown is for Model VADI with inlet and outlet ducts.

VADI - 20F14 1770 RPM



Performance shown is for Model VADI with inlet and outlet ducts.

VADI - 20F14 3500 RPM

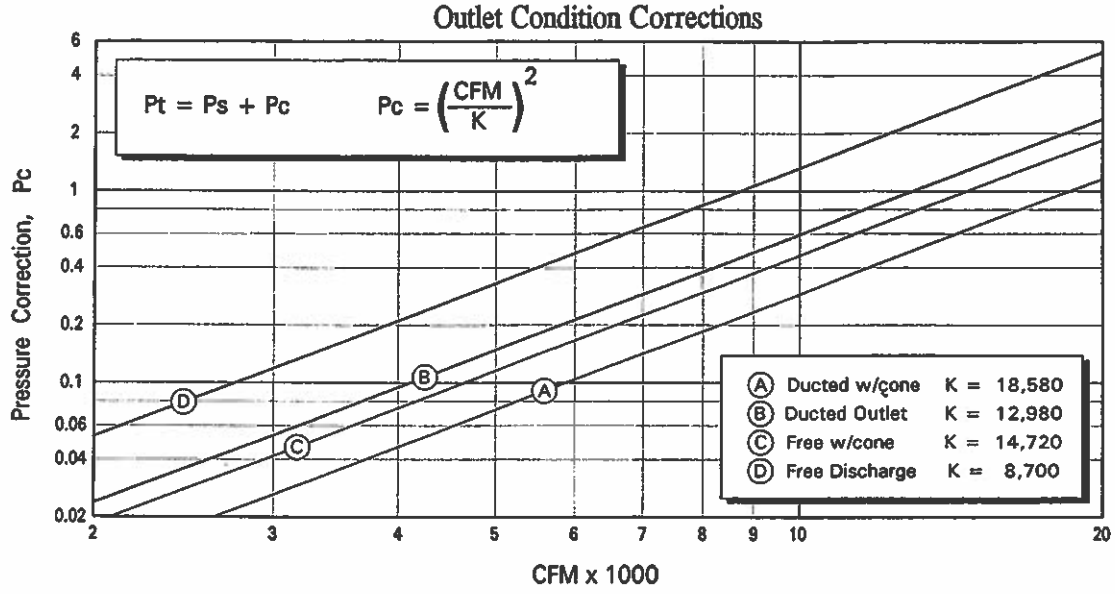


Performance shown is for Model VADI with inlet and outlet ducts.

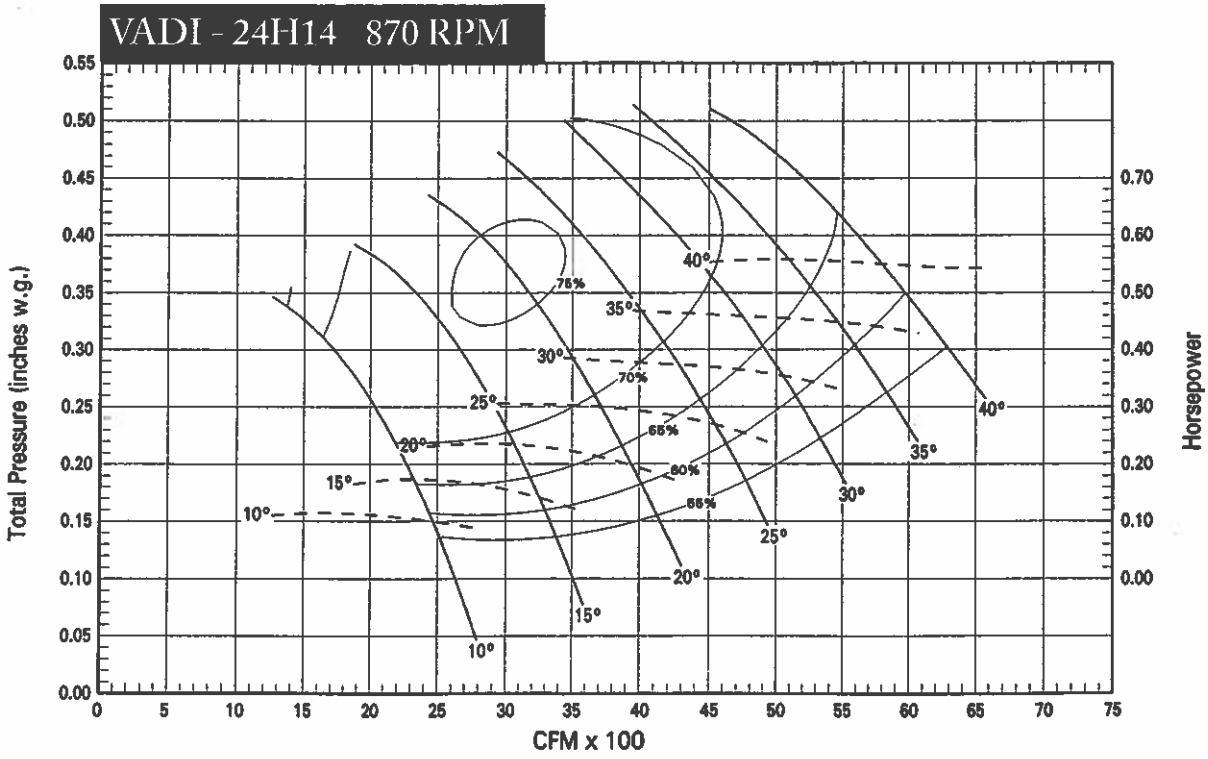
VADI-24H14

Fan Outlet Area = 3.24 sq.ft.
Cone Outlet Area = 5.03 sq.ft.
Tip Speed = 6.36 x RPM

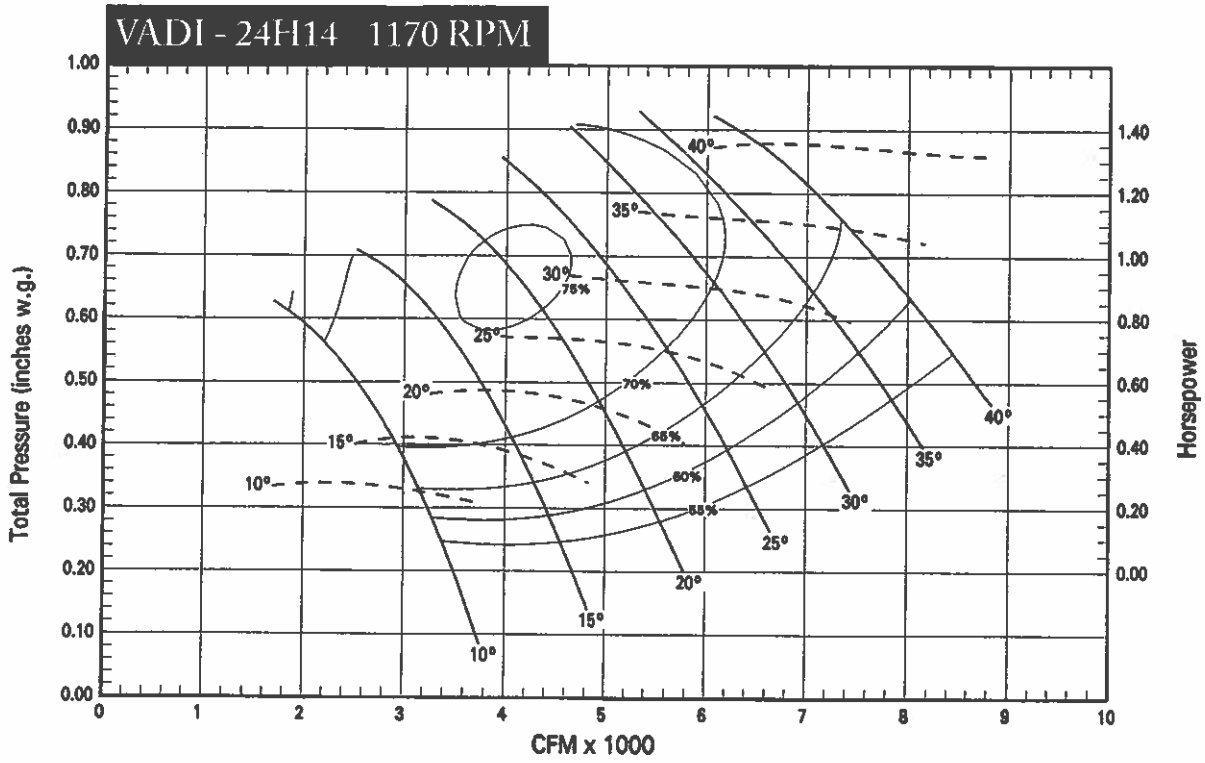
Minimum Motor Frame Size = 182T
Maximum Motor Frame Size = 256T



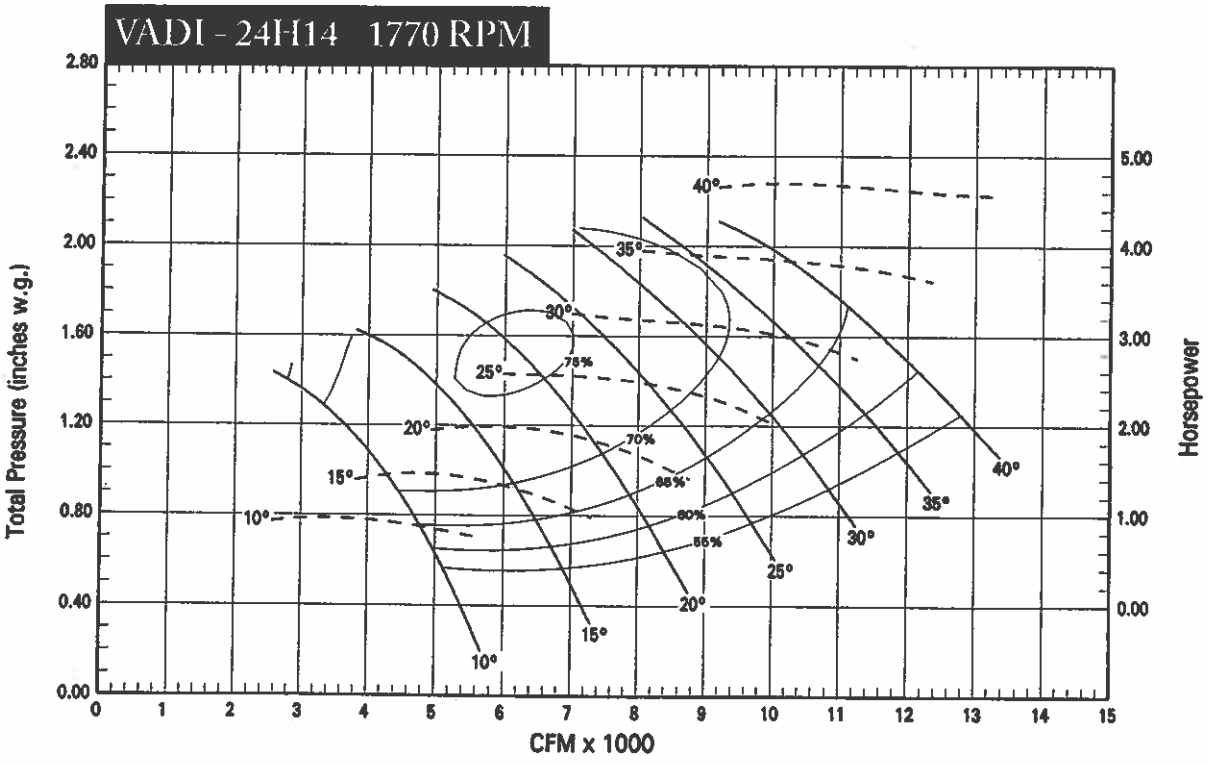
The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



Performance shown is for Model VADI with inlet and outlet ducts.



Performance shown is for Model VADI with inlet and outlet ducts.



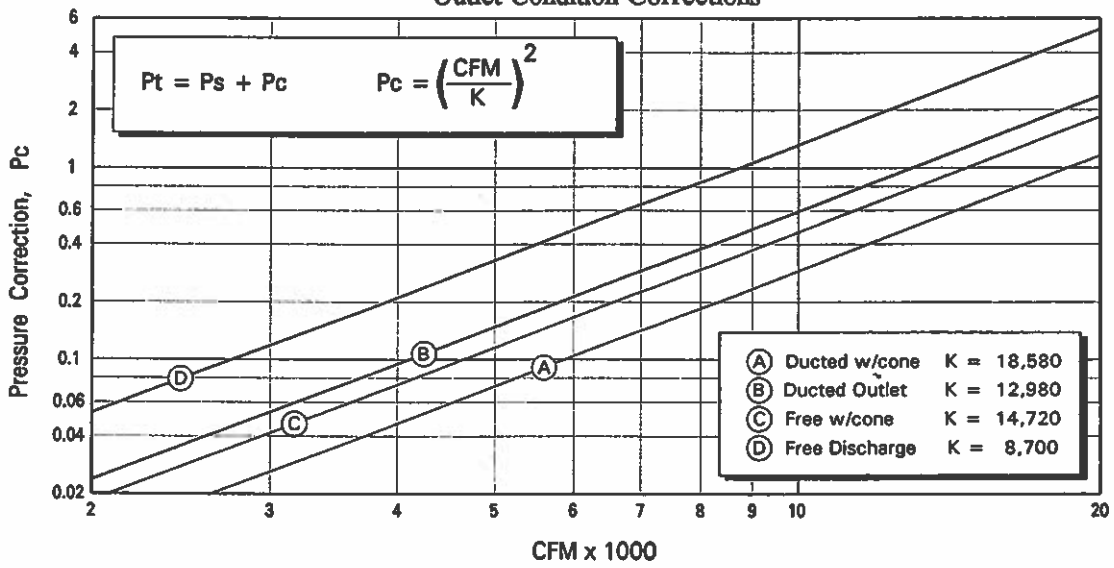
Performance shown is for Model VADI with inlet and outlet ducts.

VADI-24F14

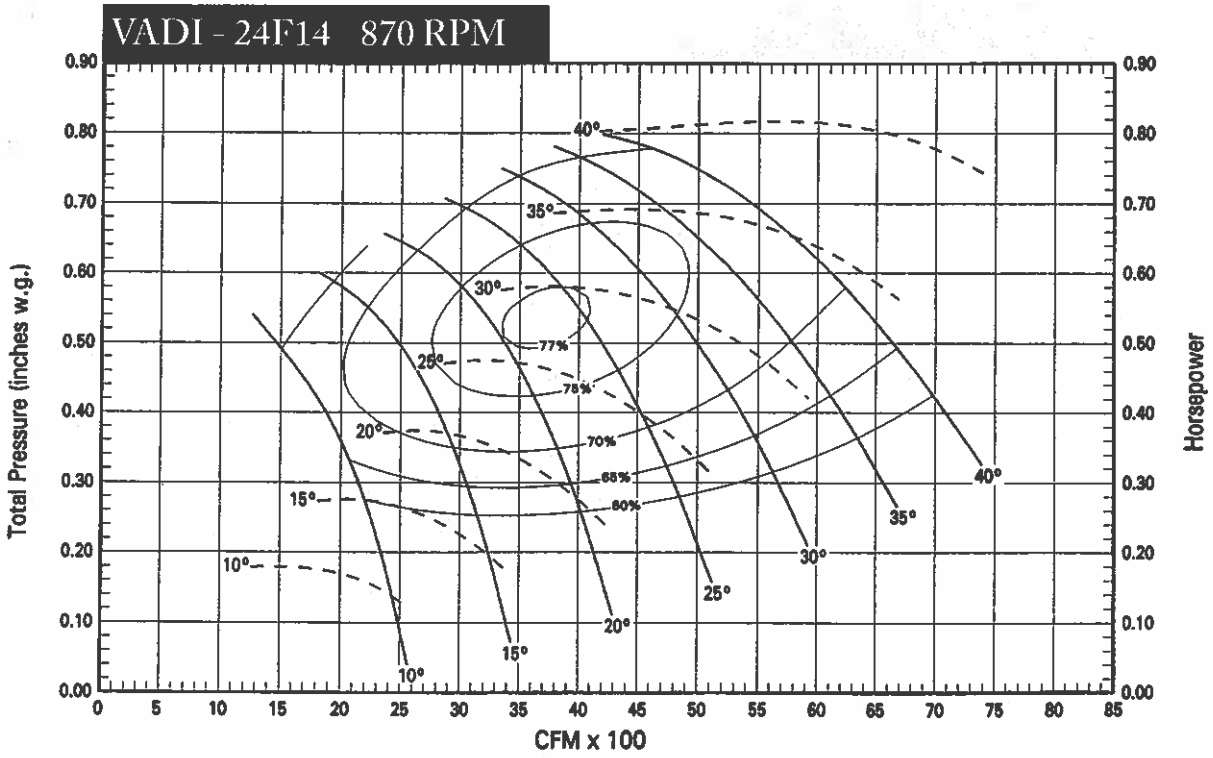
Fan Outlet Area = 3.24 sq.ft.
Cone Outlet Area = 5.03 sq.ft.
Tip Speed = 6.36 x RPM

Minimum Motor Frame Size = 182T
Maximum Motor Frame Size = 256T

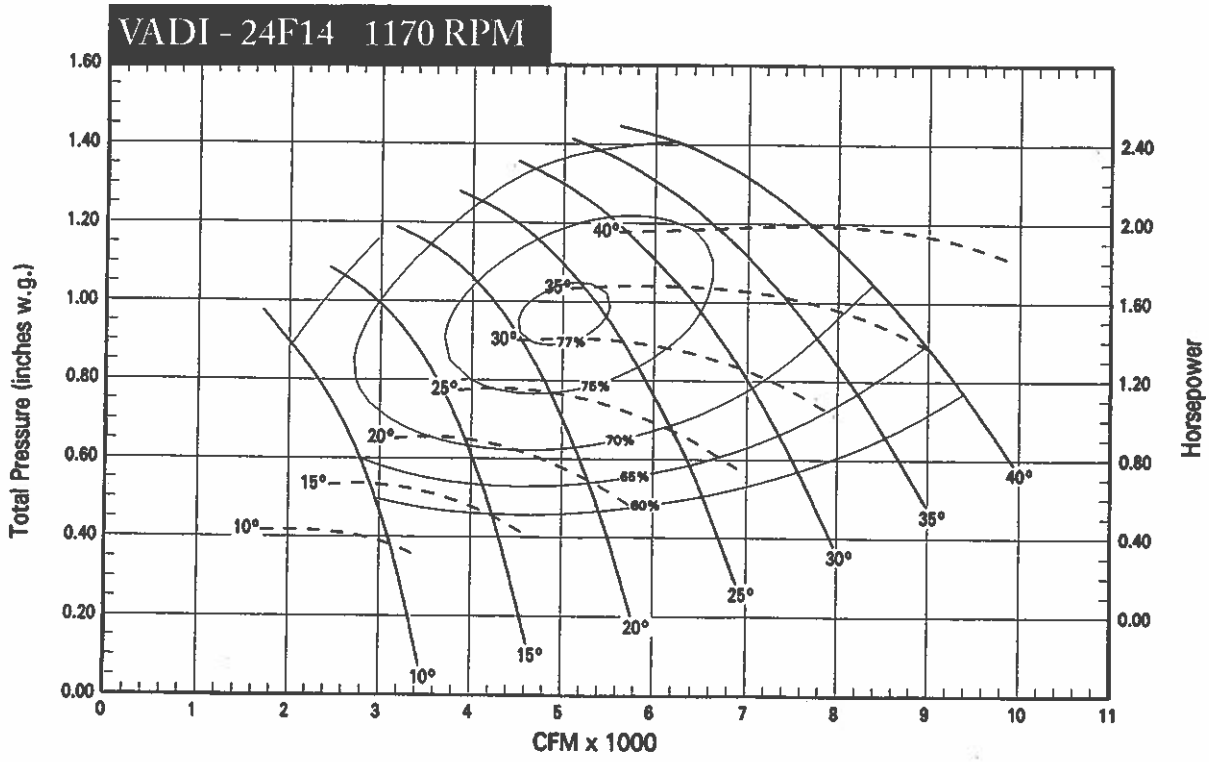
Outlet Condition Corrections



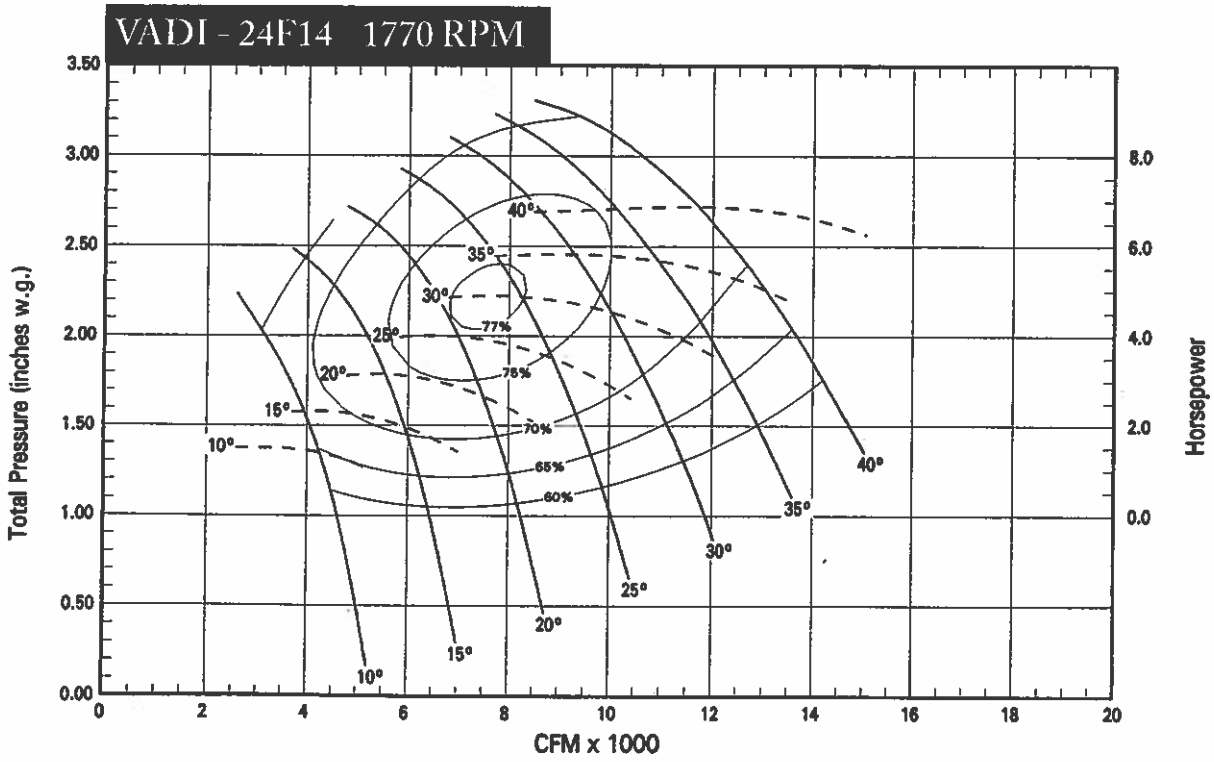
The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



Performance shown is for Model VADI with inlet and outlet ducts.



Performance shown is for Model VADI with inlet and outlet ducts.



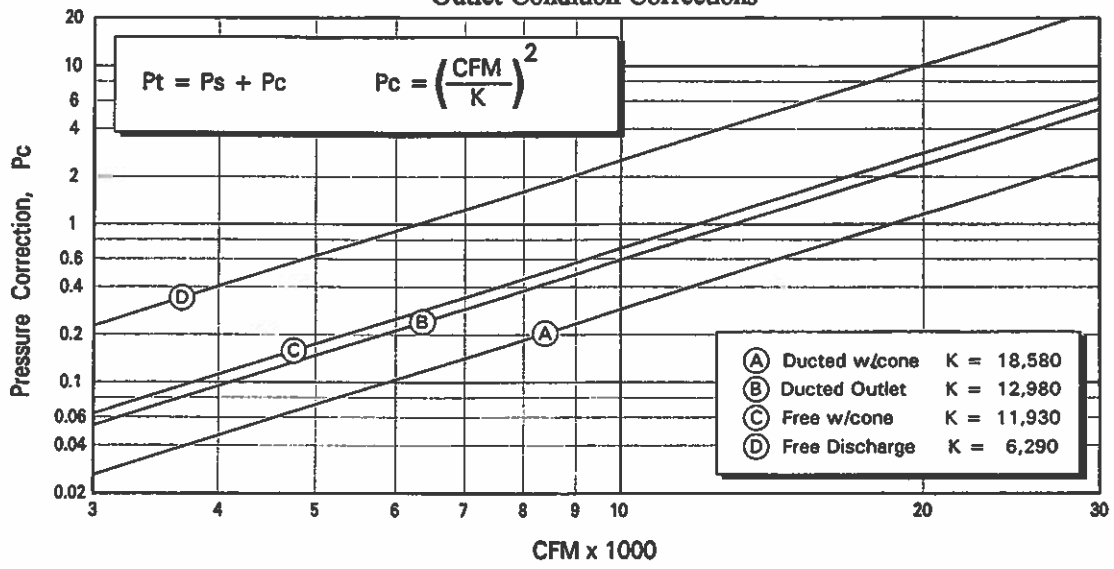
Performance shown is for Model VADI with inlet and outlet ducts.

VADI/VRDI- 24F17

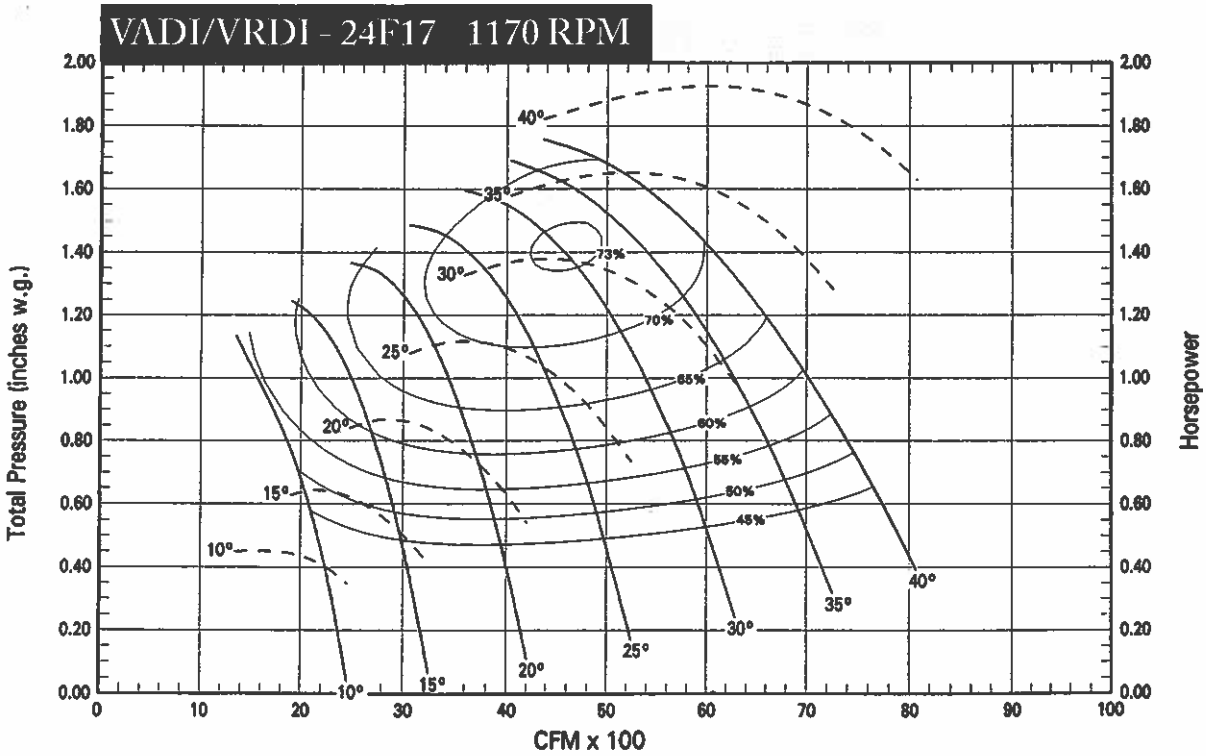
Fan Outlet Area = 3.24 sq.ft.
Cone Outlet Area = 5.03 sq.ft.
Tip Speed = 6.36 x RPM
Minimum Blade Angle for VRDI = 2 deg.

Minimum Frame Size for VADI = 182T
Minimum Frame Size for VRDI = 213T
Maximum Motor Frame Size = 286T (TEAO)
326T (ODP)

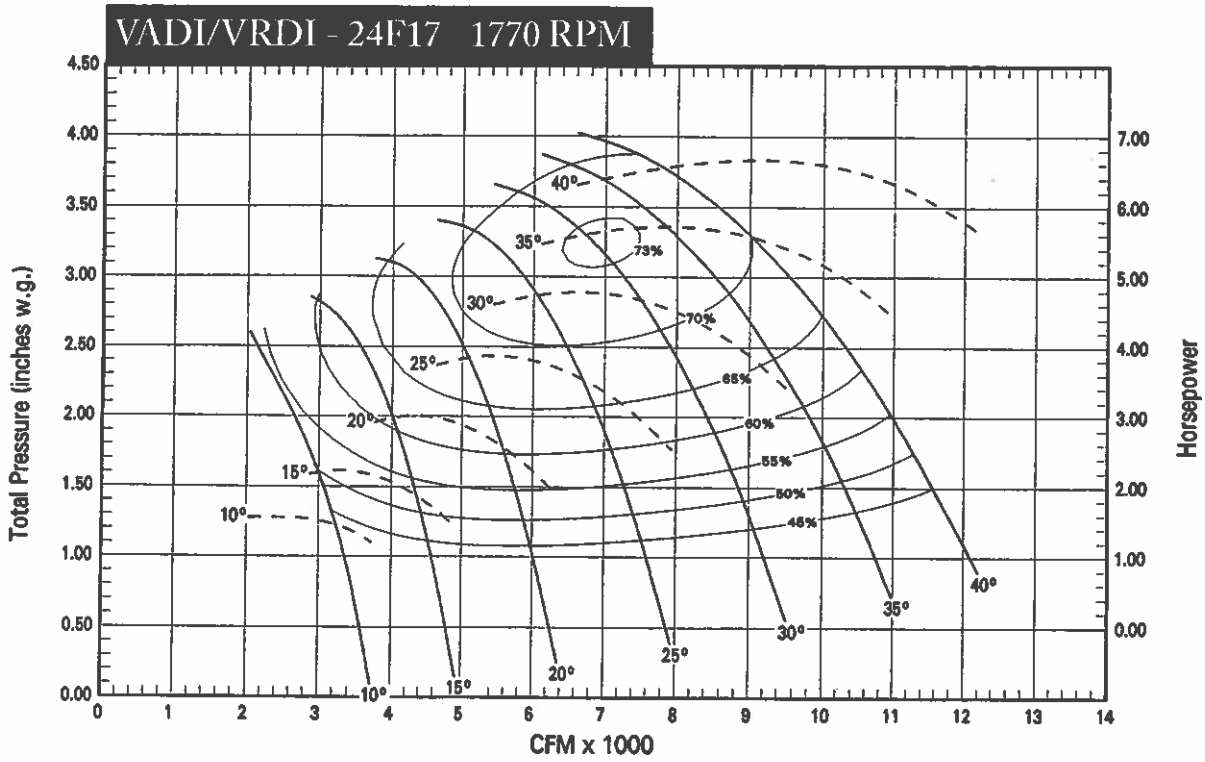
Outlet Condition Corrections



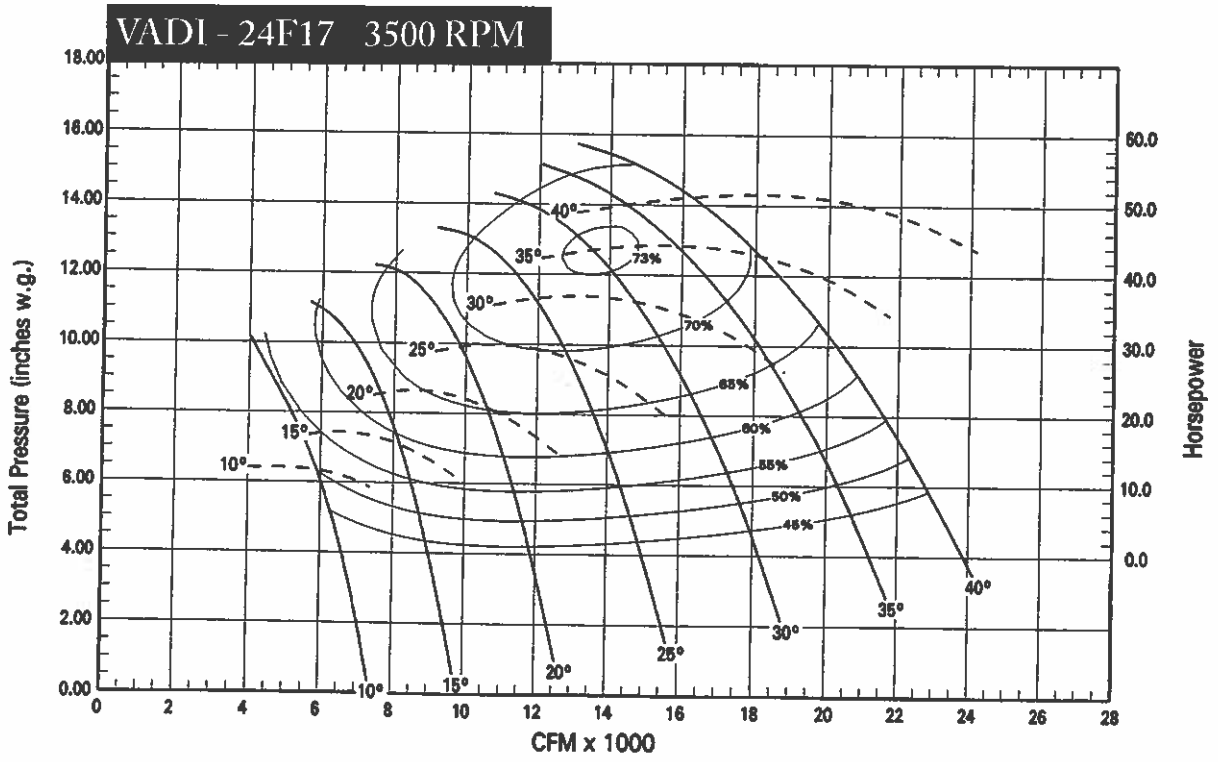
The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



Performance shown is for Model VADI/VRDI with inlet and outlet ducts.



Performance shown is for Model VADI/VRDI with inlet and outlet ducts.



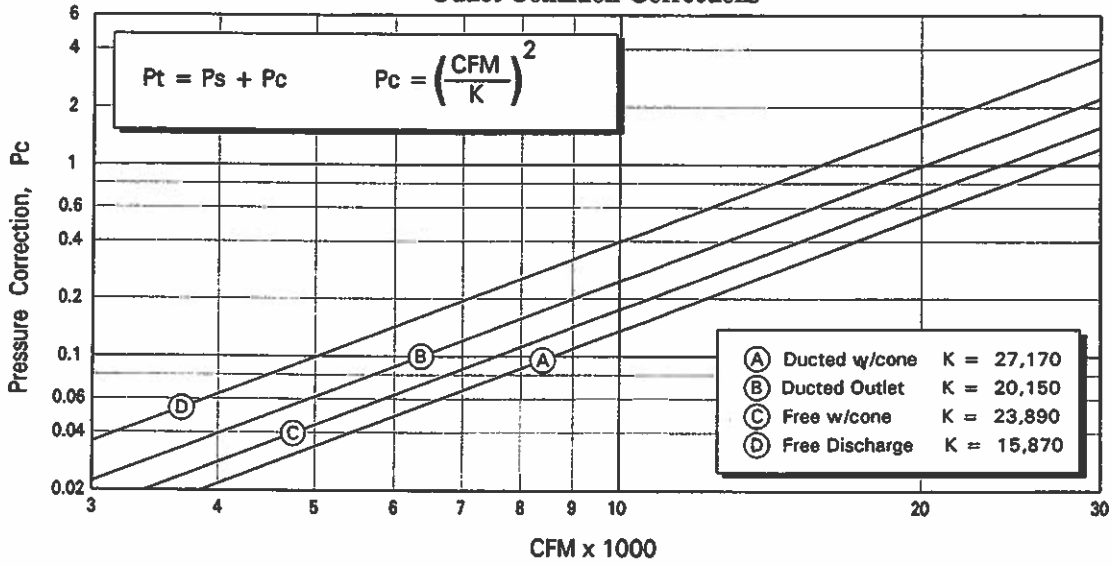
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI- 30H14

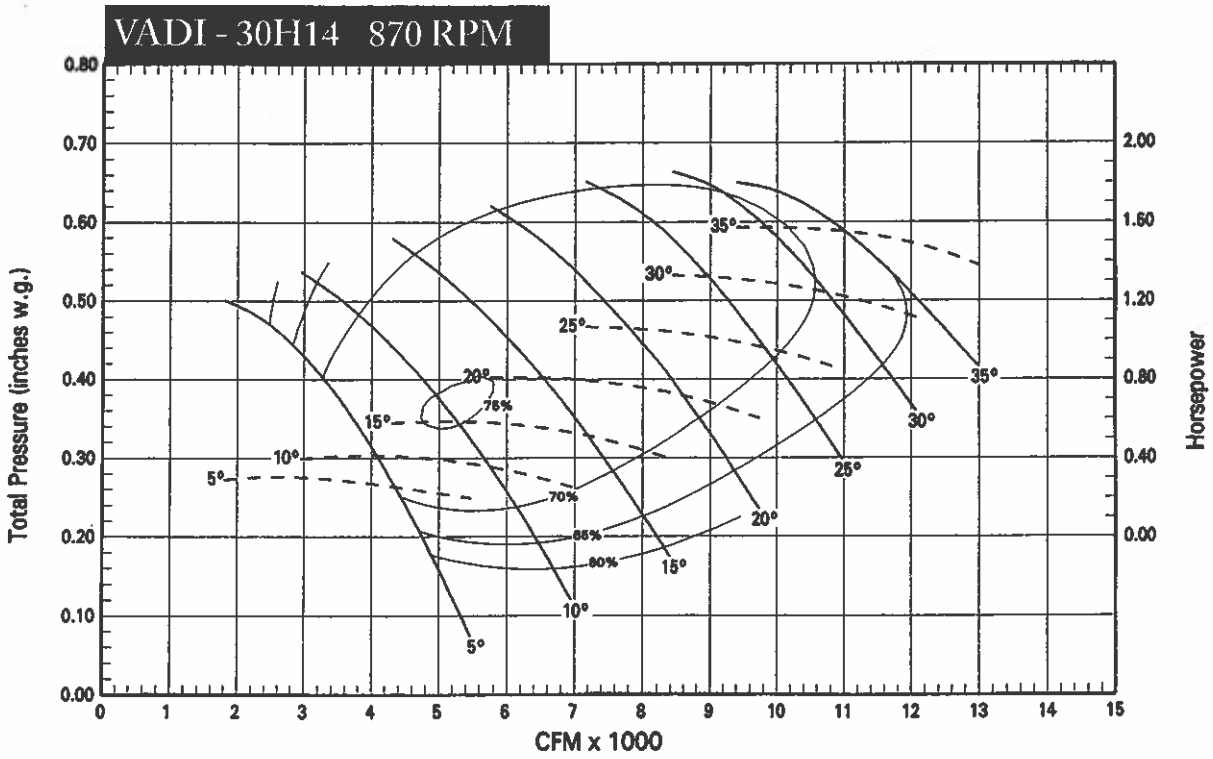
Fan Outlet Area = 5.03 sq.ft.
Cone Outlet Area = 7.22 sq.ft.
Tip Speed = 7.92 x RPM

Minimum Motor Frame Size = 182T
Maximum Motor Frame Size = 256T

Outlet Condition Corrections

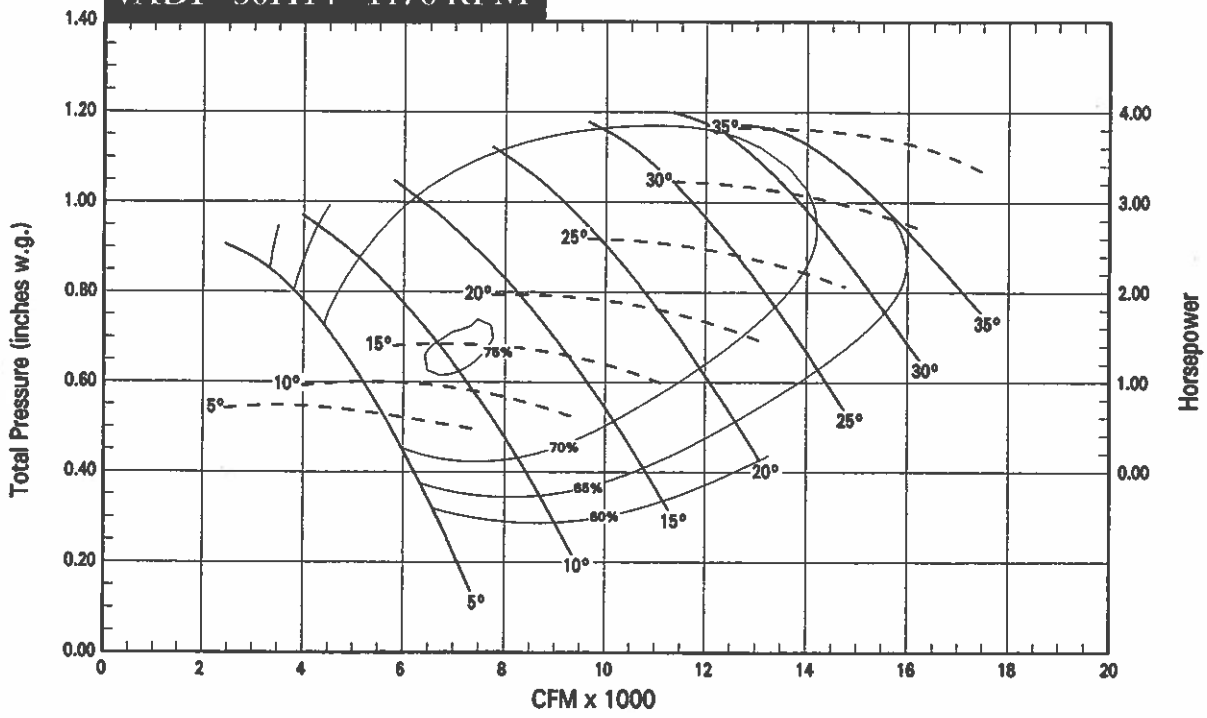


The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



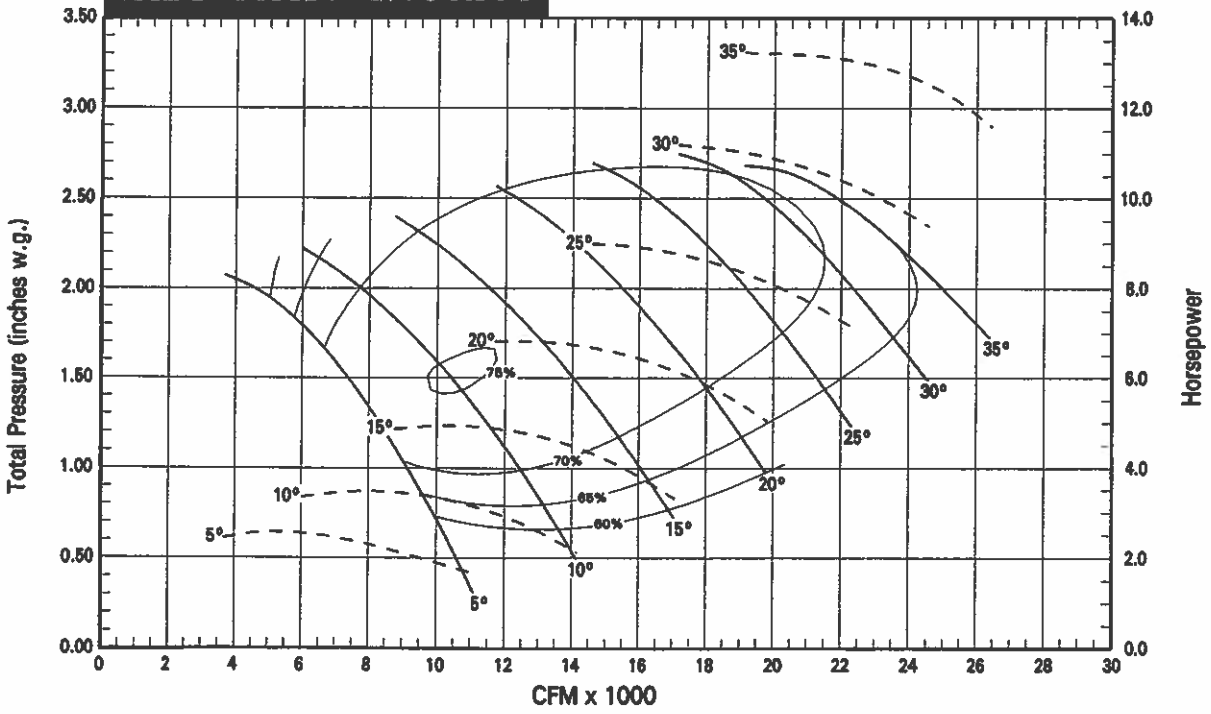
Performance shown is for Model VADI with inlet and outlet ducts.

VADI - 30H14 1170 RPM



Performance shown is for Model VADI with inlet and outlet ducts.

VADI - 30H14 1770 RPM

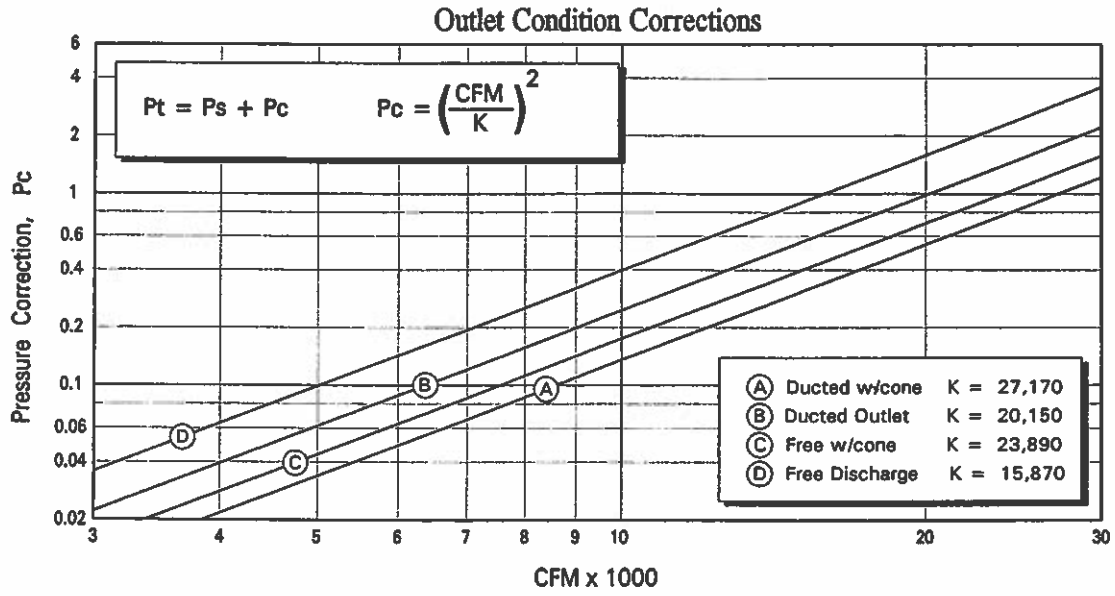


Performance shown is for Model VADI with inlet and outlet ducts.

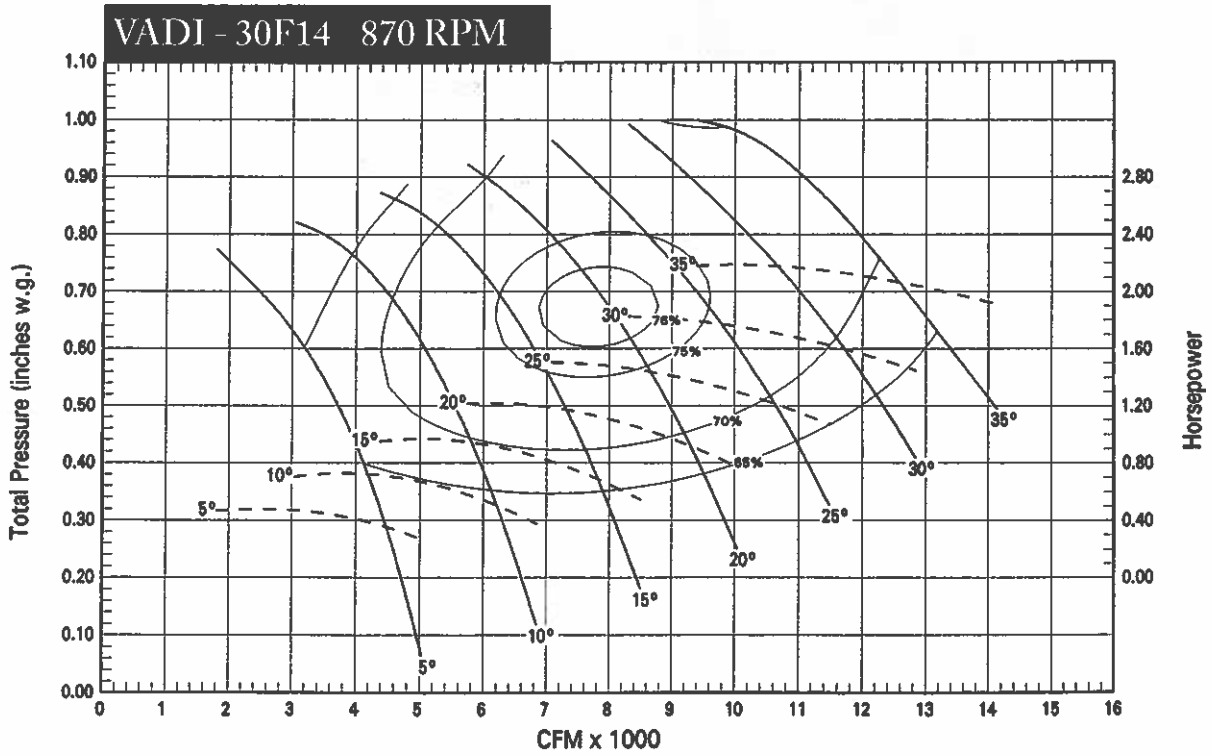
VADI- 30F14

Fan Outlet Area = 5.03 sq.ft.
Cone Outlet Area = 7.22 sq.ft.
Tip Speed = 7.92 x RPM

Minimum Motor Frame Size = 182T
Maximum Motor Frame Size = 256T

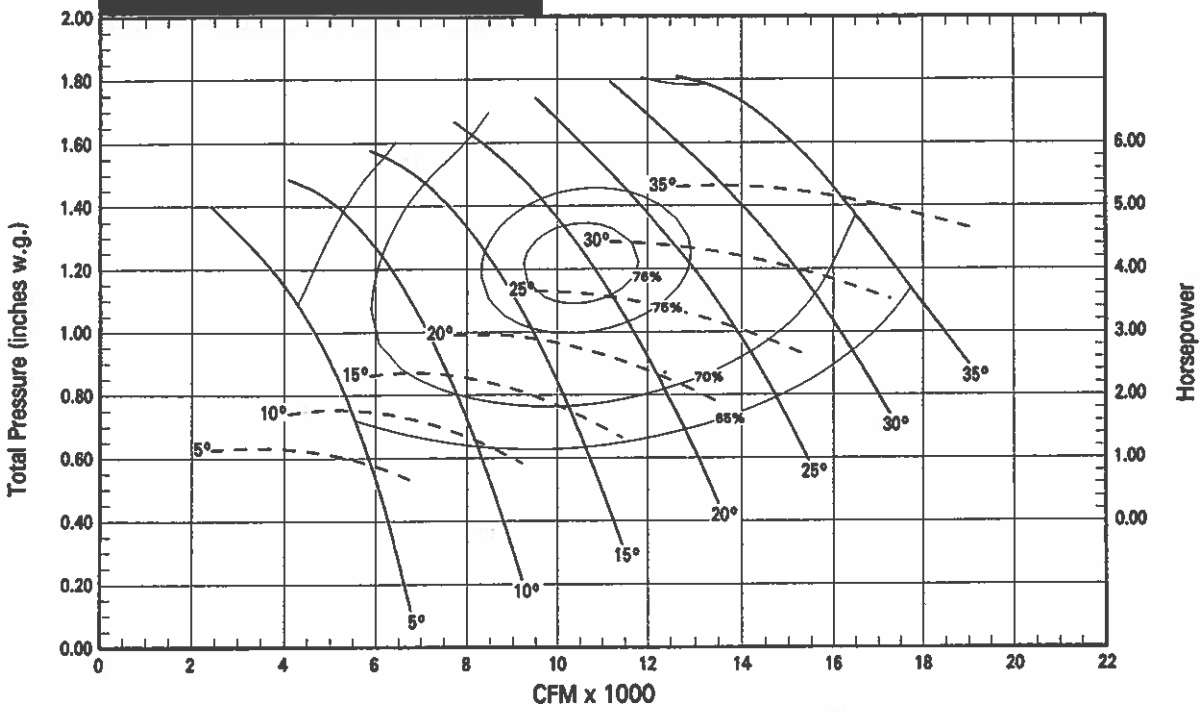


The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



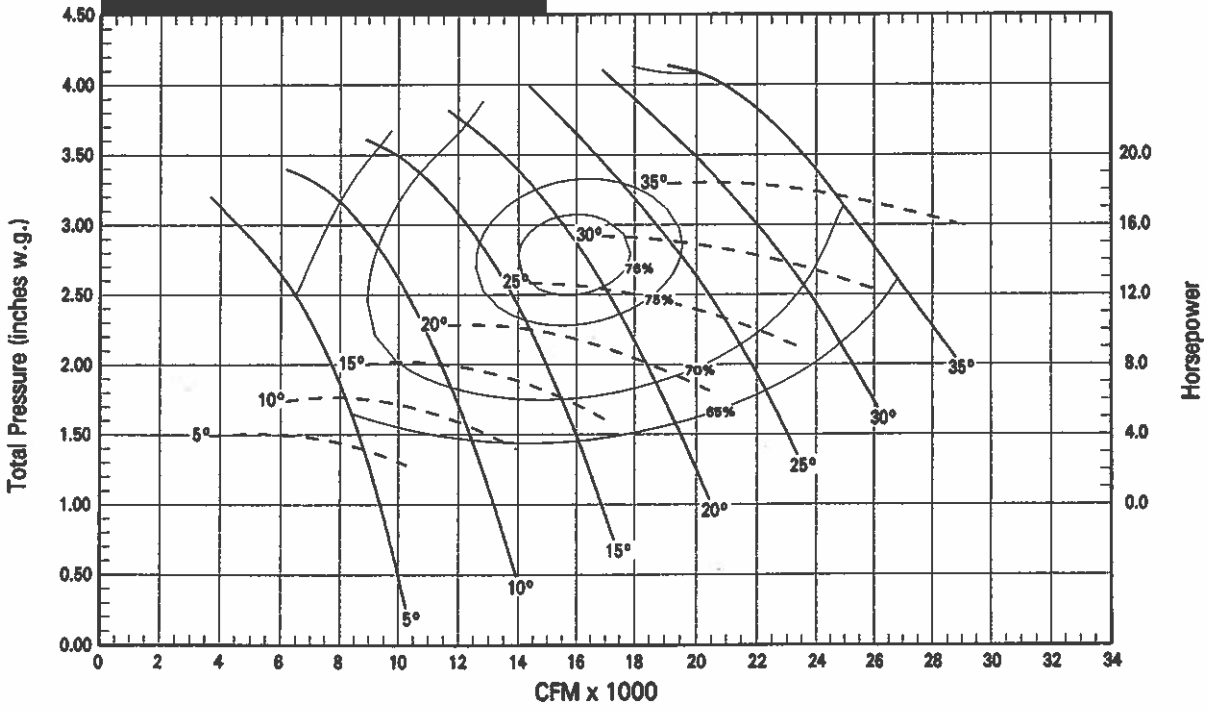
Performance shown is for Model VADI with inlet and outlet ducts.

VADI - 30F14 1170 RPM



Performance shown is for Model VADI with inlet and outlet ducts.

VADI - 30F14 1770 RPM



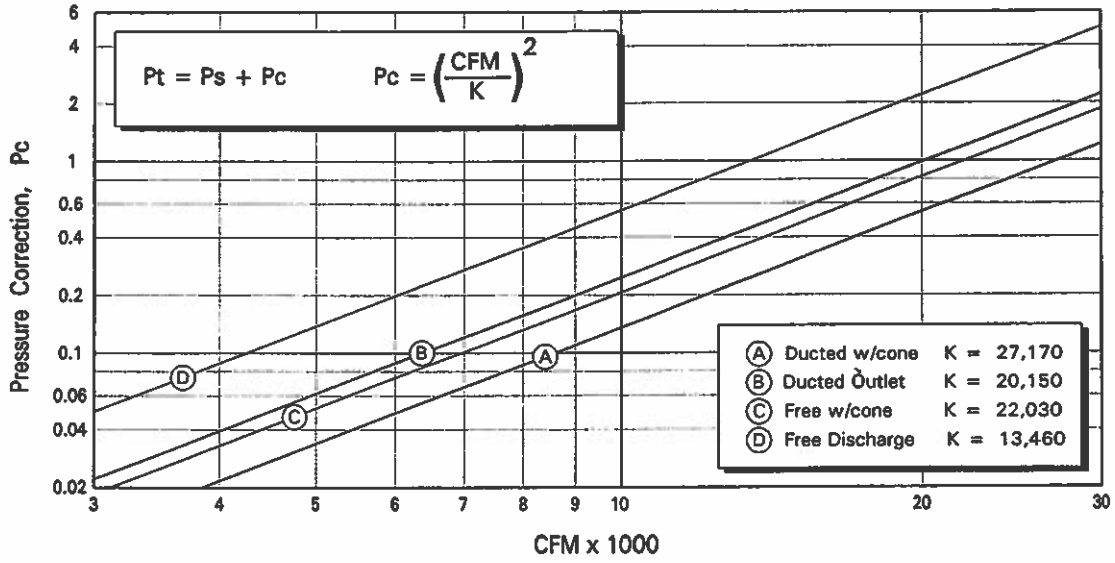
Performance shown is for Model VADI with inlet and outlet ducts.

VADI/VRDI-30F17

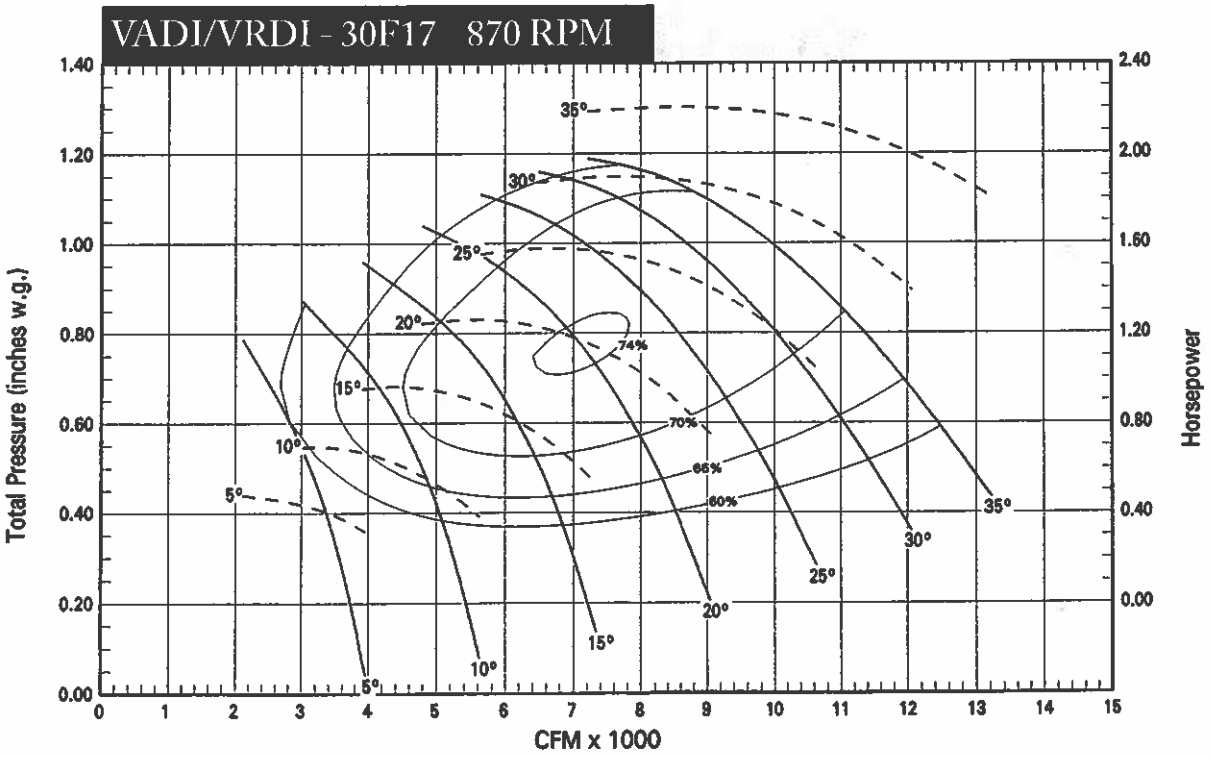
Fan Outlet Area = 5.03 sq.ft.
Cone Outlet Area = 7.22 sq.ft.
Tip Speed = 7.92 x RPM
Minimum Blade Angle for VRDI = 0 deg.

Minimum Frame Size for VADI = 182T
Minimum Frame Size for VRDI = 213T
Maximum Motor Frame Size = 286T (TEAO)
326T (ODP)

Outlet Condition Corrections

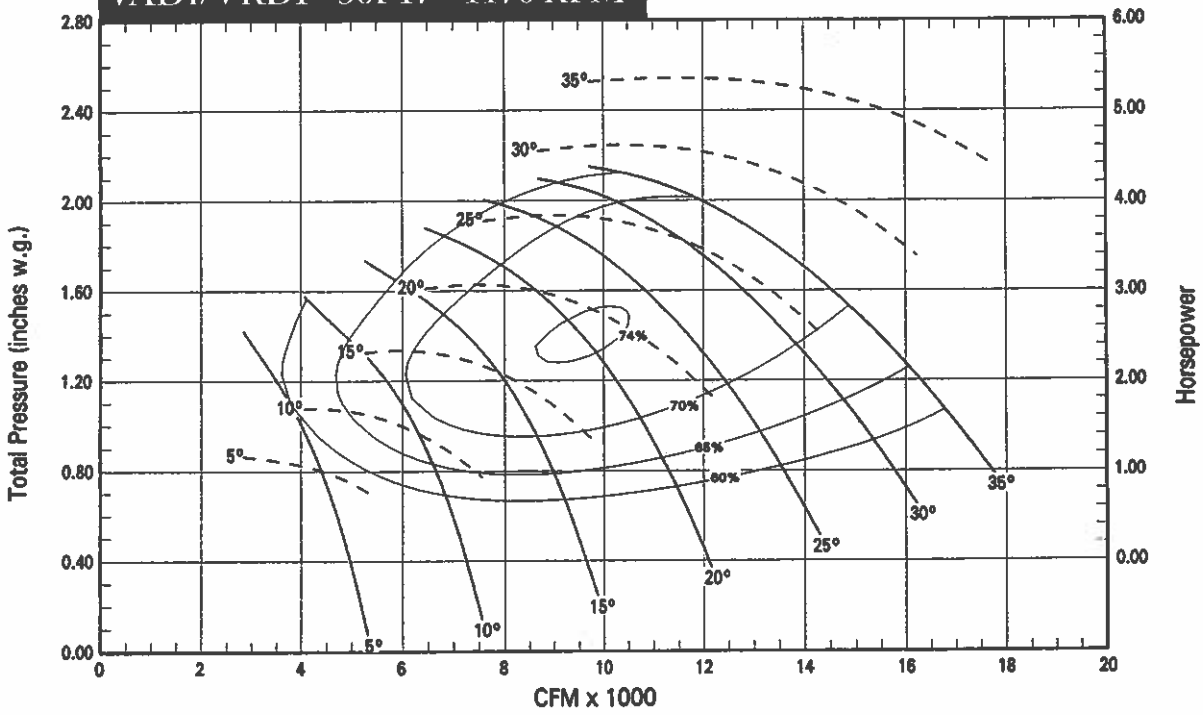


The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



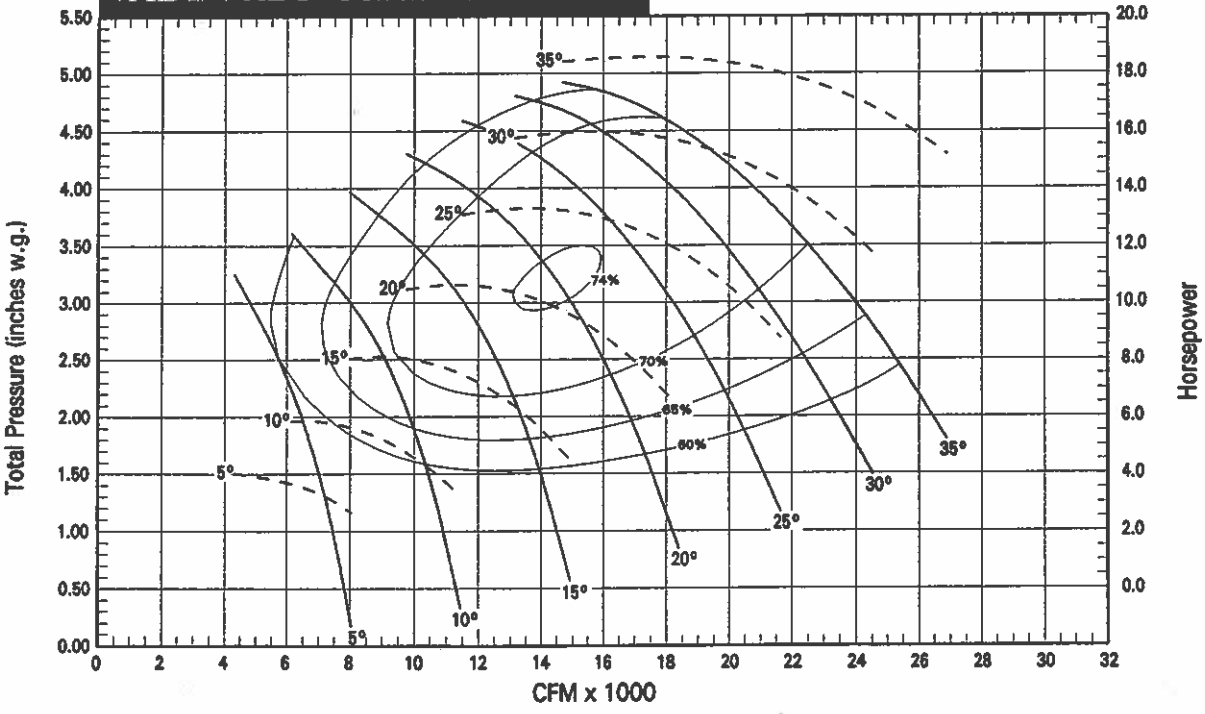
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 30F17 1170 RPM



Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 30F17 1770 RPM



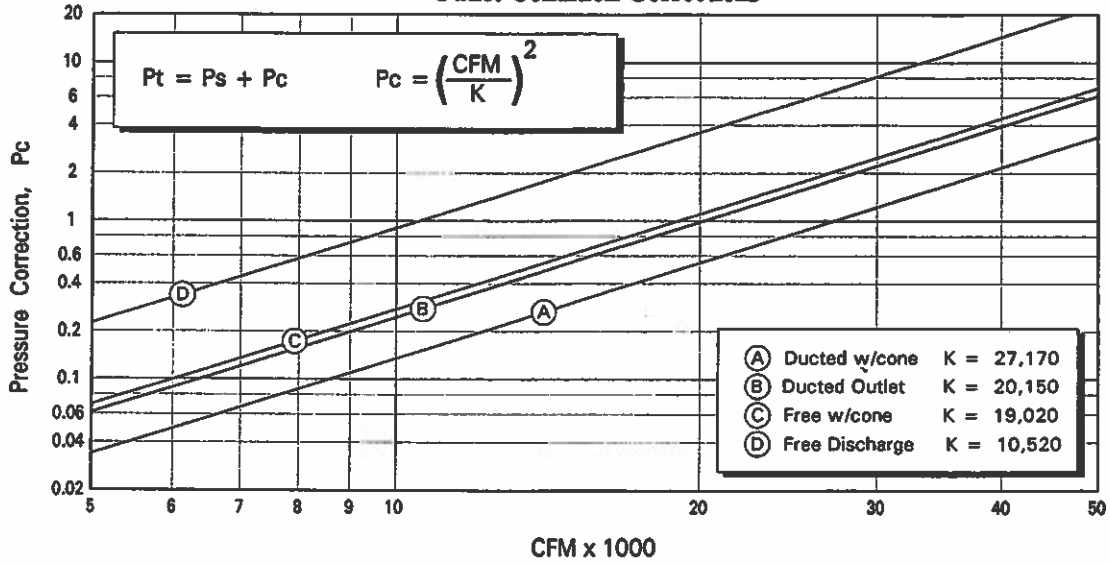
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI- 30F21

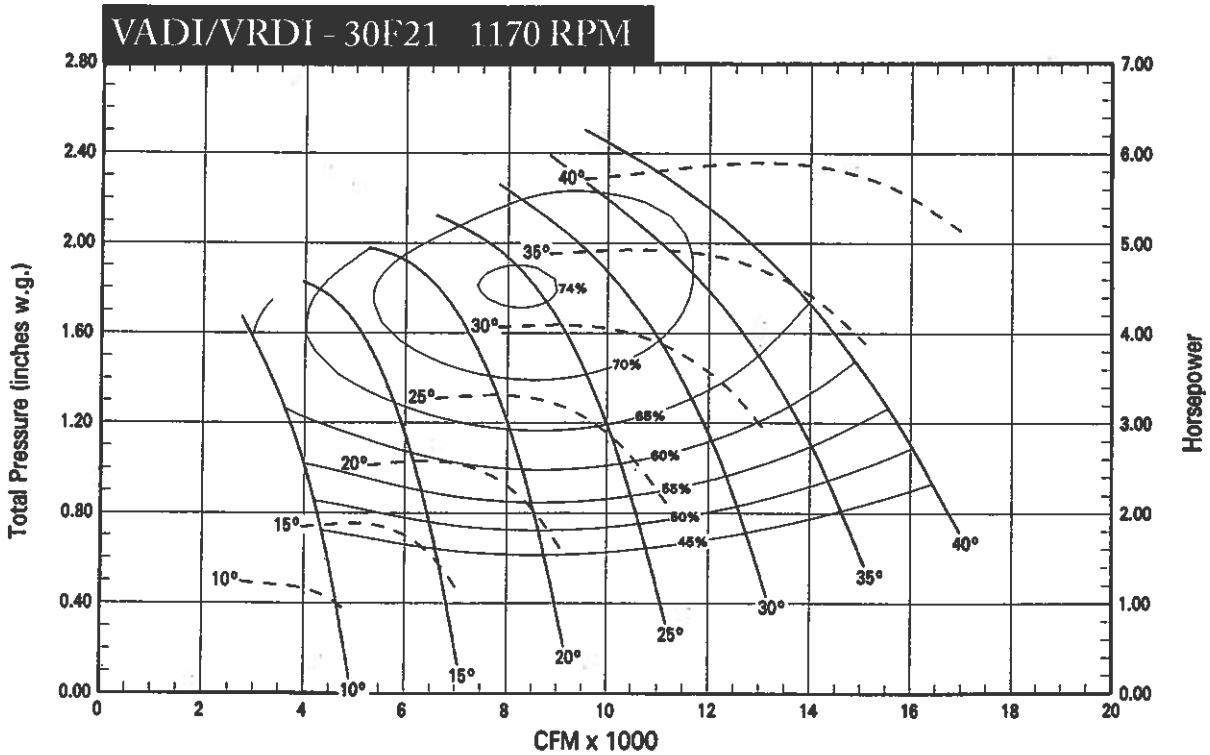
Fan Outlet Area = 5.03 sq.ft.
Cone Outlet Area = 7.22 sq.ft.
Tip Speed = 7.92 x RPM
Minimum Blade Angle for VRDI = 4 deg.

Minimum Frame Size for VADI = 182T
Minimum Frame Size for VRDI = 213T
Maximum Motor Frame Size = 365T

Outlet Condition Corrections

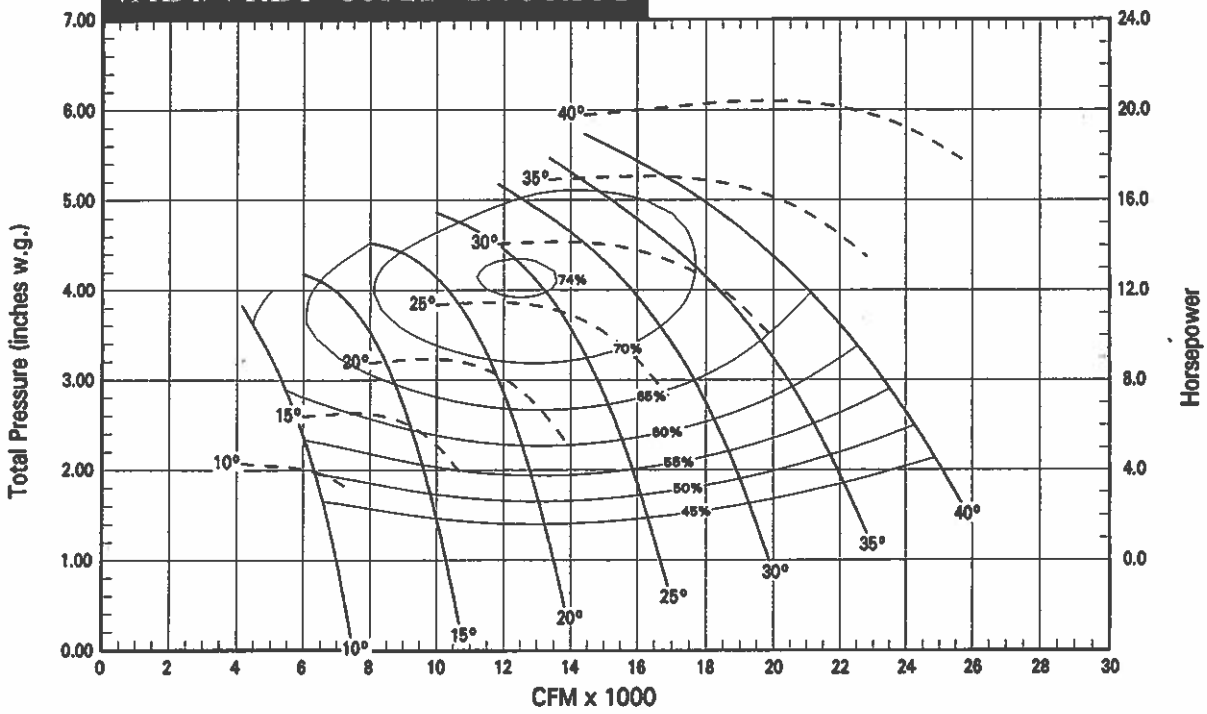


The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



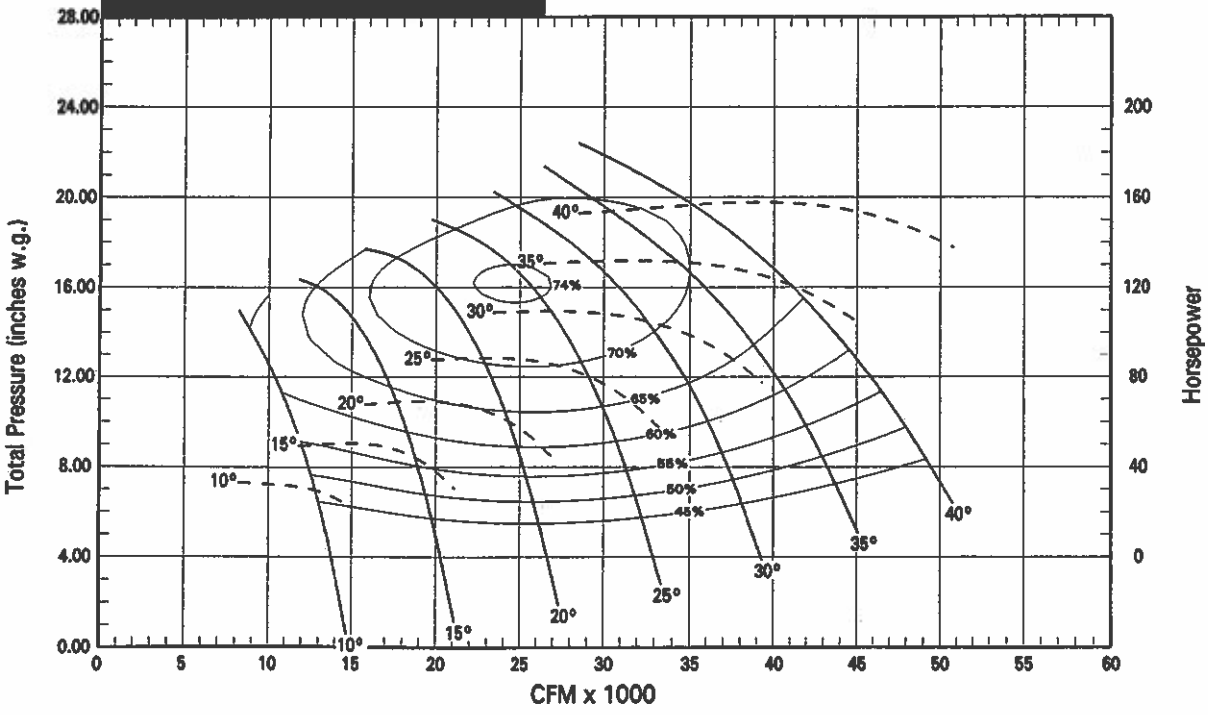
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 30F21 1770 RPM



Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI - 30F21 3500 RPM



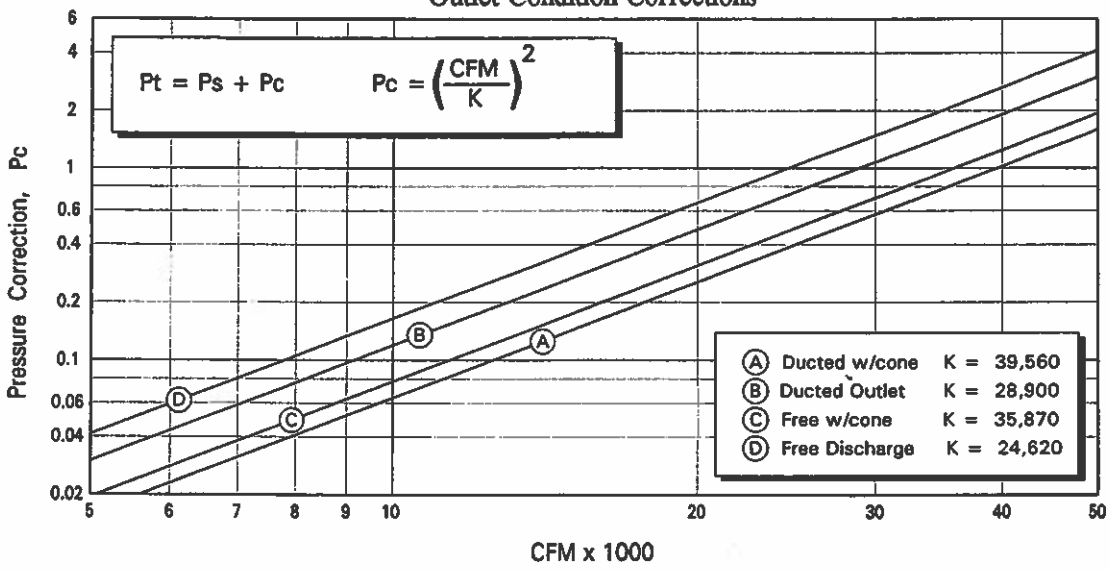
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI - 36H14

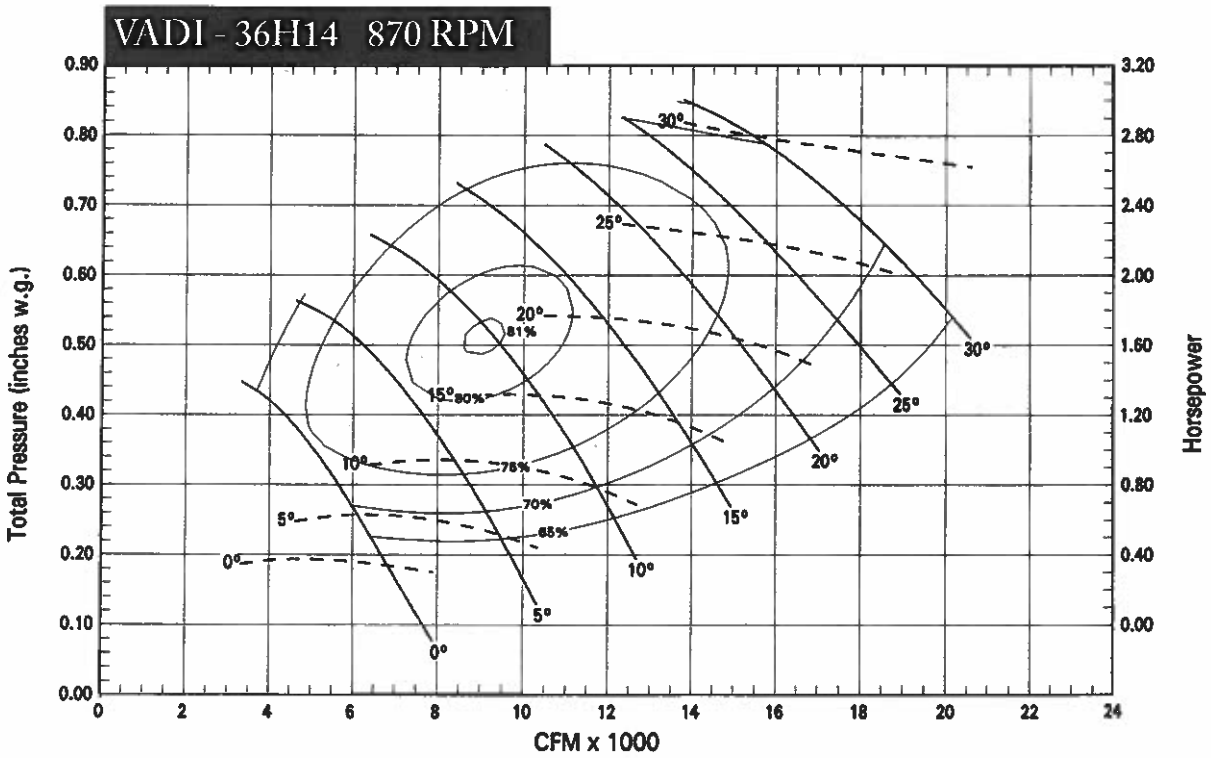
Fan Outlet Area = 7.22 sq.ft.
Cone Outlet Area = 10.56 sq.ft.
Tip Speed = 9.49 x RPM

Minimum Motor Frame Size = 182T
Maximum Motor Frame Size = 256T

Outlet Condition Corrections

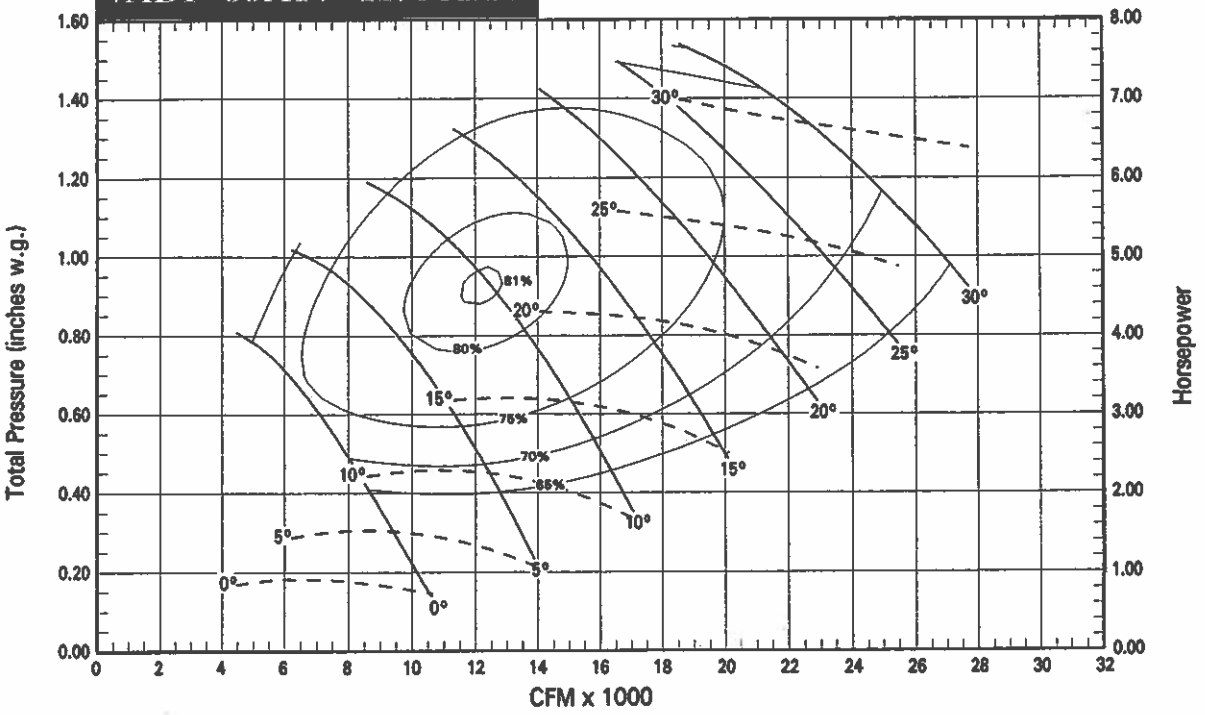


The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



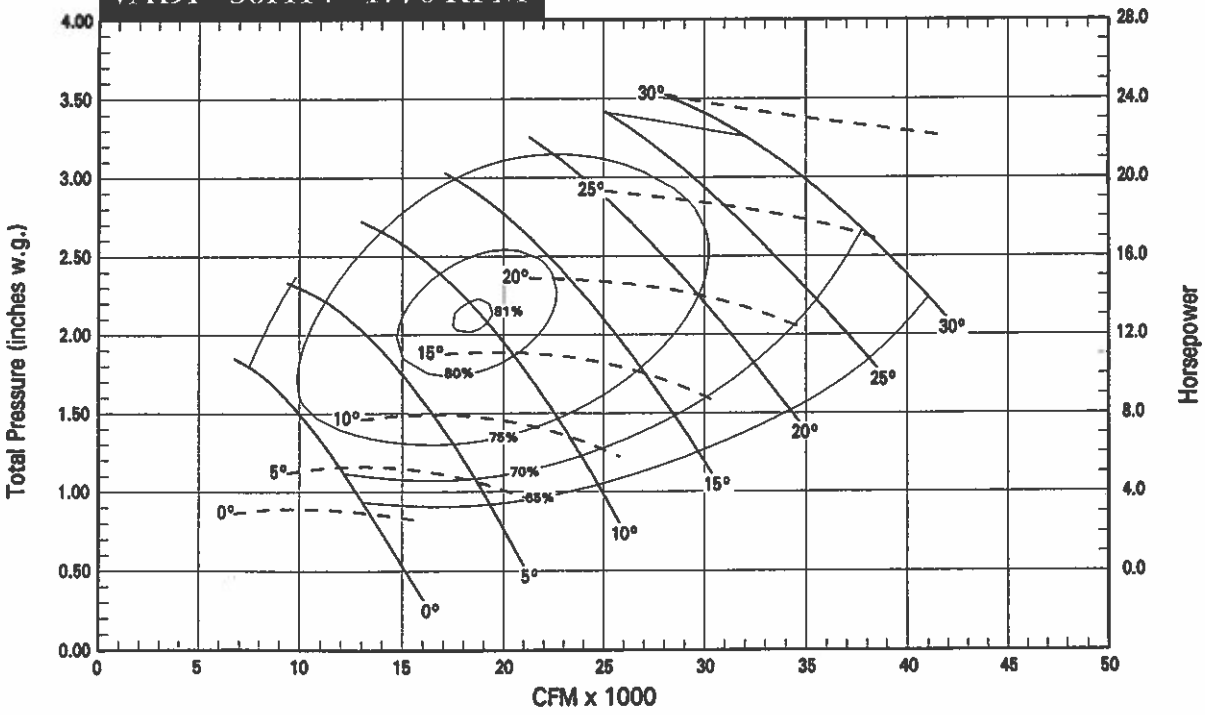
Performance shown is for Model VADI with inlet and outlet ducts.

VADI - 36H14 1170 RPM



Performance shown is for Model VADI with inlet and outlet ducts.

VADI - 36H14 1770 RPM

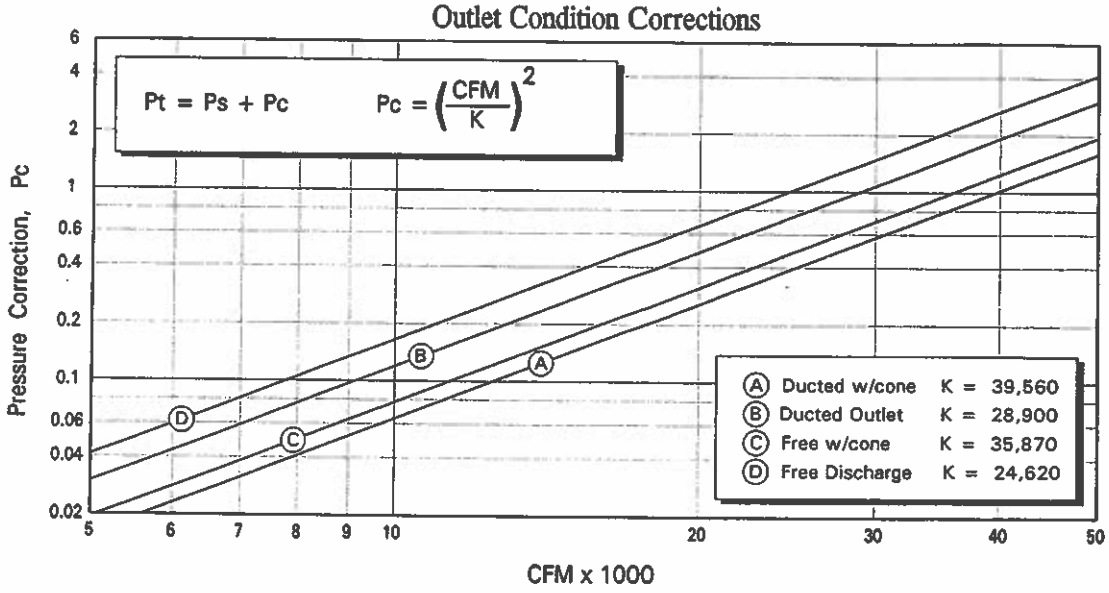


Performance shown is for Model VADI with inlet and outlet ducts.

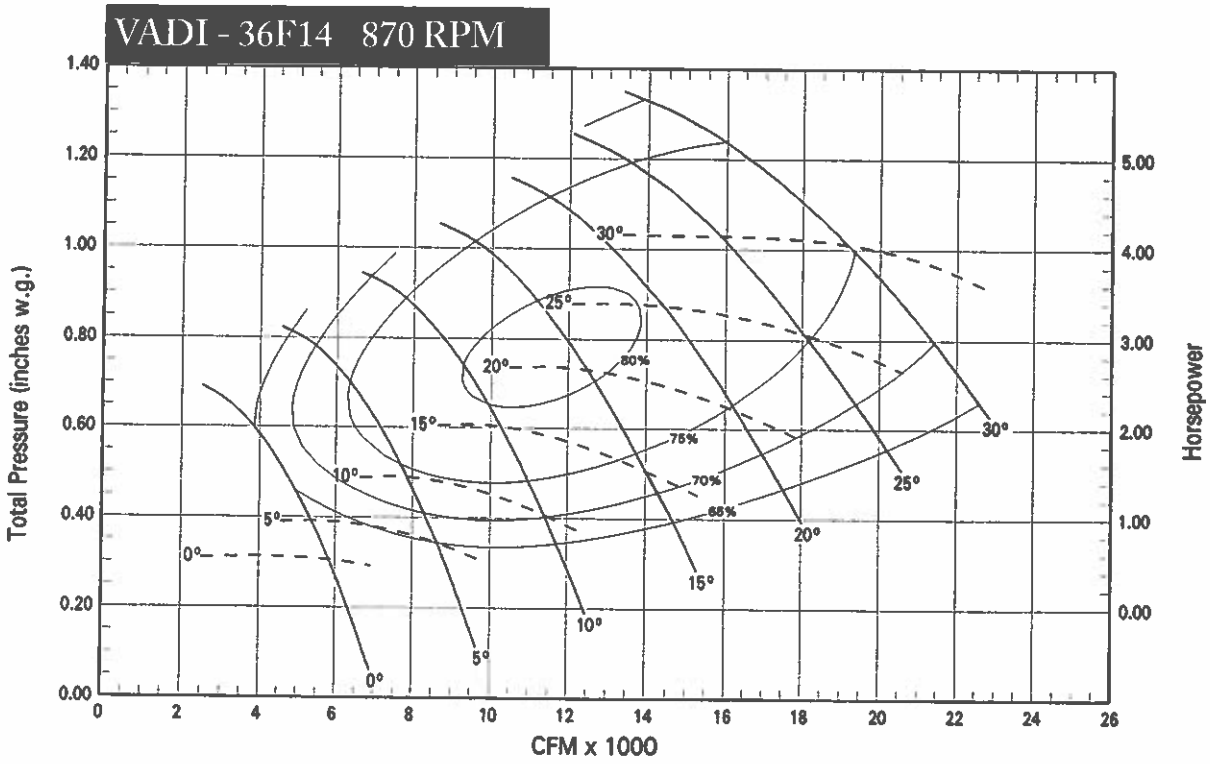
VADI - 36F14

Fan Outlet Area = 7.22 sq.ft.
Cone Outlet Area = 10.56 sq.ft.
Tip Speed = 9.49 x RPM

Minimum Motor Frame Size = 182T
Maximum Motor Frame Size = 256T

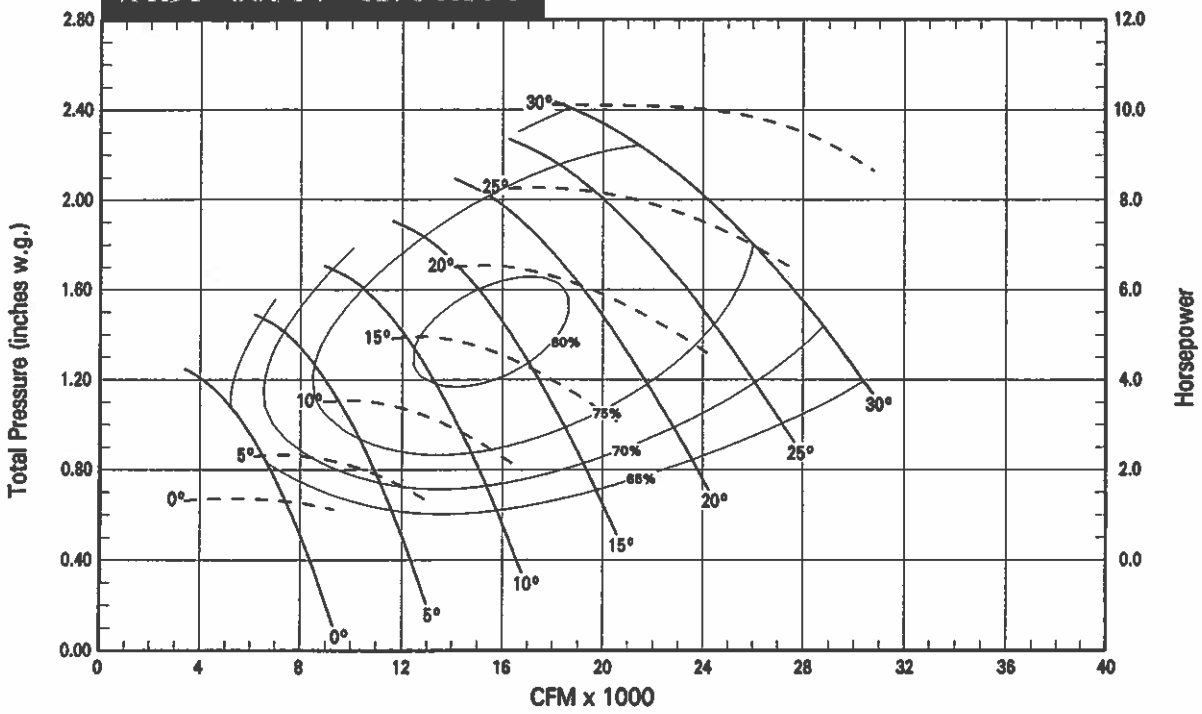


The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



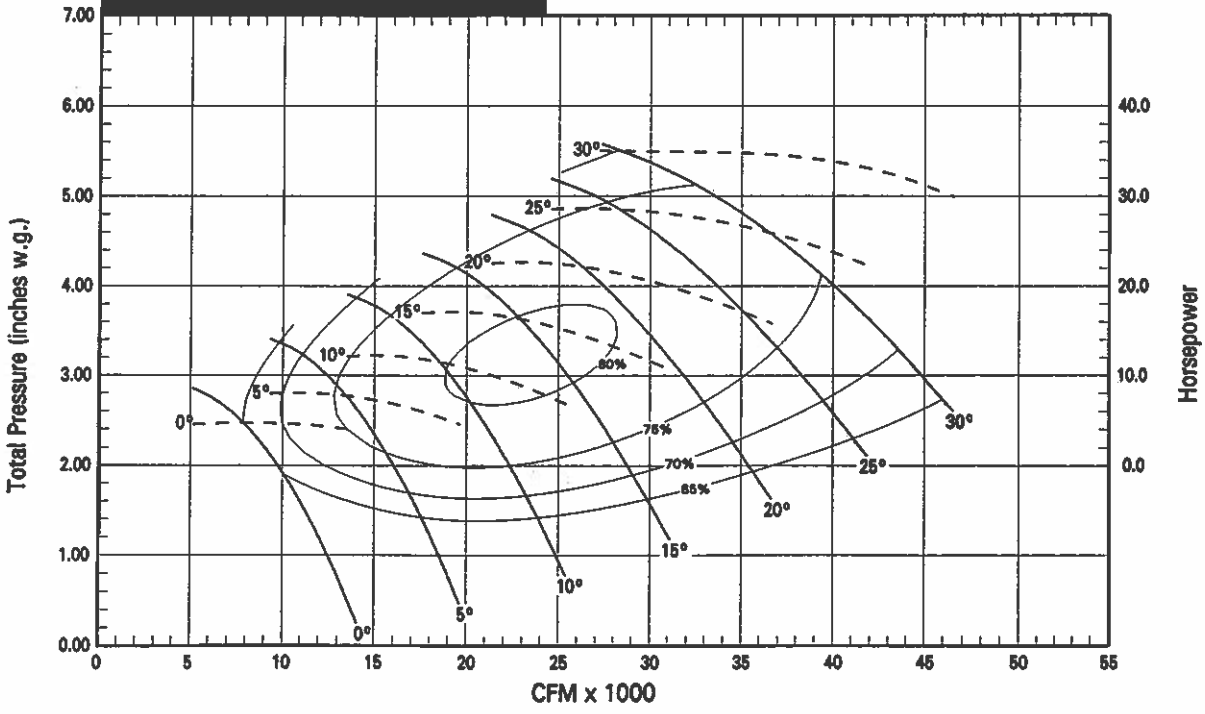
Performance shown is for Model VADI with inlet and outlet ducts.

VADI - 36F14 1170 RPM



Performance shown is for Model VADI with inlet and outlet ducts.

VADI - 36F14 1770 RPM



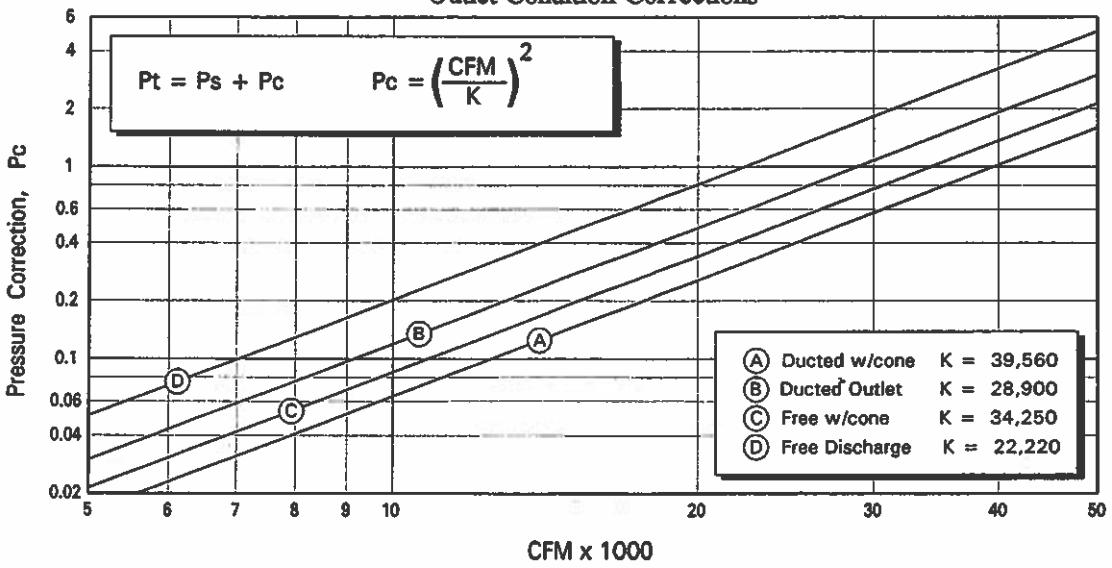
Performance shown is for Model VADI with inlet and outlet ducts.

VADI/VRDI - 36F17

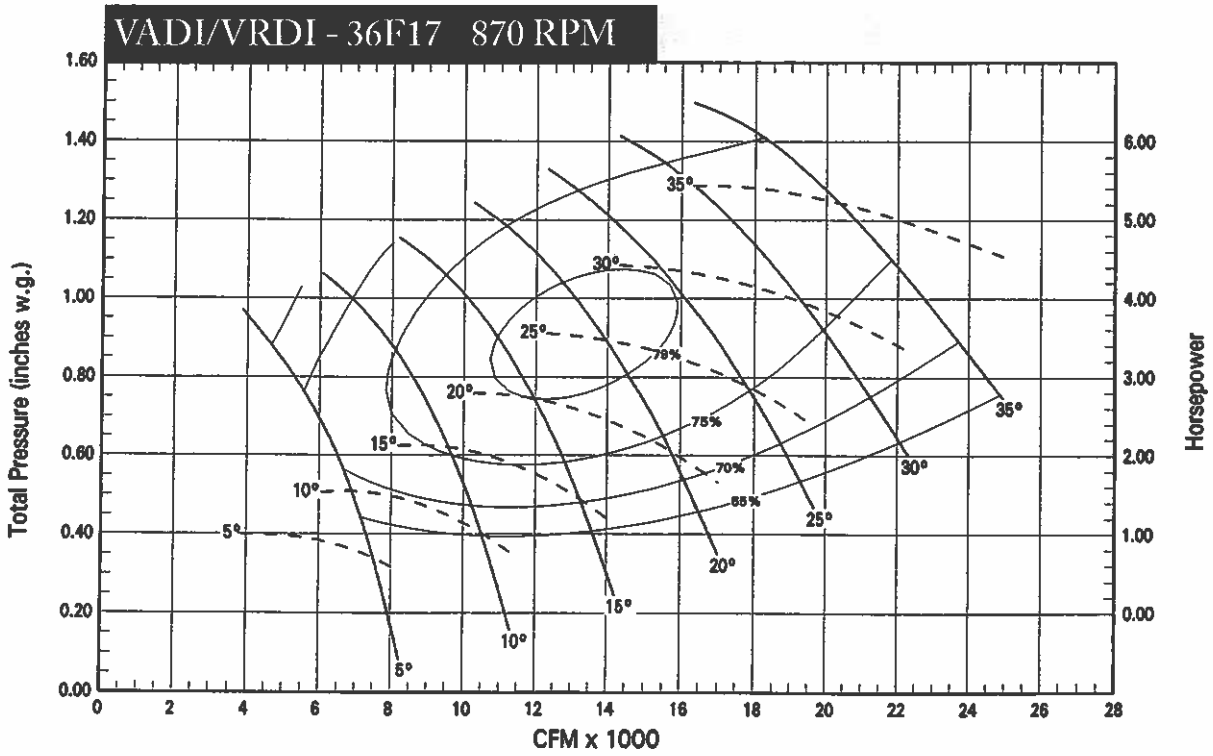
Fan Outlet Area = 7.22 sq.ft.
Cone Outlet Area = 10.56 sq.ft.
Tip Speed = 9.49 x RPM
Minimum Blade Angle for VRDI = -1 deg.

Minimum Frame Size for VADI = 182T
Minimum Frame Size for VRDI = 213T
Maximum Motor Frame Size = 286T (TEAO)
326T (ODP)

Outlet Condition Corrections

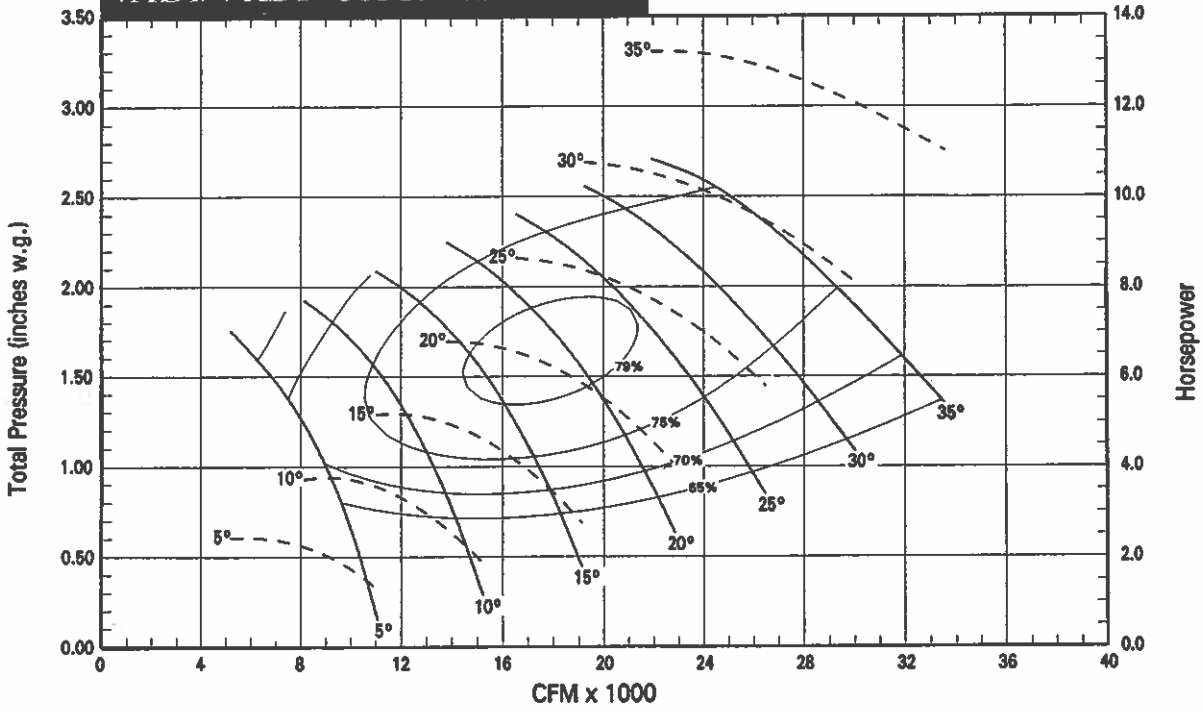


The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



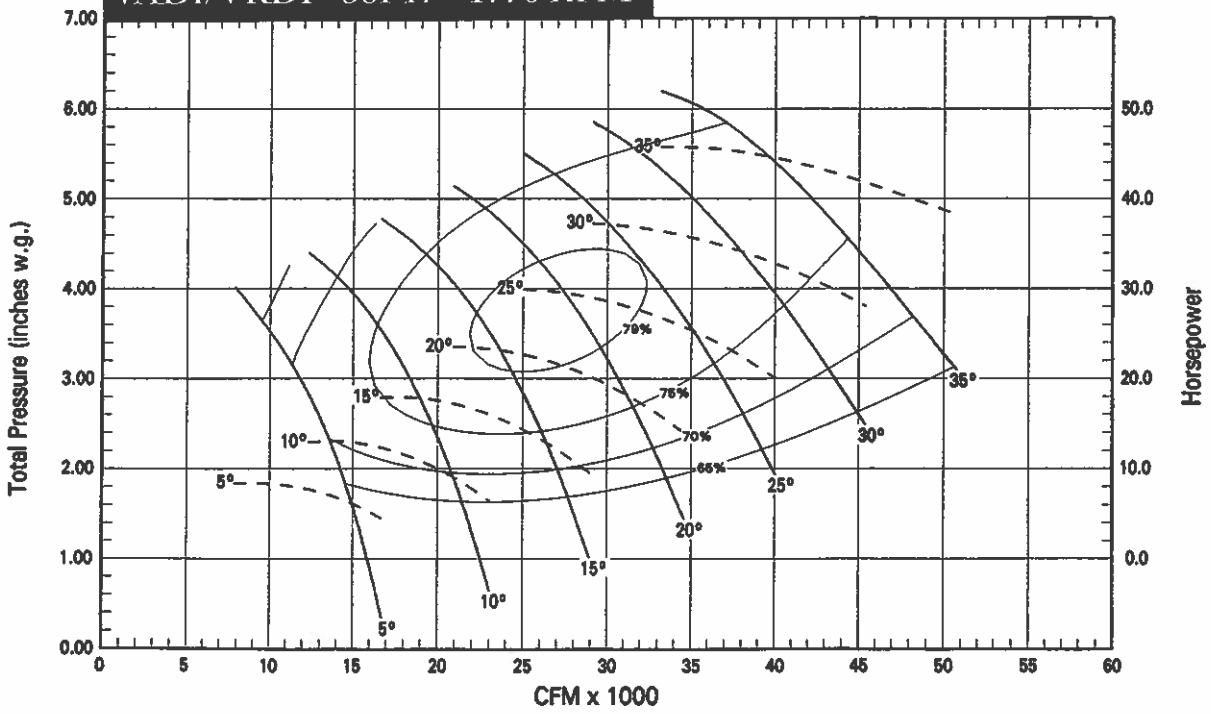
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 36F17 1170 RPM



Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 36F17 1770 RPM



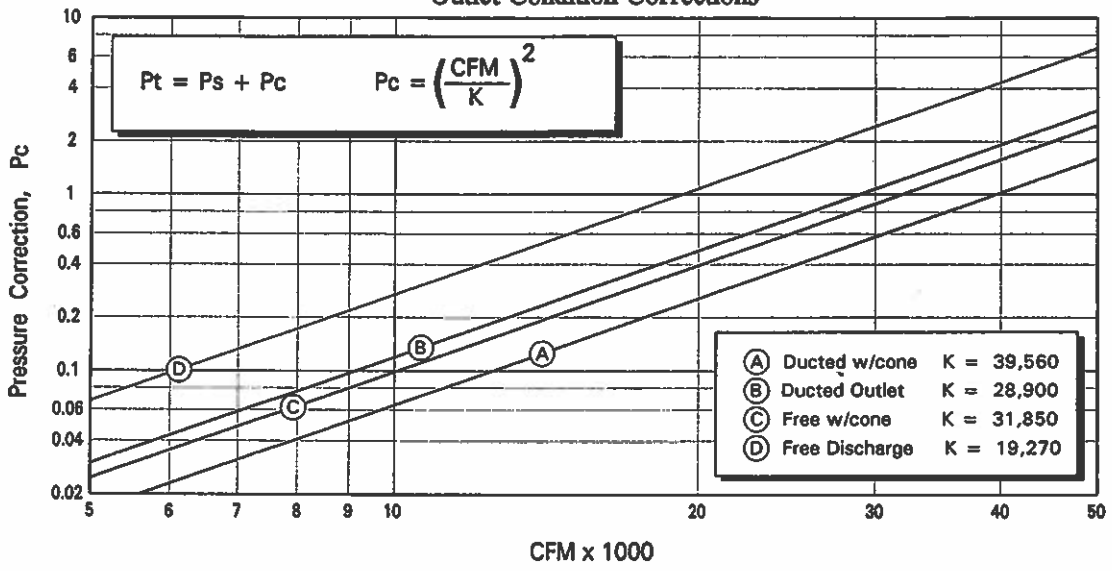
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 36F21

Fan Outlet Area = 7.22 sq.ft.
Cone Outlet Area = 10.56 sq.ft.
Tip Speed = 9.49 x RPM
Minimum Blade Angle for VRDI = -1 deg.

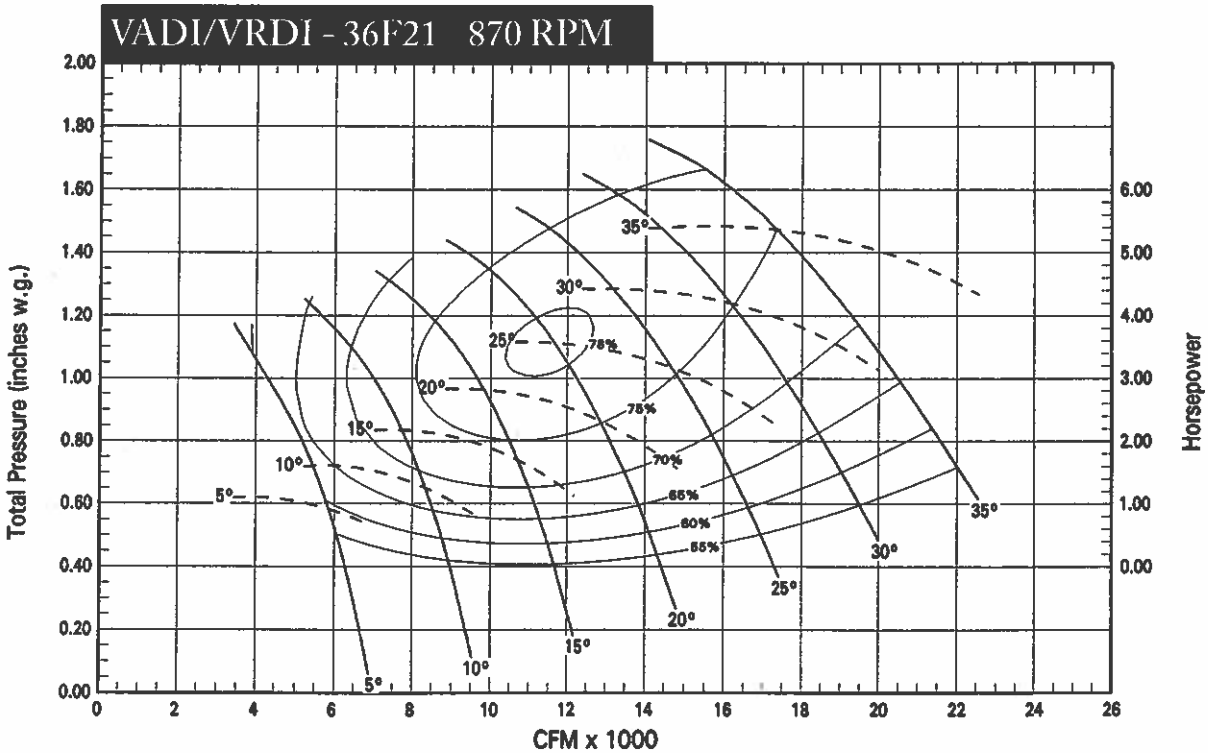
Minimum Frame Size for VADI = 182T
Minimum Frame Size for VRDI = 213T
Maximum Motor Frame Size = 365T

Outlet Condition Corrections

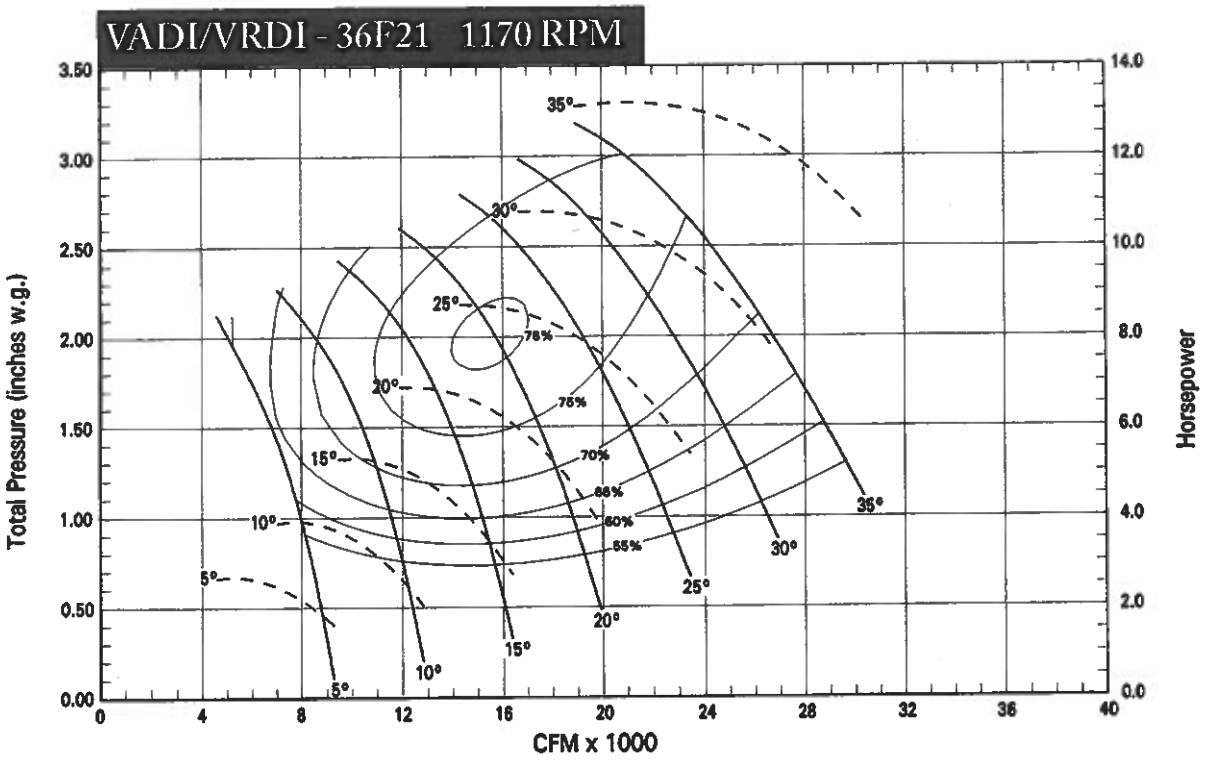


The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.

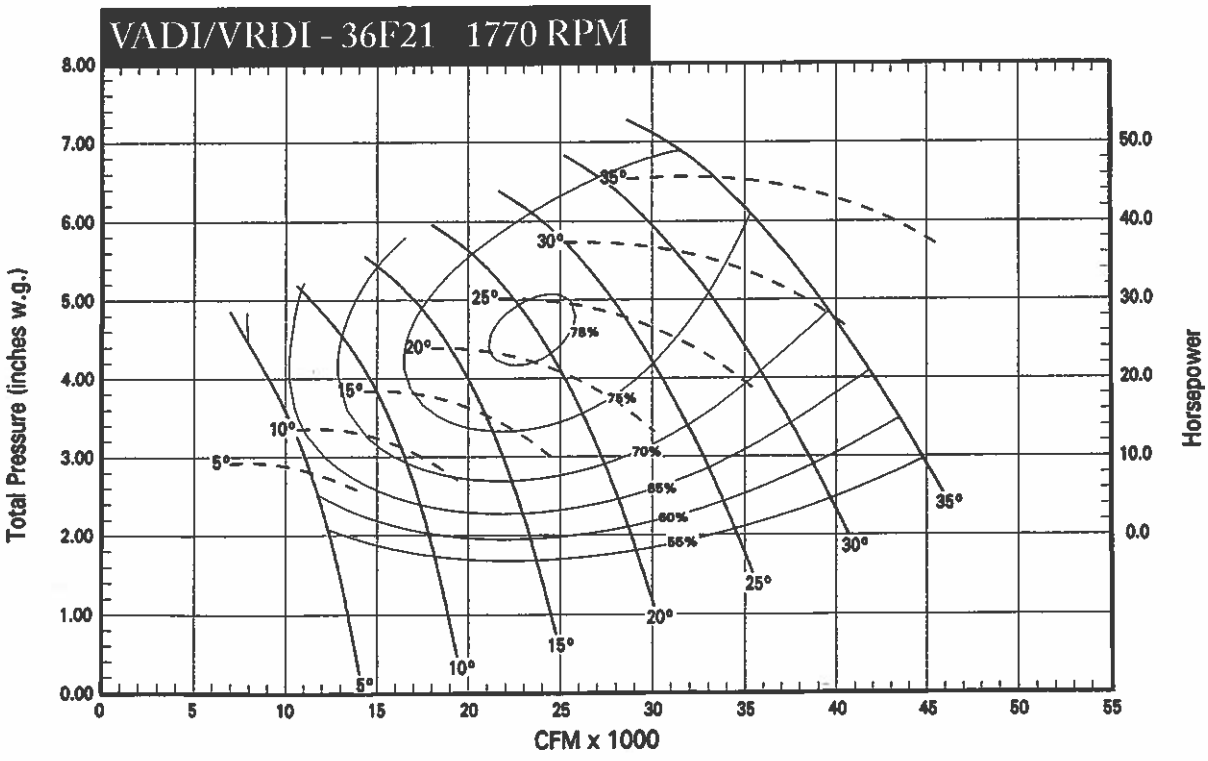
VADI/VRDI - 36F21 870 RPM



Performance shown is for Model VADI/VRDI with inlet and outlet ducts.



Performance shown is for Model VADI/VRDI with inlet and outlet ducts.



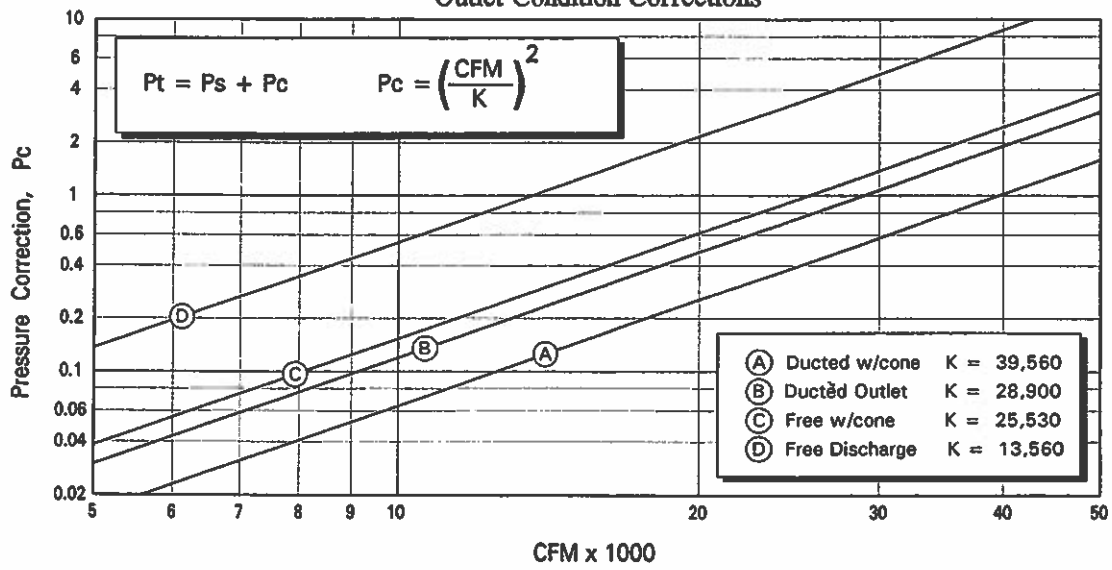
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 36F26

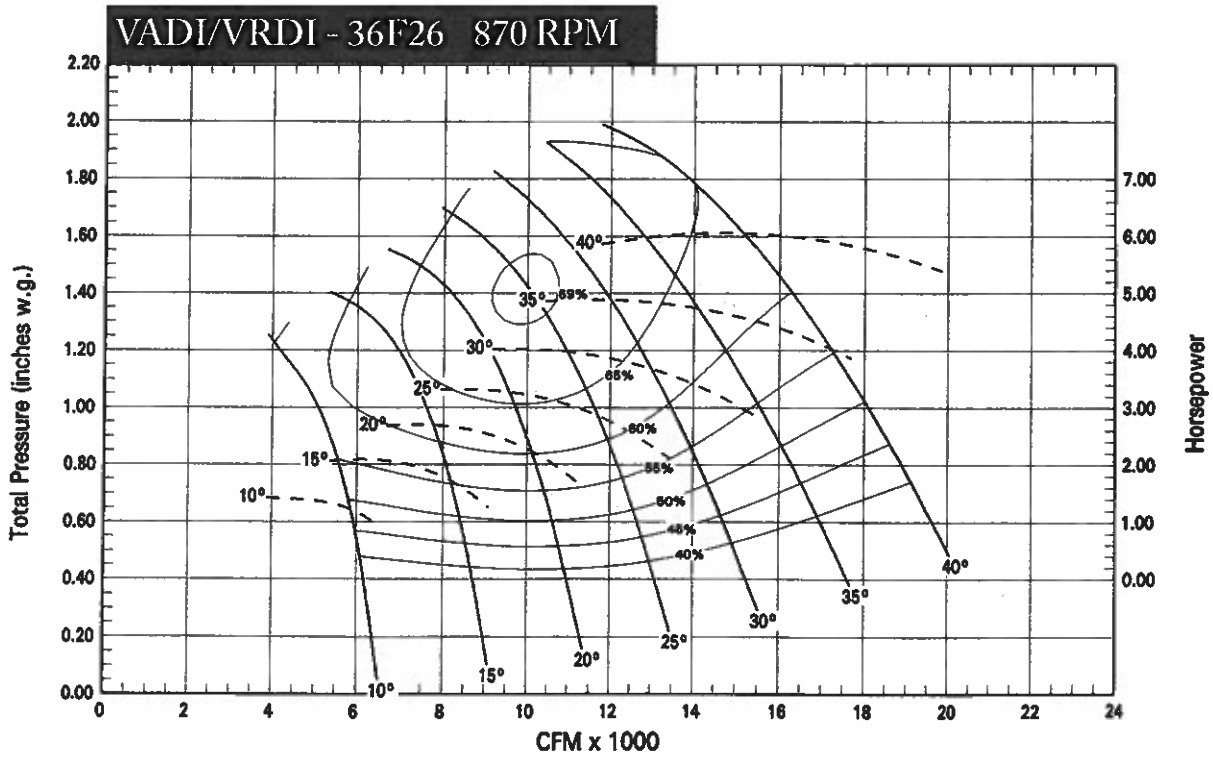
Fan Outlet Area = 7.22 sq.ft.
Cone Outlet Area = 10.56 sq.ft.
Tip Speed = 9.49 x RPM
Minimum Blade Angle for VRDI = 4 deg.

Minimum Frame Size for VADI = 254T
Minimum Frame Size for VRDI = 254T
Maximum Motor Frame Size = 445T

Outlet Condition Corrections

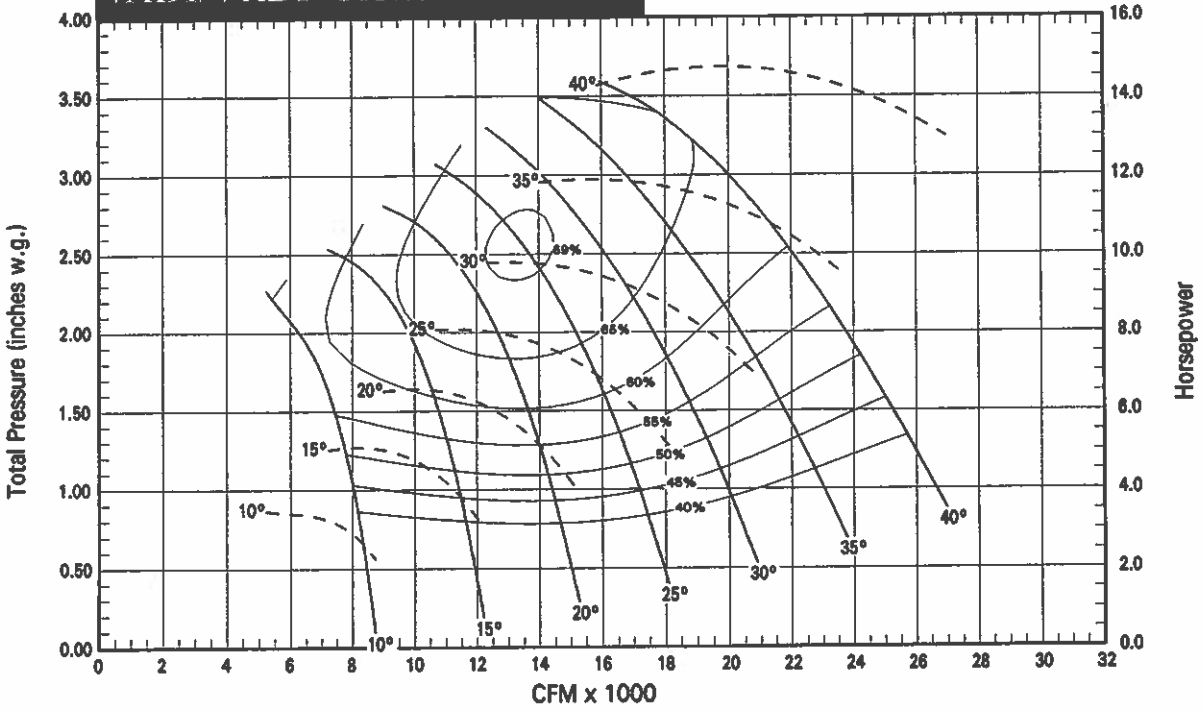


The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



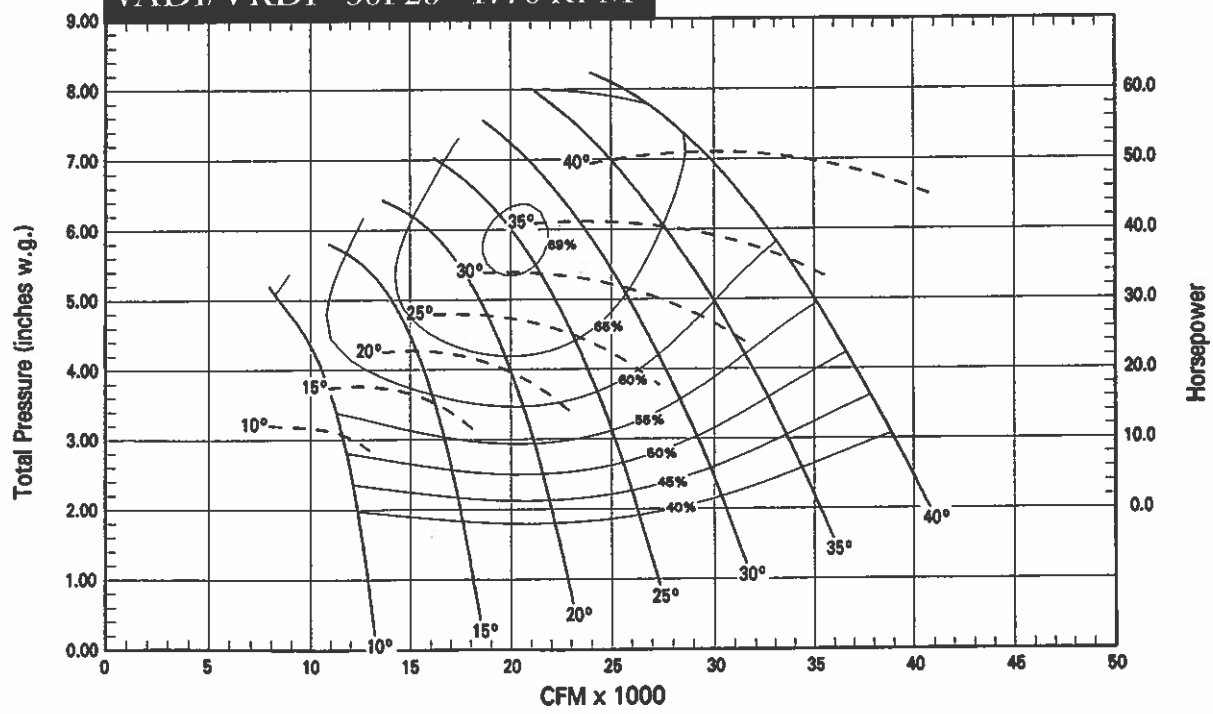
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 36F26 1170 RPM



Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 36F26 1770 RPM



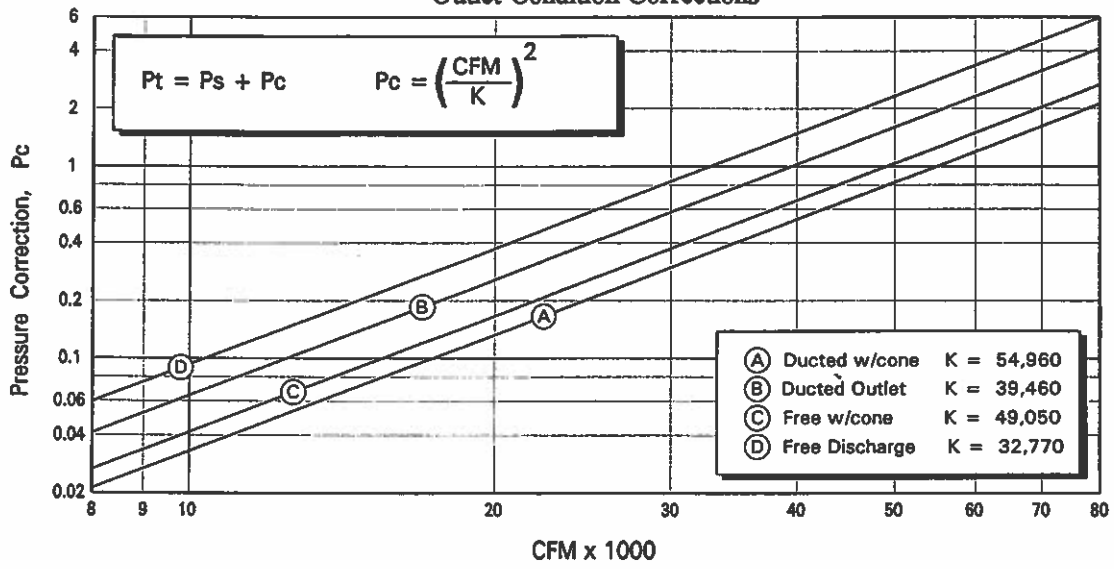
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 42H17

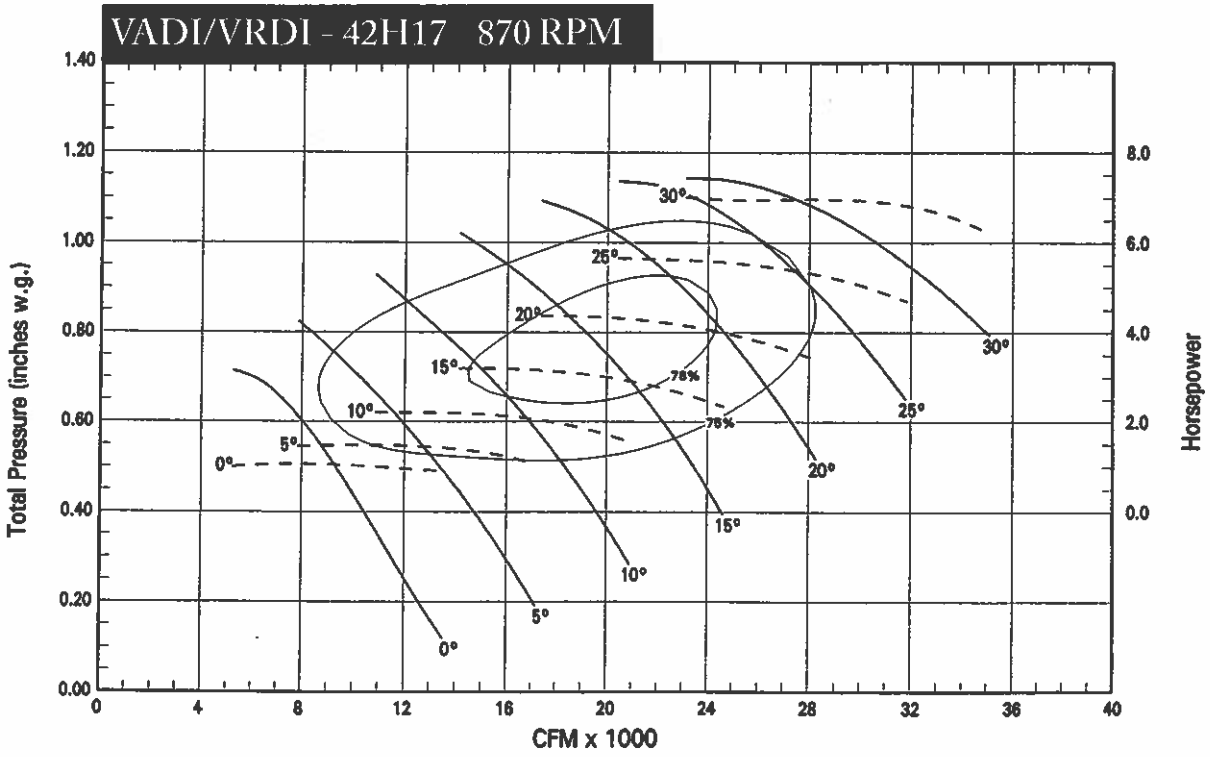
Fan Outlet Area = 9.85 sq.ft.
Cone Outlet Area = 14.75 sq.ft.
Tip Speed = 11.09 x RPM
Minimum Blade Angle for VRDI = -7 deg.

Minimum Frame Size for VADI = 182T
Minimum Frame Size for VRDI = 213T
Maximum Motor Frame Size = 286T (TEAO)
326T (ODP)

Outlet Condition Corrections

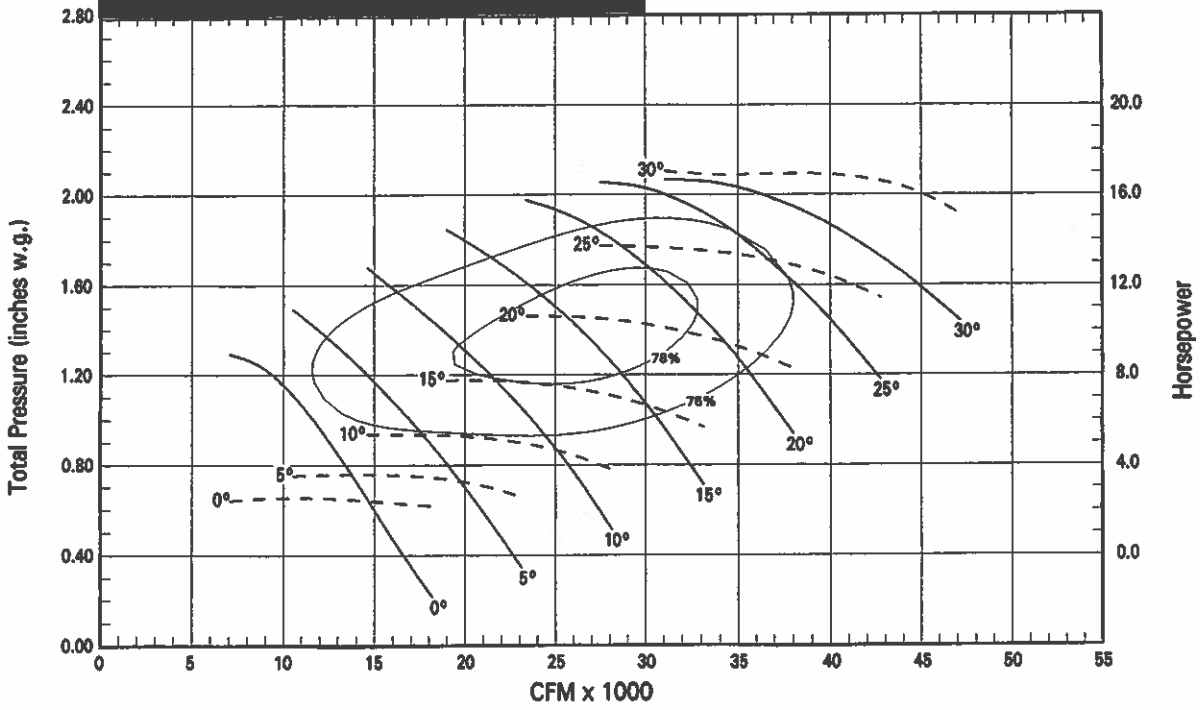


The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



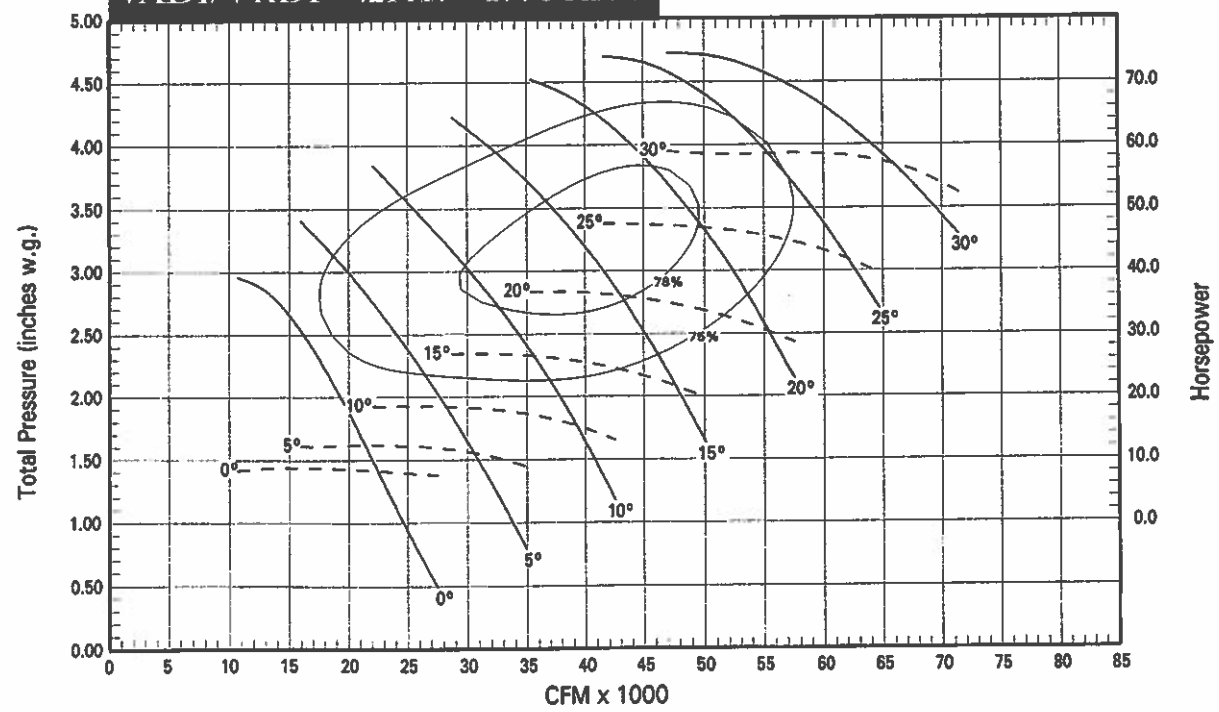
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 42H17 1170 RPM



Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 42H17 1770 RPM



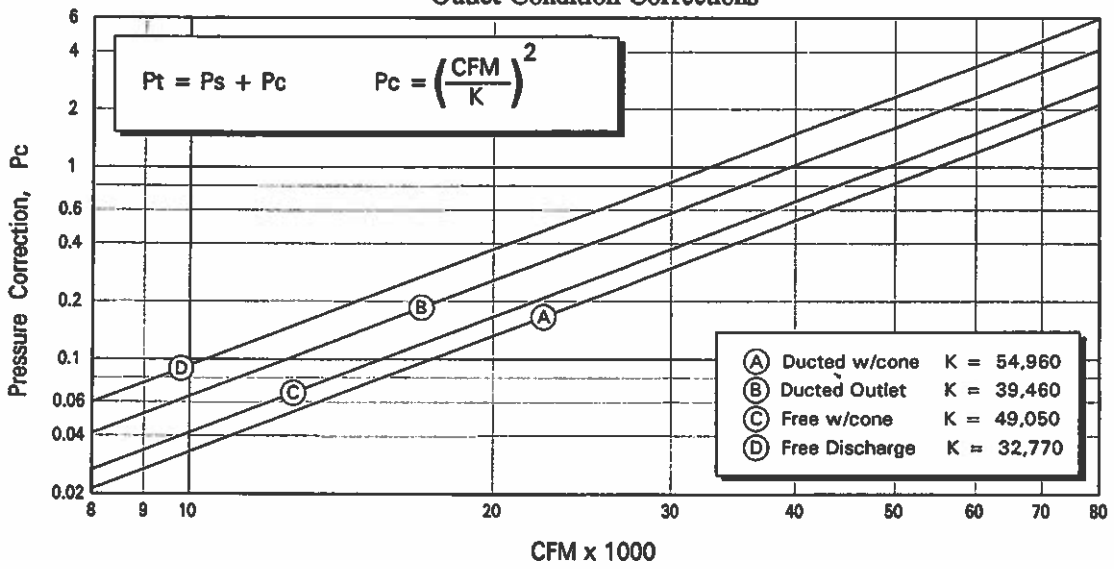
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 42F17

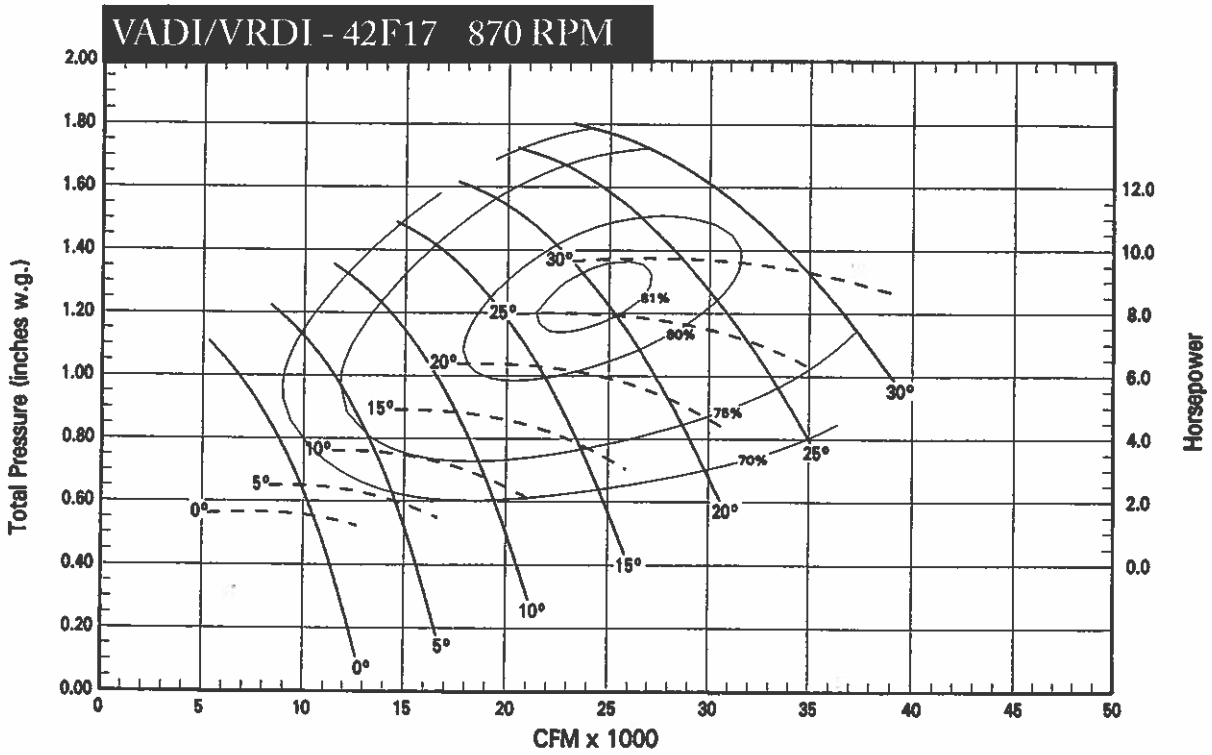
Fan Outlet Area = 9.85 sq.ft.
Cone Outlet Area = 14.75 sq.ft.
Tip Speed = 11.09 x RPM
Minimum Blade Angle for VRDI = -7 deg.

Minimum Frame Size for VADI = 182T
Minimum Frame Size for VRDI = 213T
Maximum Motor Frame Size = 286T (TEAO)
326T (ODP)

Outlet Condition Corrections

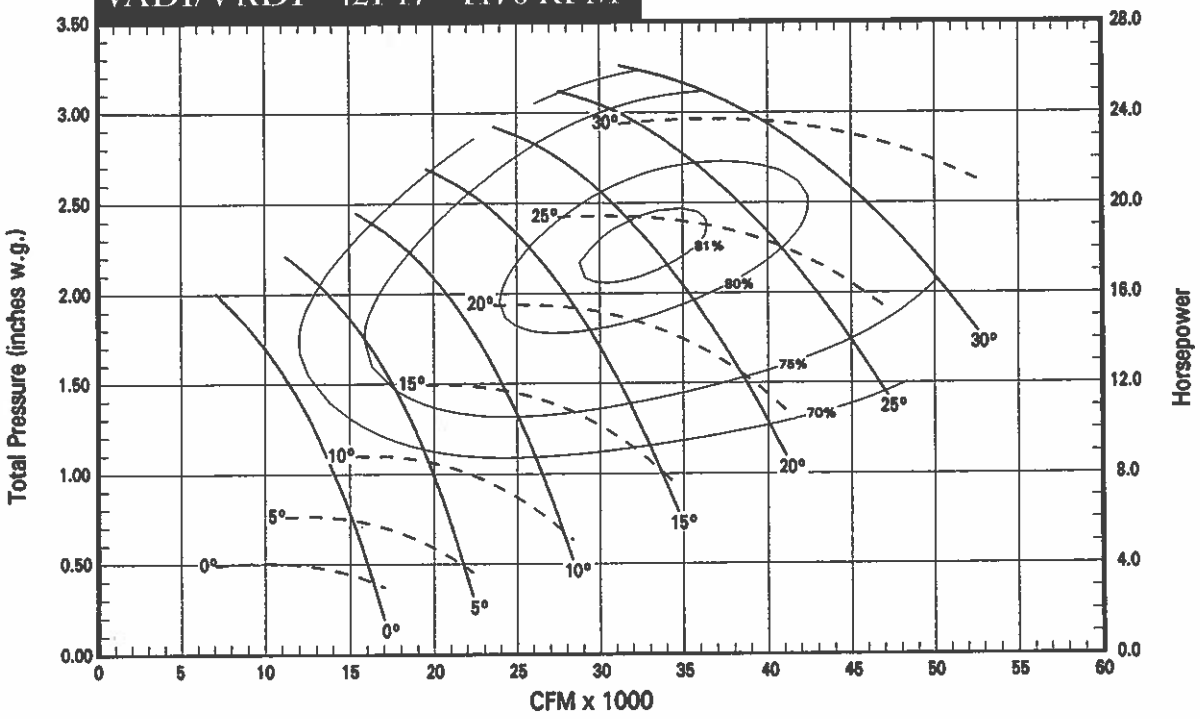


The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



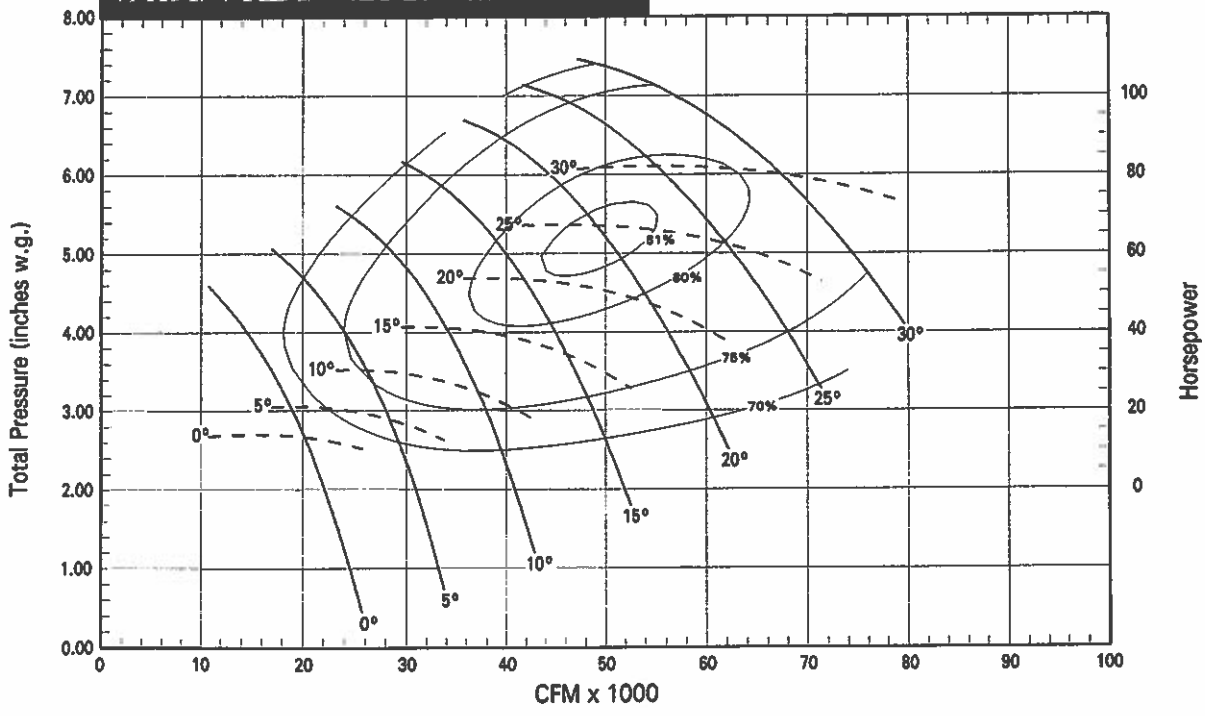
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 42F17 1170 RPM



Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 42F17 1770 RPM



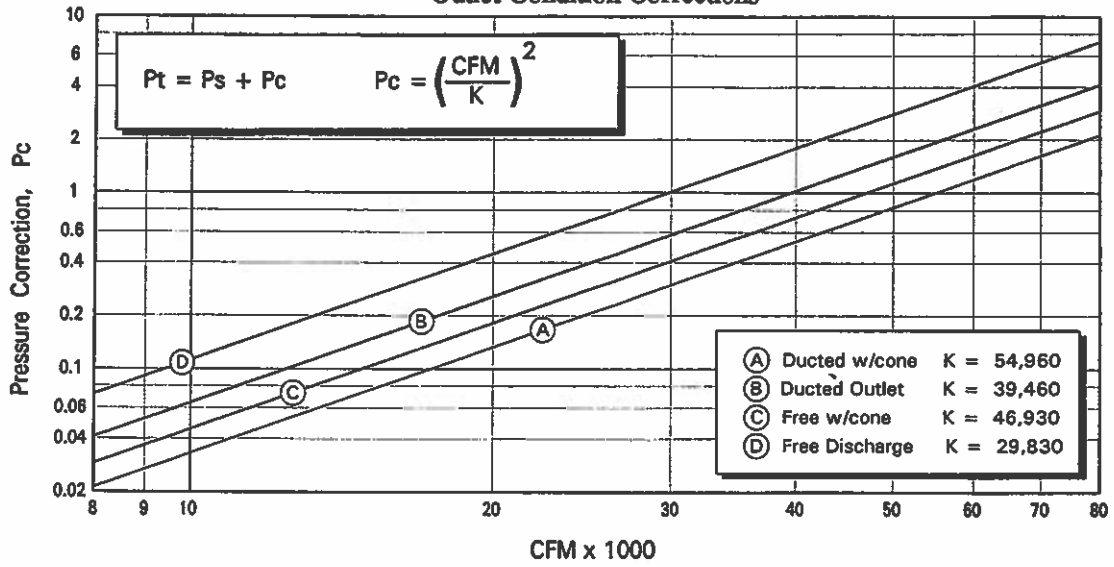
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 42F21

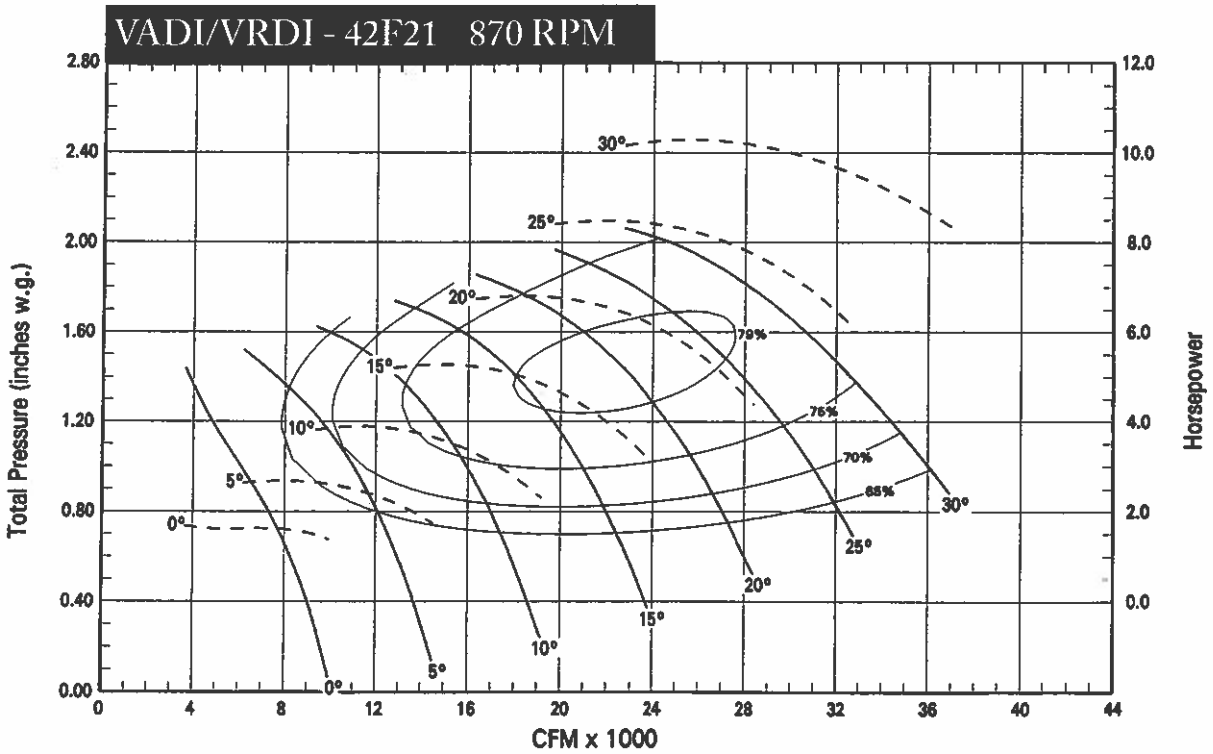
Fan Outlet Area = 9.85 sq.ft.
Cone Outlet Area = 14.75 sq.ft.
Tip Speed = 11.09 x RPM
Minimum Blade Angle for VRDI = -4 deg.

Minimum Frame Size for VADI = 182T
Minimum Frame Size for VRDI = 213T
Maximum Motor Frame Size = 365T

Outlet Condition Corrections

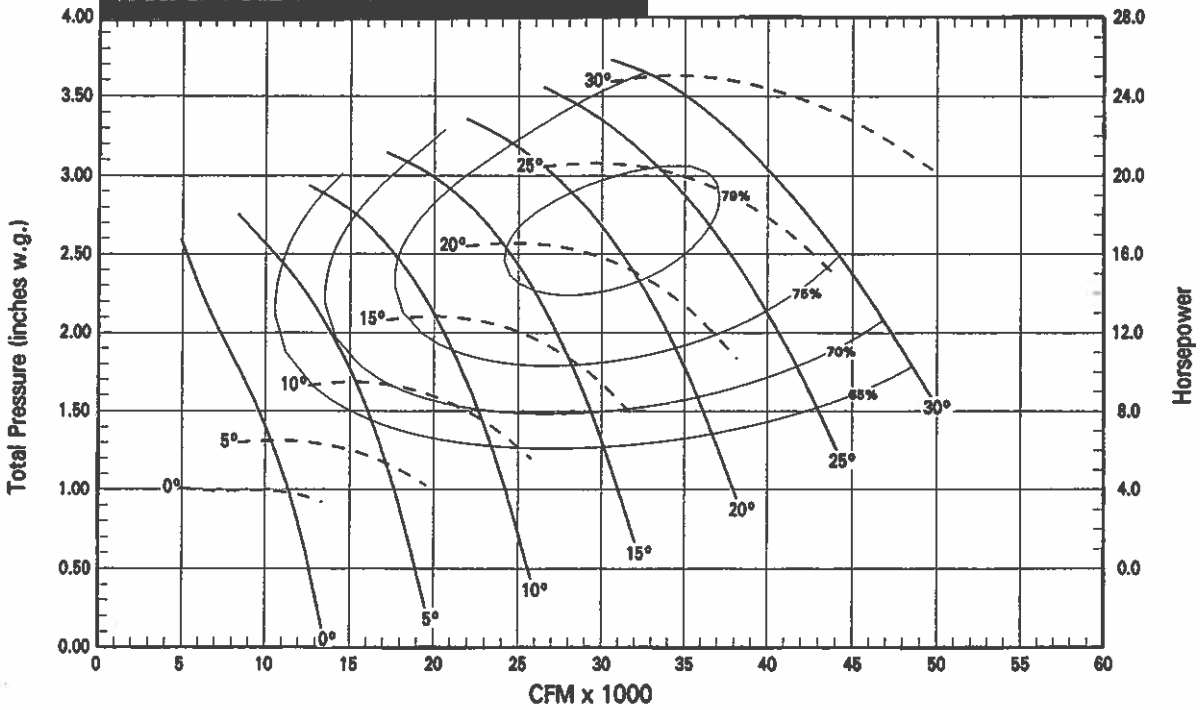


The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



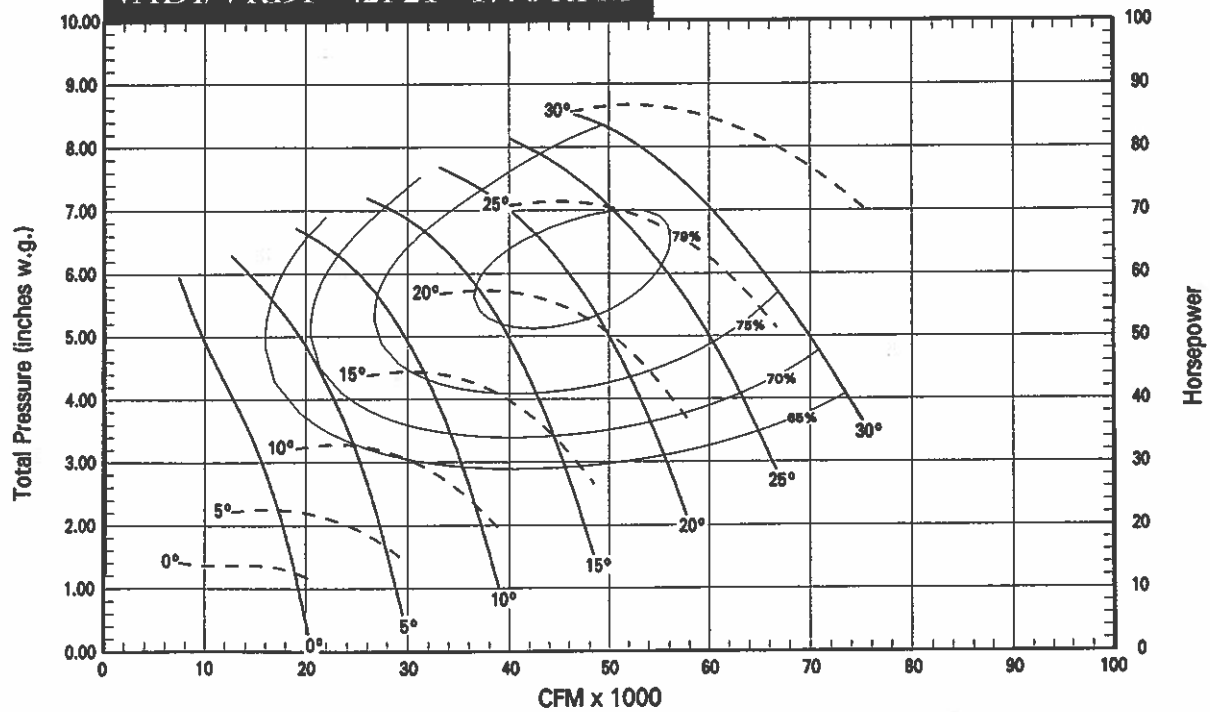
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 42F21 1170 RPM



Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 42F21 1770 RPM



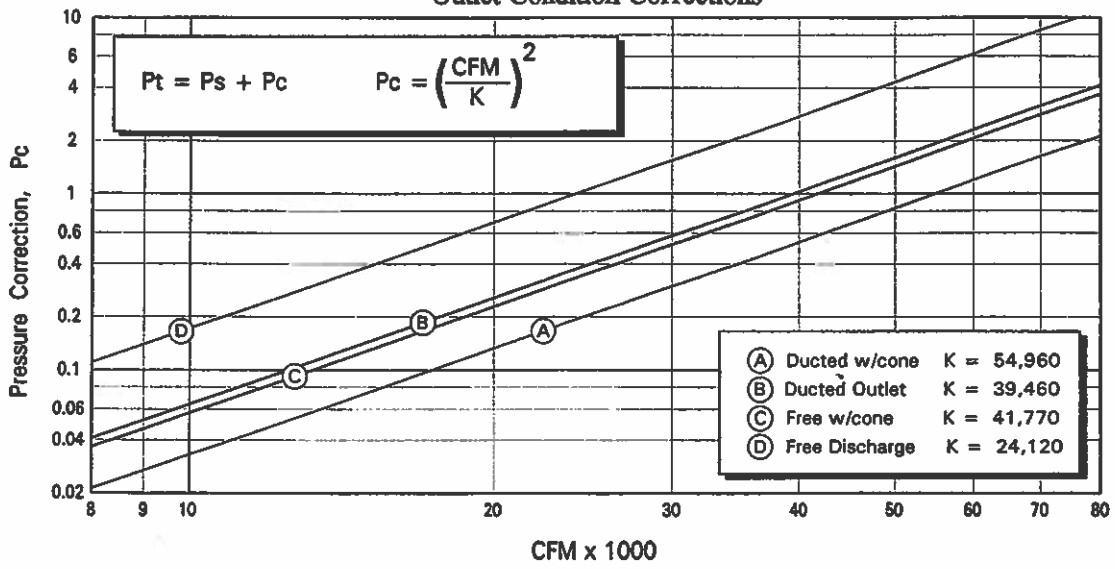
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 42F26

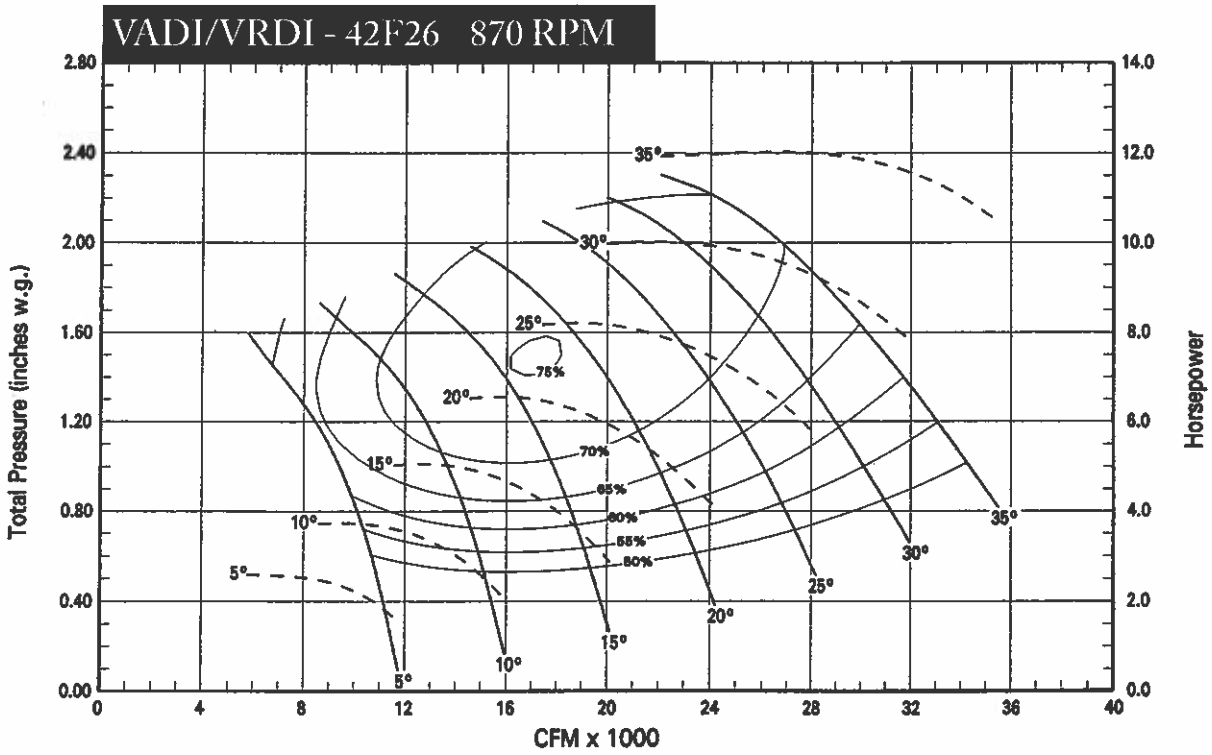
Fan Outlet Area = 9.85 sq.ft.
Cone Outlet Area = 14.75 sq.ft.
Tip Speed = 11.09 x RPM
Minimum Blade Angle for VRDI = -1 deg.

Minimum Frame Size for VADI = 254T
Minimum Frame Size for VRDI = 254T
Maximum Motor Frame Size = 445T

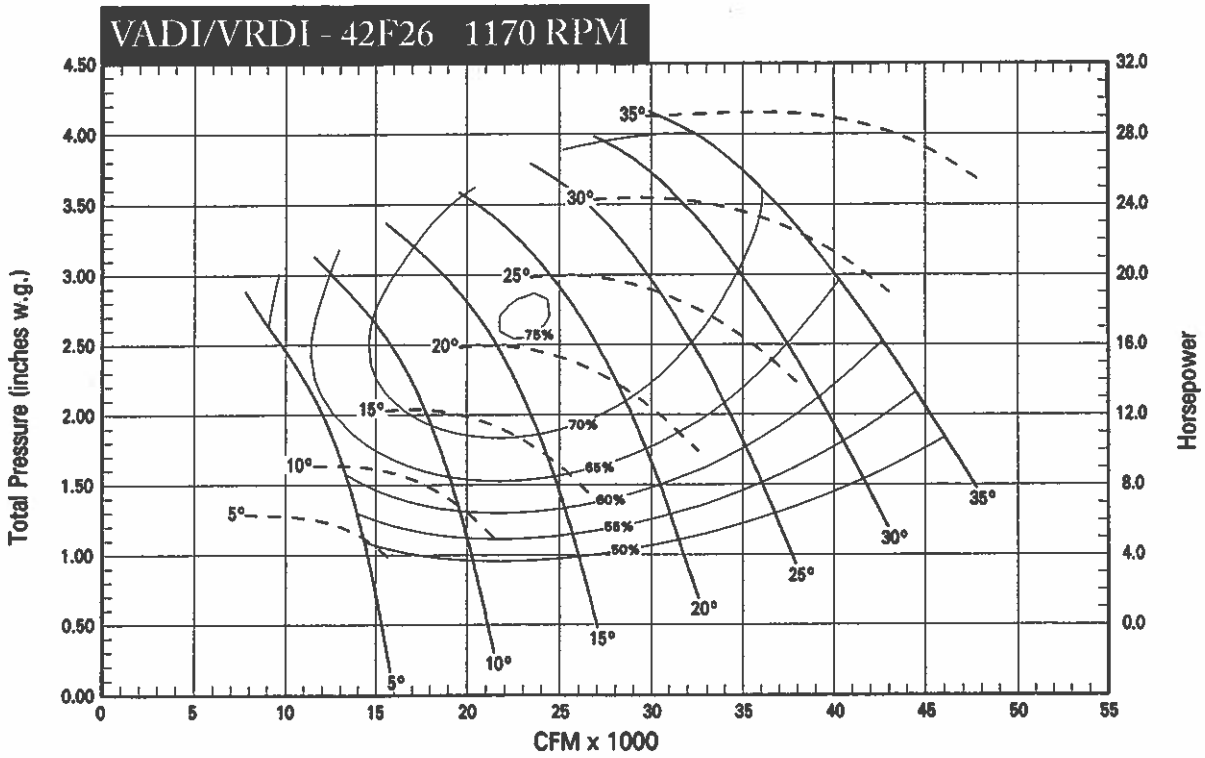
Outlet Condition Corrections



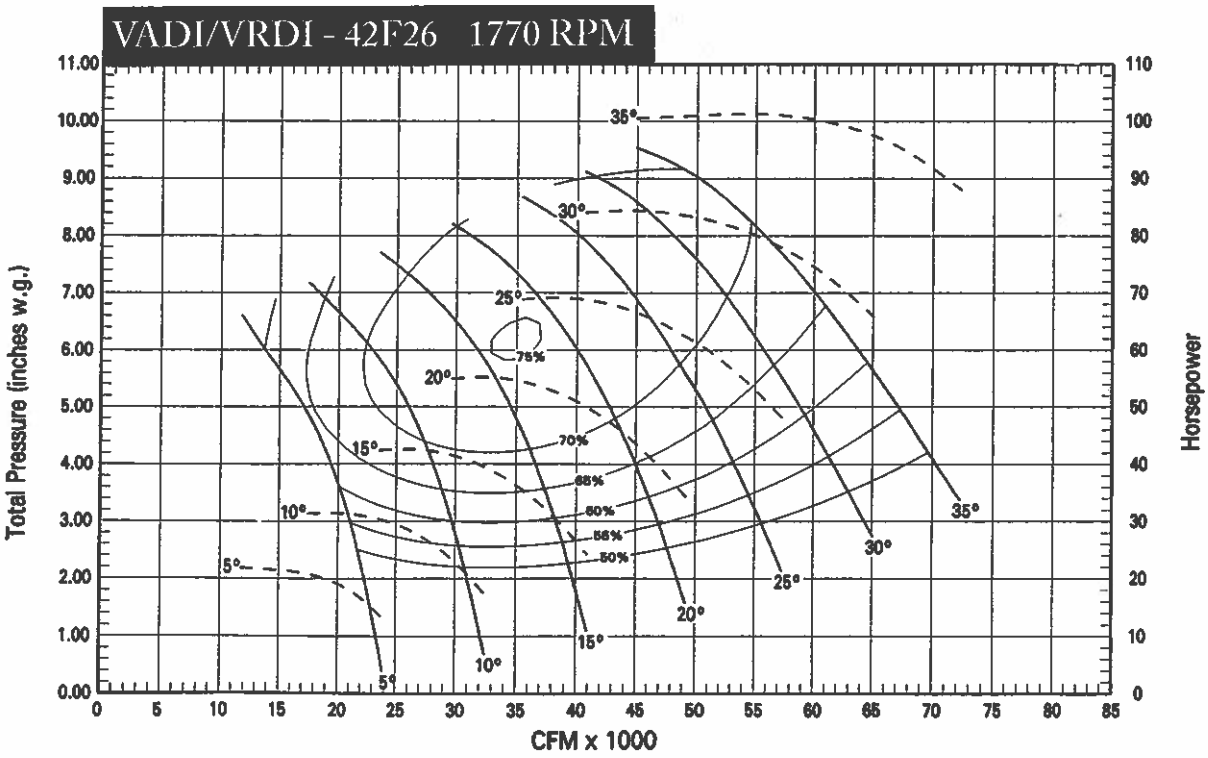
The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



Performance shown is for Model VADI/VRDI with inlet and outlet ducts.



Performance shown is for Model VADI/VRDI with inlet and outlet ducts.



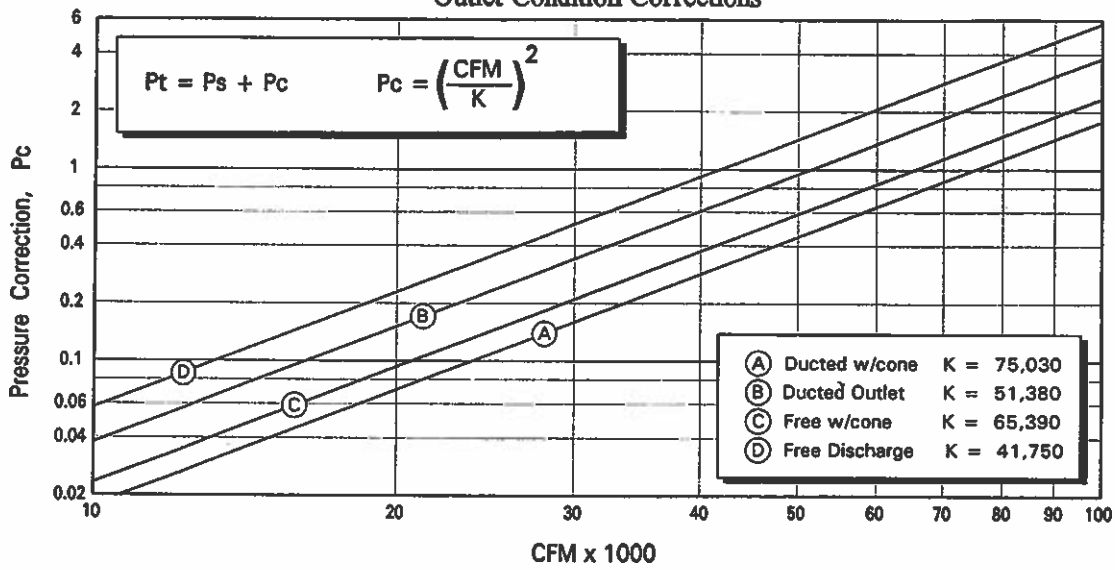
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 48H21

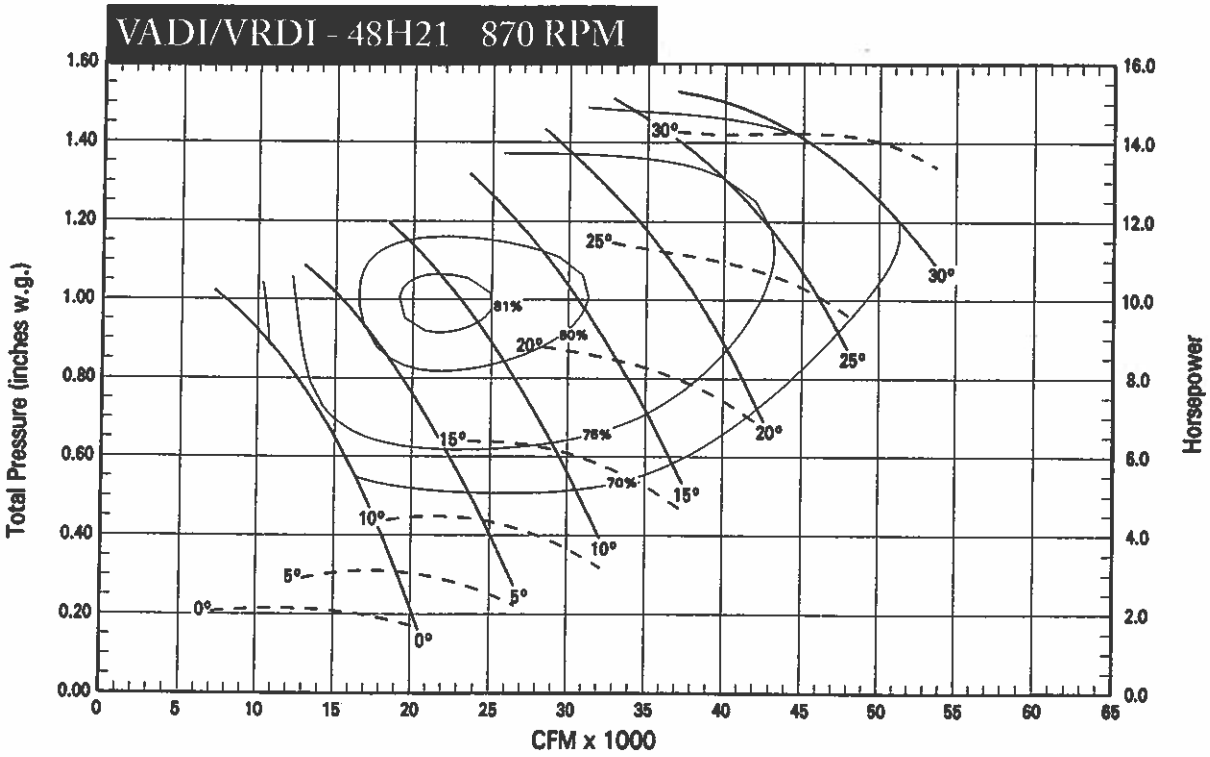
Fan Outlet Area = 12.83 sq.ft.
Cone Outlet Area = 20.46 sq.ft.
Tip Speed = 12.65 x RPM
Minimum Blade Angle for VRDI = -7 deg.

Minimum Frame Size for VADI = 182T
Minimum Frame Size for VRDI = 213T
Maximum Motor Frame Size = 365T

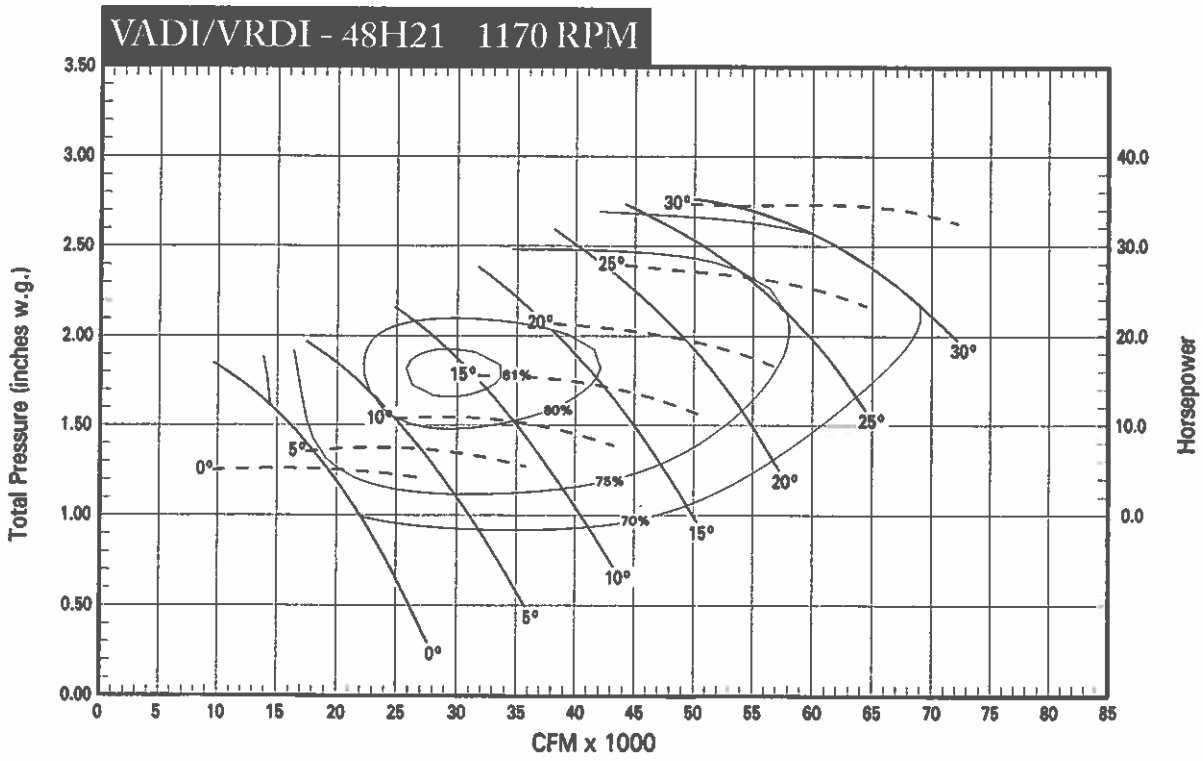
Outlet Condition Corrections



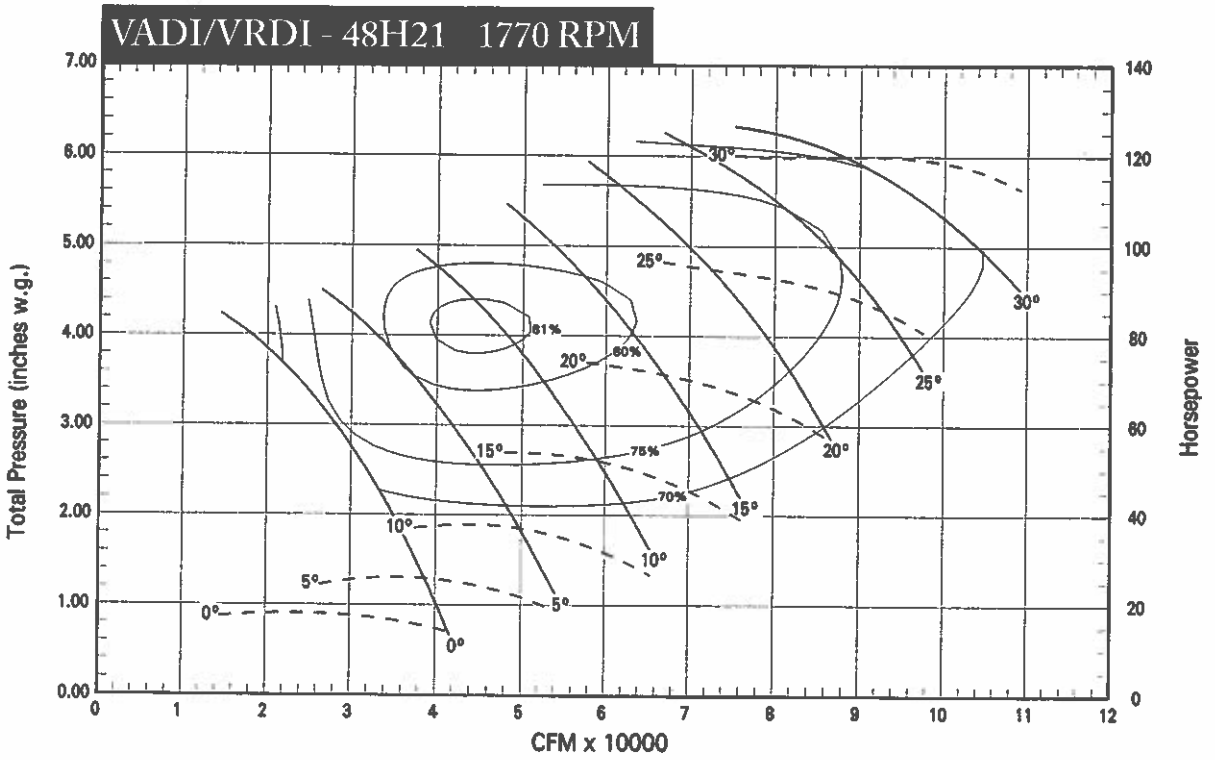
The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



Performance shown is for Model VADI/VRDI with inlet and outlet ducts.



Performance shown is for Model VADI/VRDI with inlet and outlet ducts.



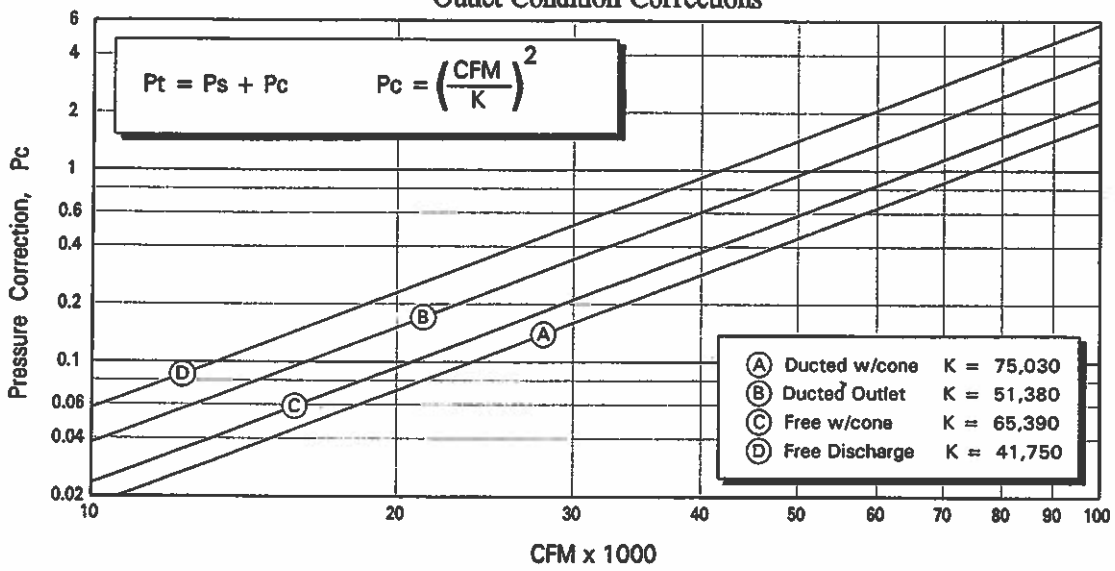
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 48F21

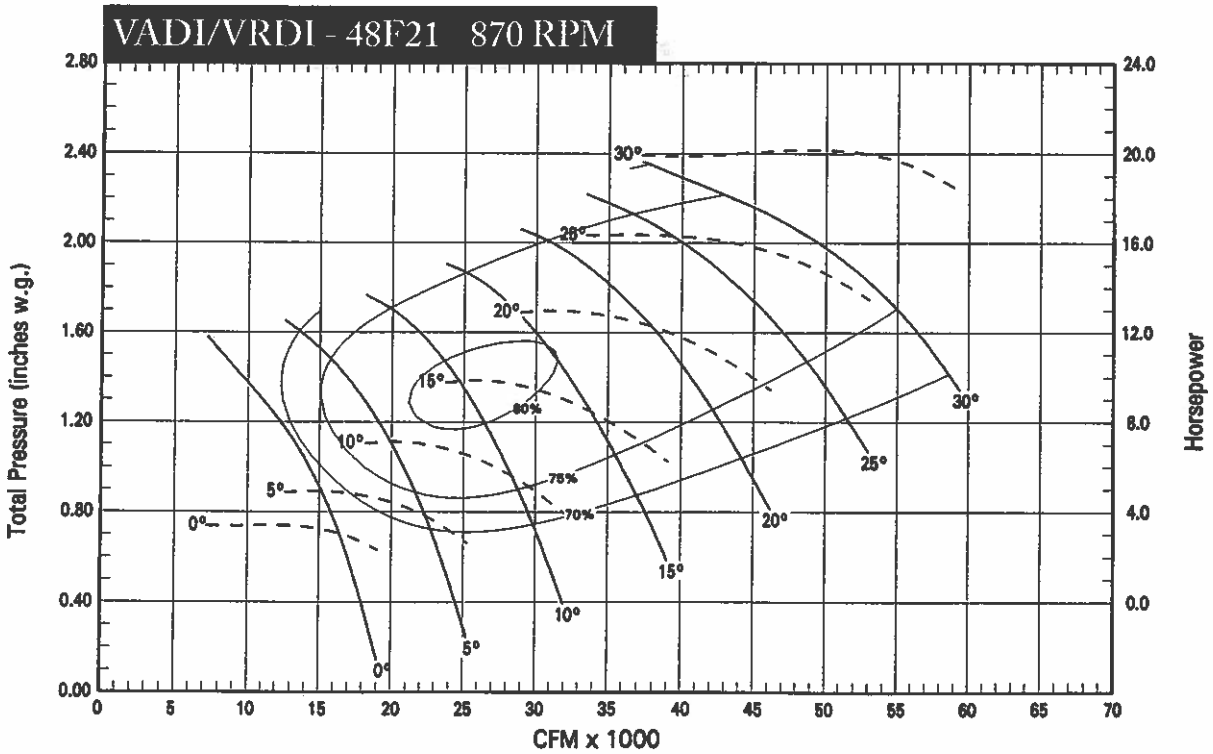
Fan Outlet Area = 12.83 sq.ft.
Cone Outlet Area = 20.46 sq.ft.
Tip Speed = 12.65 x RPM
Minimum Blade Angle for VRDI = -7 deg.

Minimum Frame Size for VADI = 182T
Minimum Frame Size for VRDI = 213T
Maximum Motor Frame Size = 365T

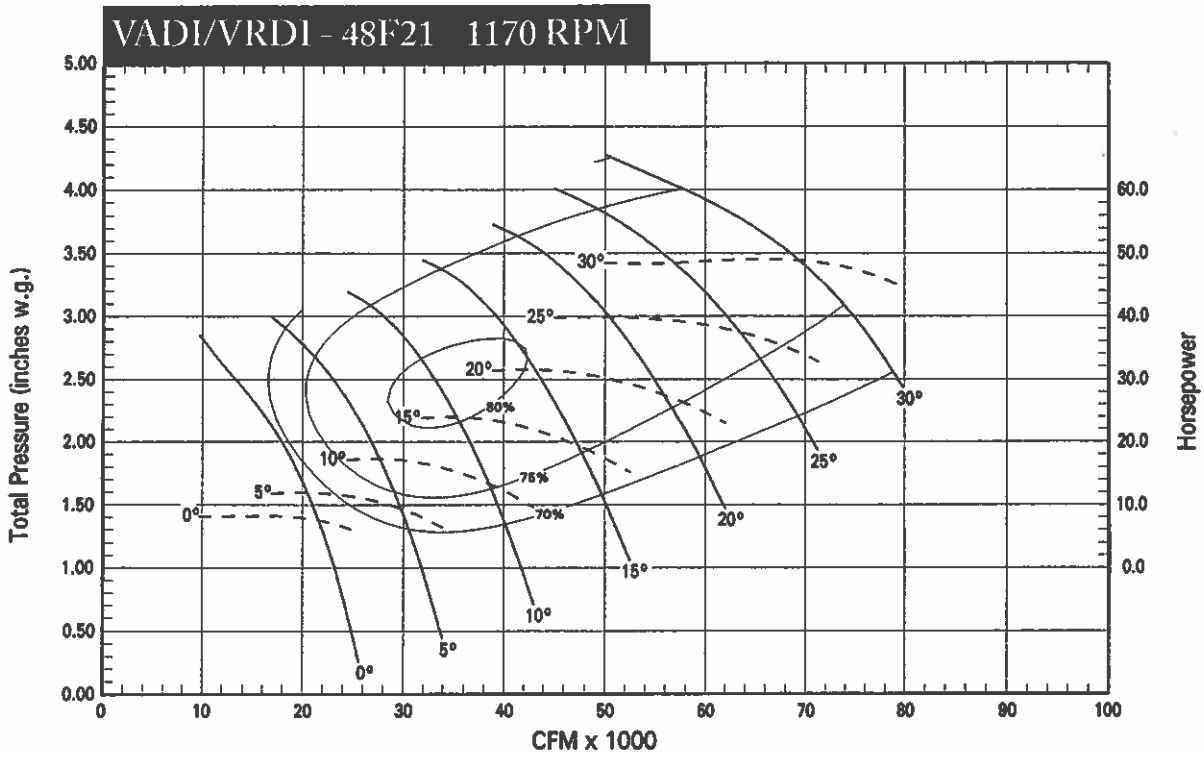
Outlet Condition Corrections



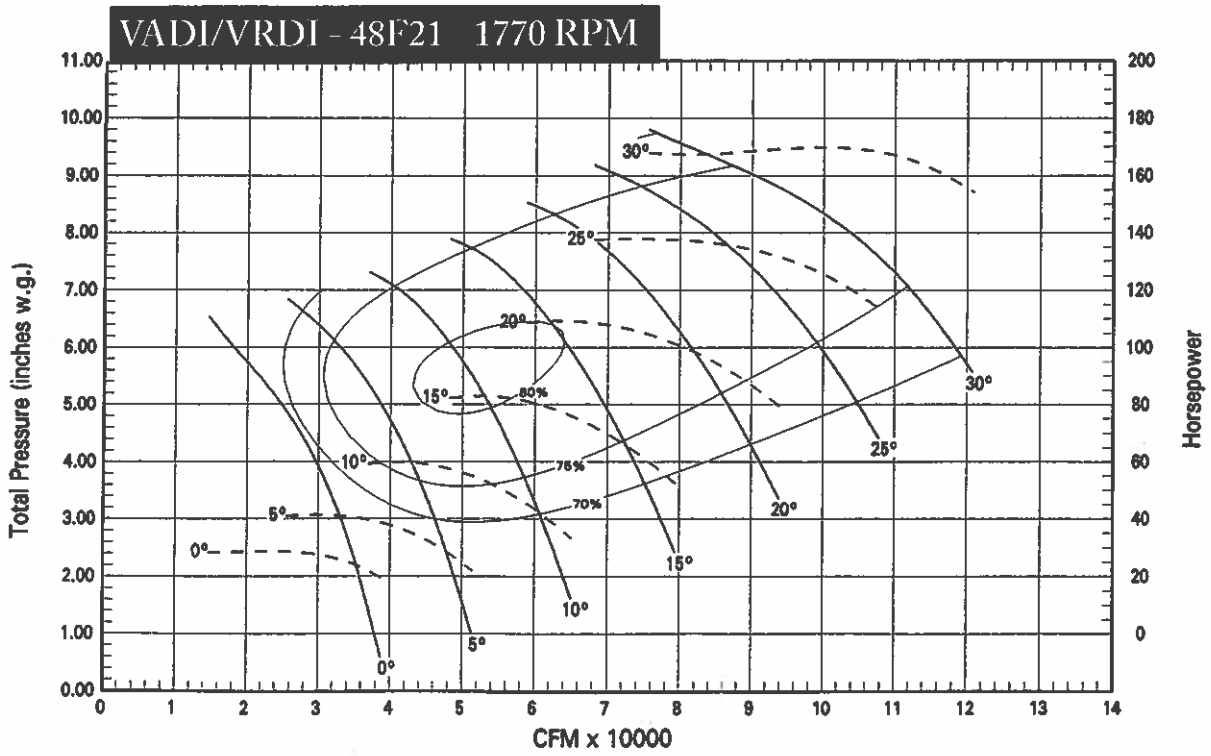
The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



Performance shown is for Model VADI/VRDI with inlet and outlet ducts.



Performance shown is for Model VADI/VRDI with inlet and outlet ducts.



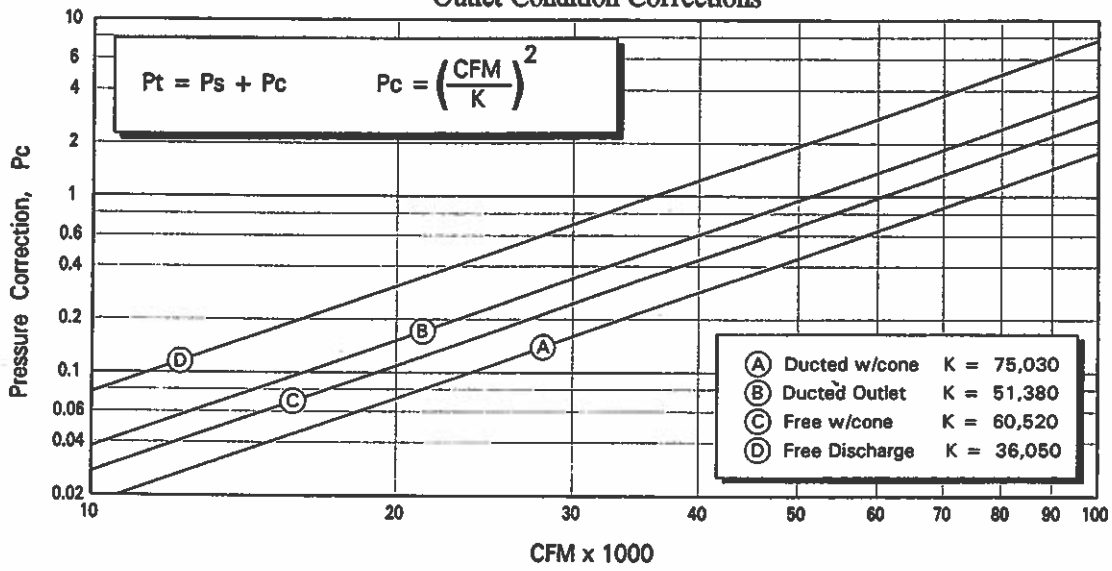
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 48F26

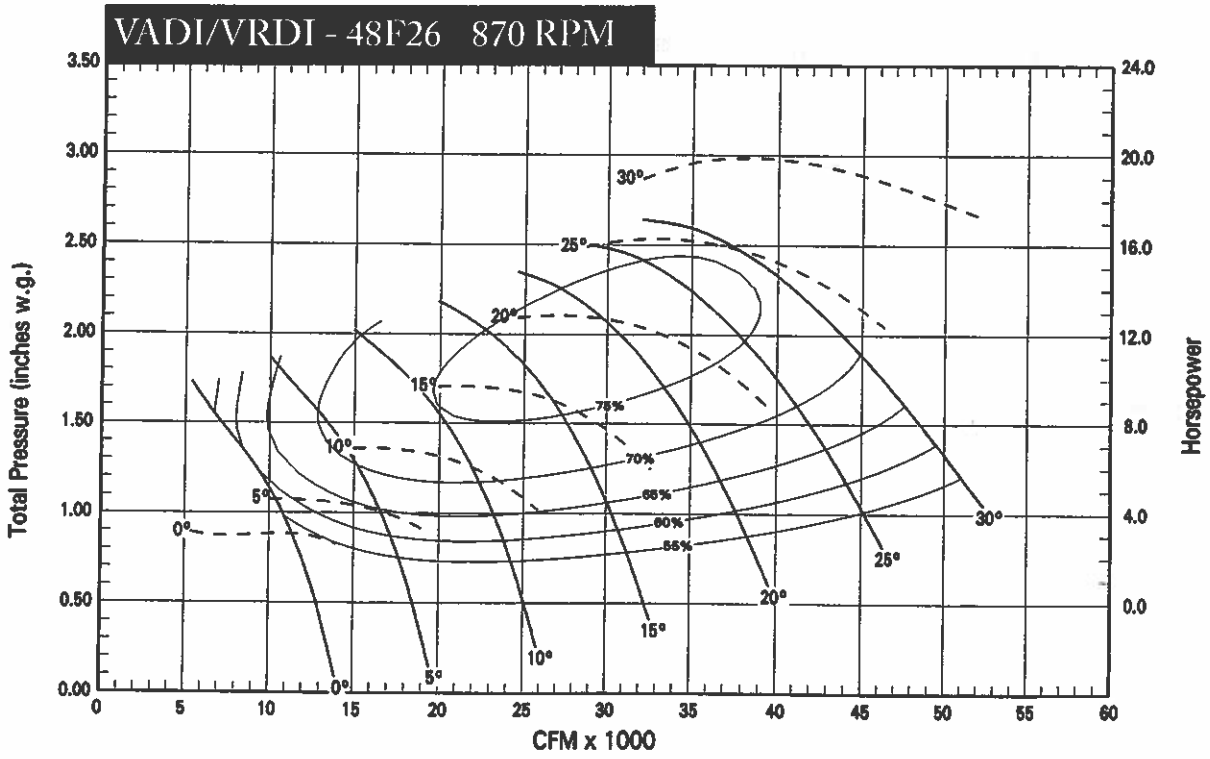
Fan Outlet Area = 12.83 sq.ft.
Cone Outlet Area = 20.46 sq.ft.
Tip Speed = 12.65 x RPM
Minimum Blade Angle for VRDI = -5 deg.

Minimum Frame Size for VADI = 254T
Minimum Frame Size for VRDI = 254T
Maximum Motor Frame Size = 445T

Outlet Condition Corrections

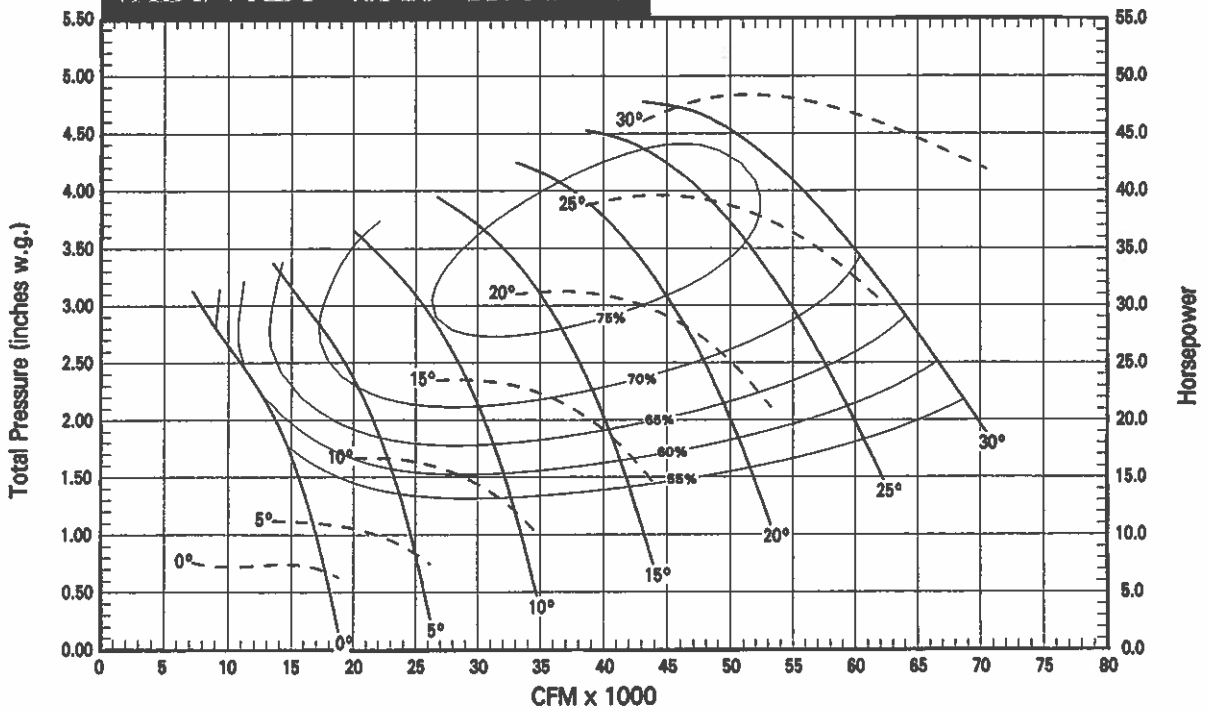


The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



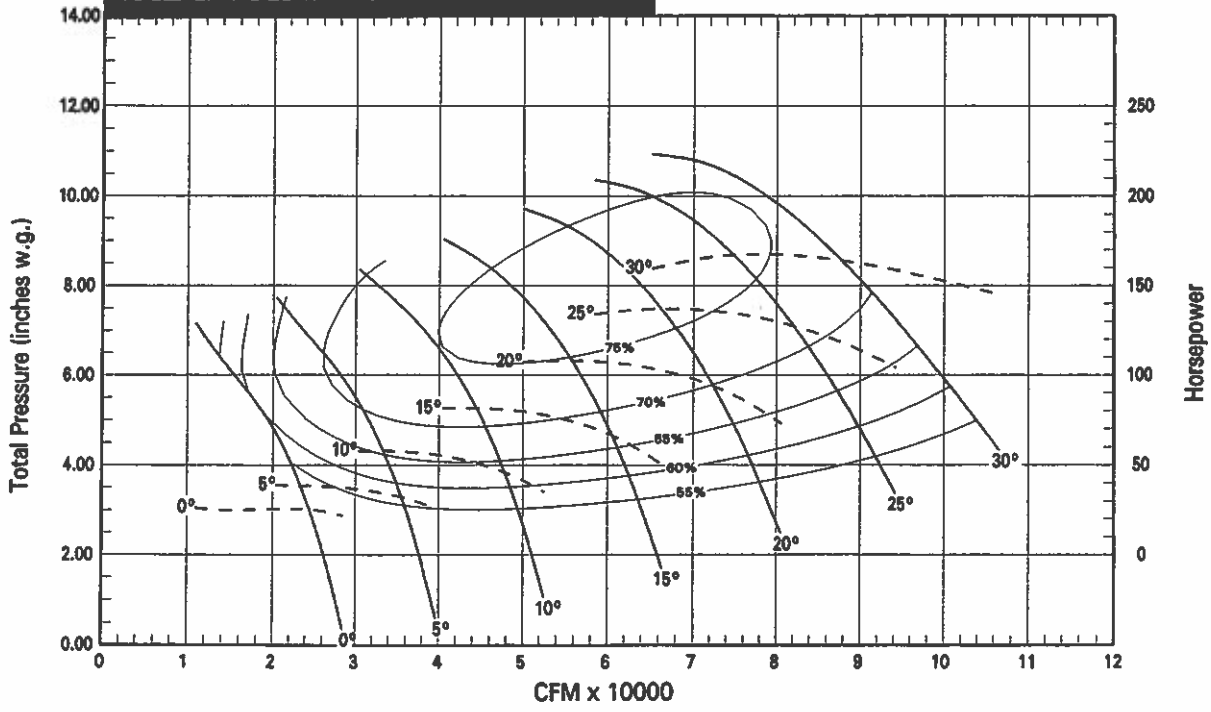
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 48F26 1170 RPM



Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 48F26 1770 RPM



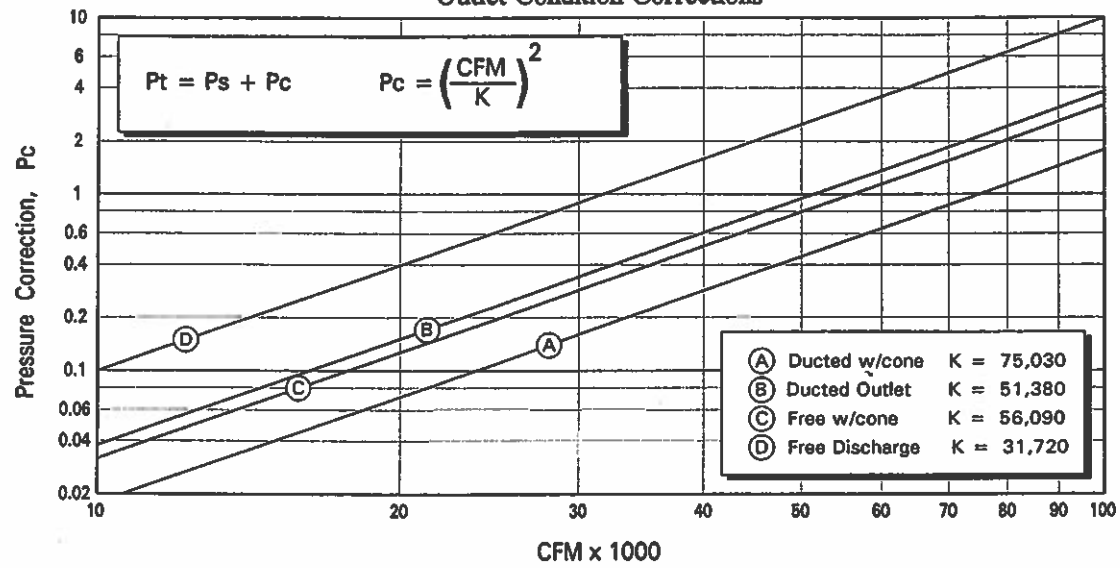
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI - 48F30

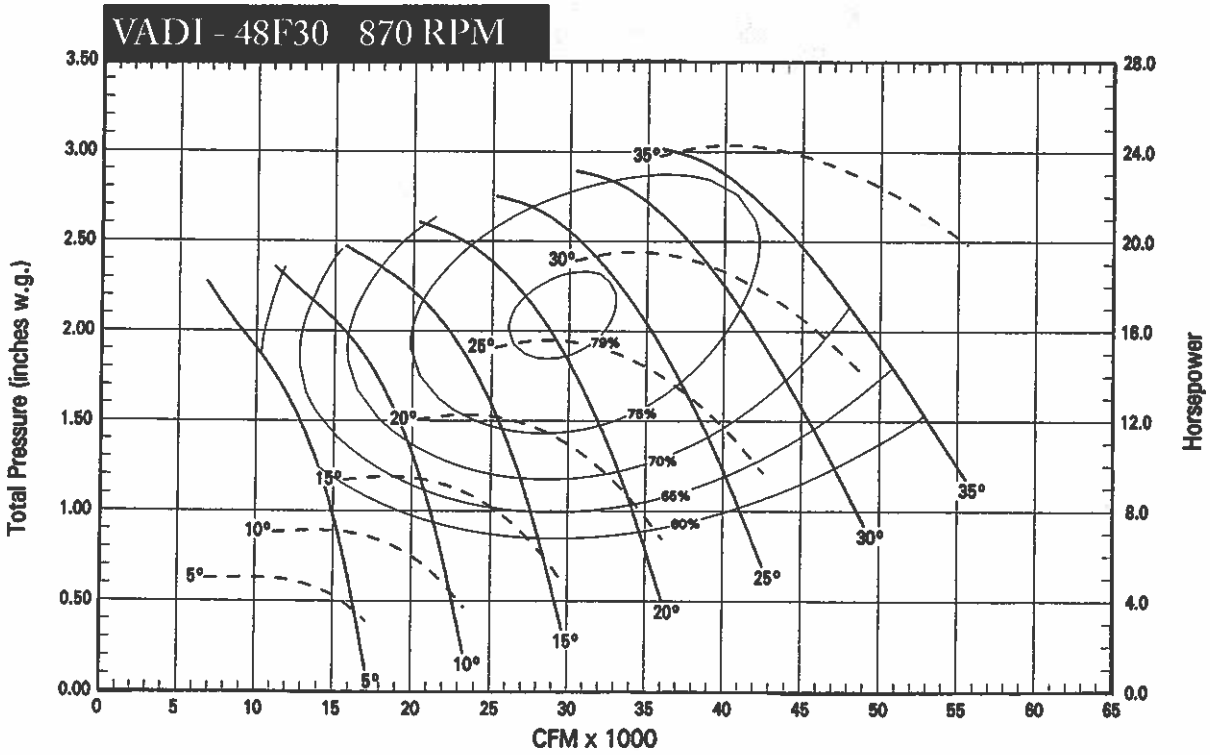
Fan Outlet Area = 12.83 sq.ft.
Cone Outlet Area = 20.46 sq.ft.
Tip Speed = 12.65 x RPM

Minimum Motor Frame Size = 254T
Maximum Motor Frame Size = 445T

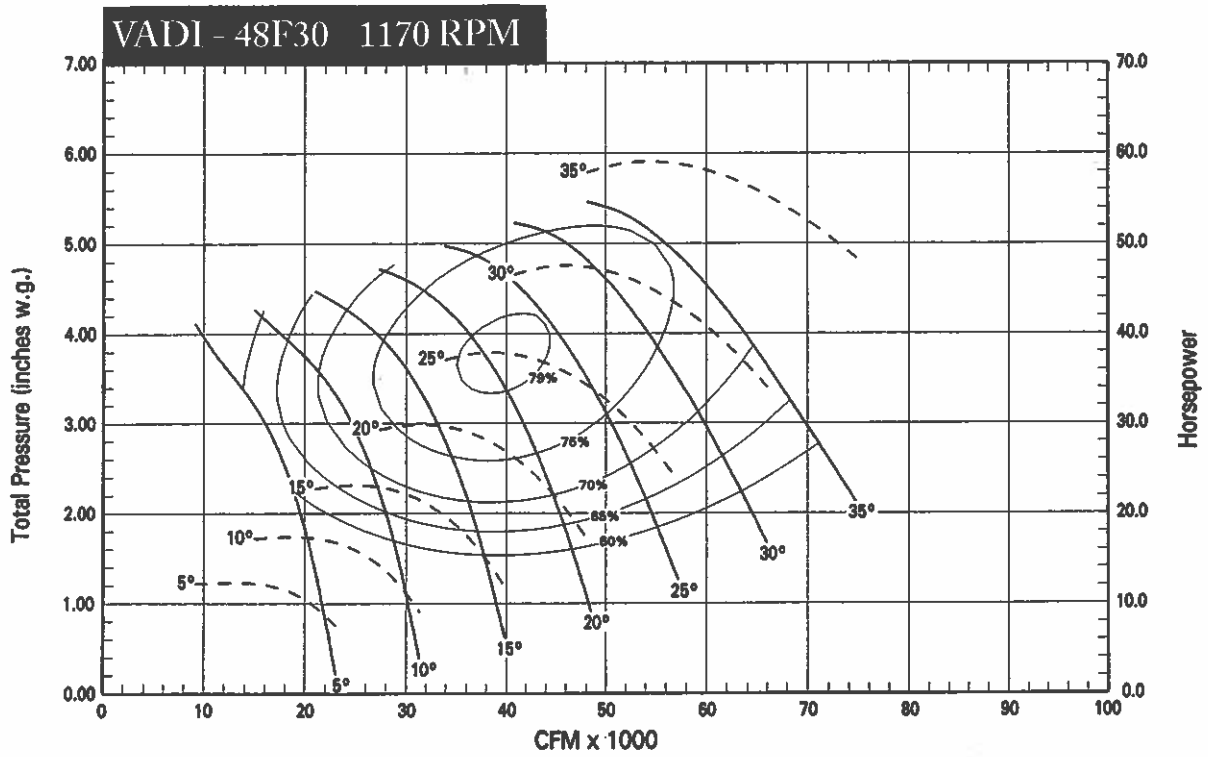
Outlet Condition Corrections



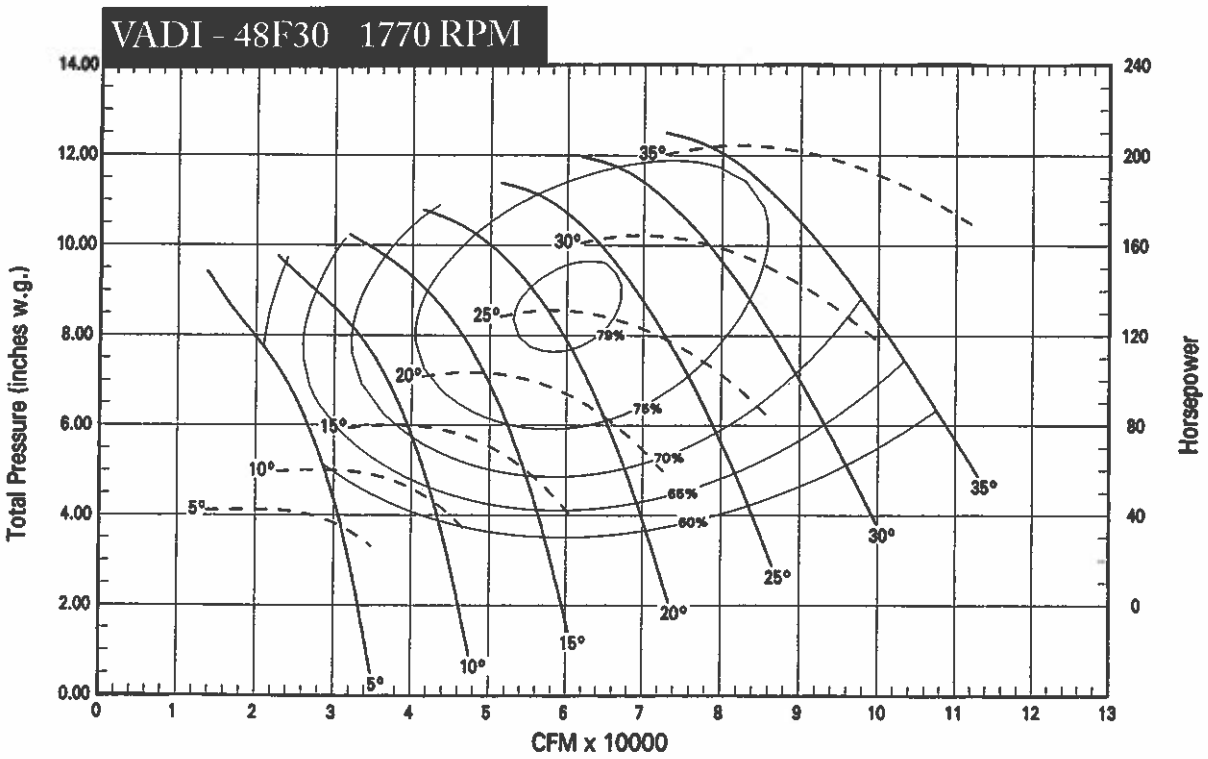
The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



Performance shown is for Model VADI with inlet and outlet ducts.



Performance shown is for Model VADI with inlet and outlet ducts.



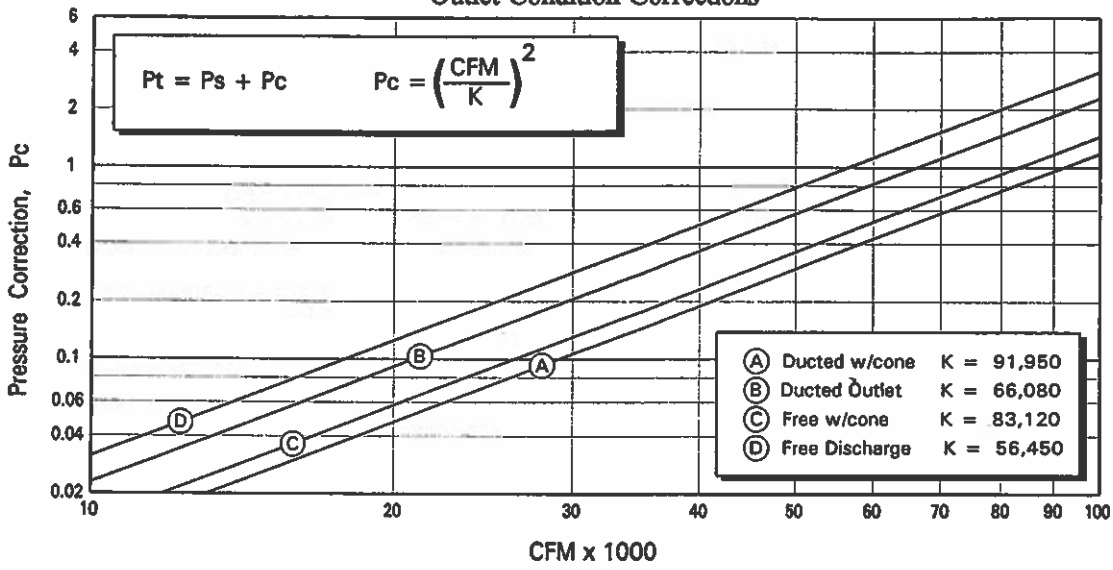
Performance shown is for Model VADI with inlet and outlet ducts.

VADI/VRDI - 54H21

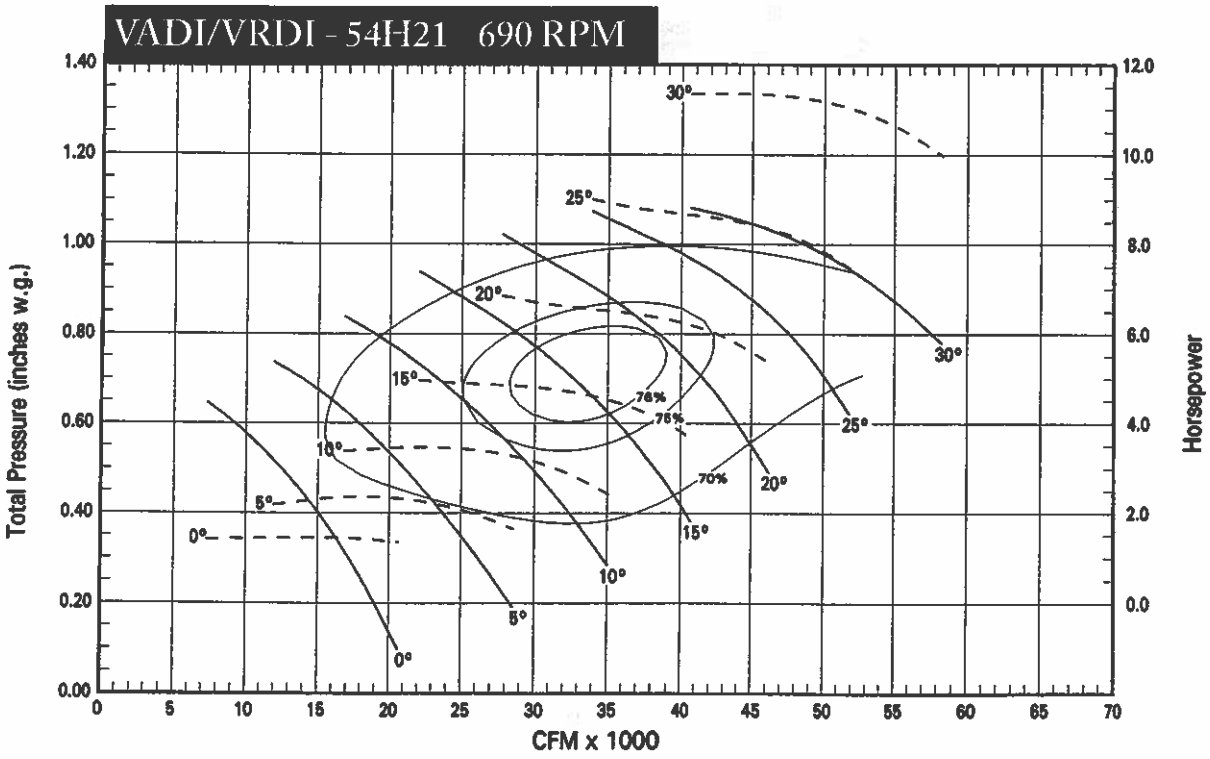
Fan Outlet Area = 16.50 sq.ft.
Cone Outlet Area = 24.67 sq.ft.
Tip Speed = 14.35 x RPM
Minimum Blade Angle for VRDI = -5 deg.

Minimum Frame Size for VADI = 182T
Minimum Frame Size for VRDI = 213T
Maximum Motor Frame Size = 365T

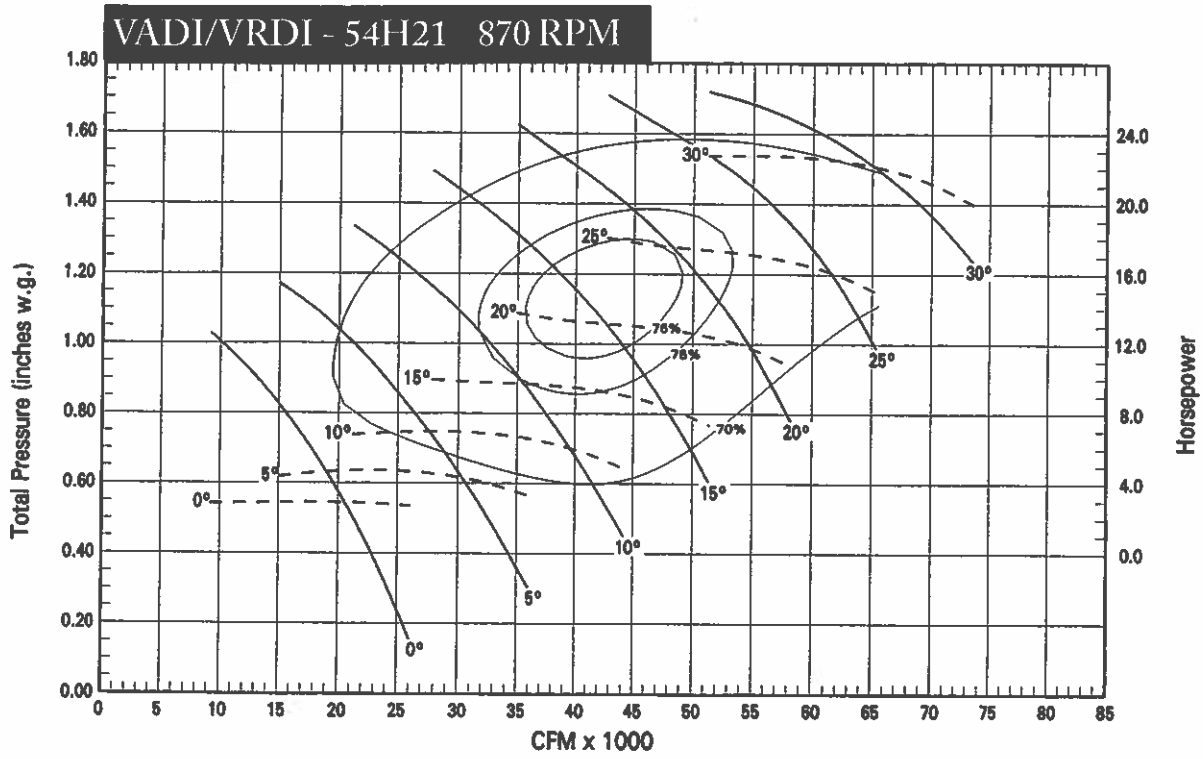
Outlet Condition Corrections



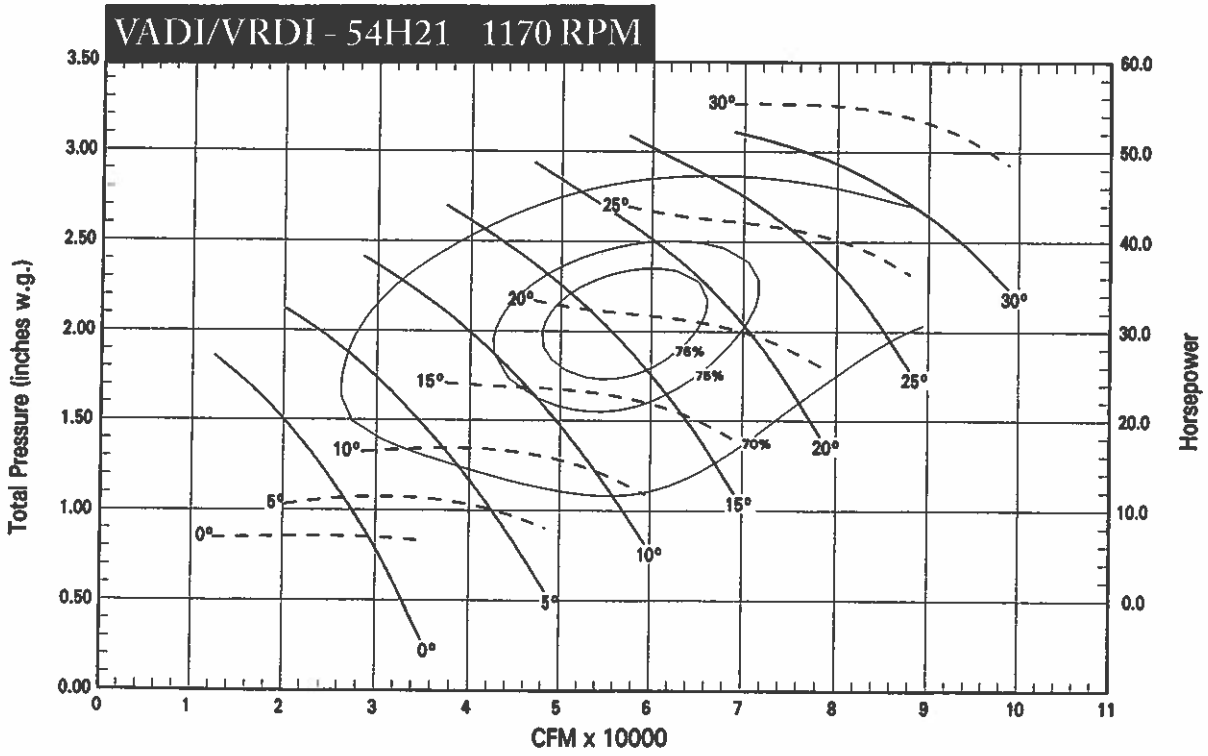
The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



Performance shown is for Model VADI/VRDI with inlet and outlet ducts.



Performance shown is for Model VADI/VRDI with inlet and outlet ducts.



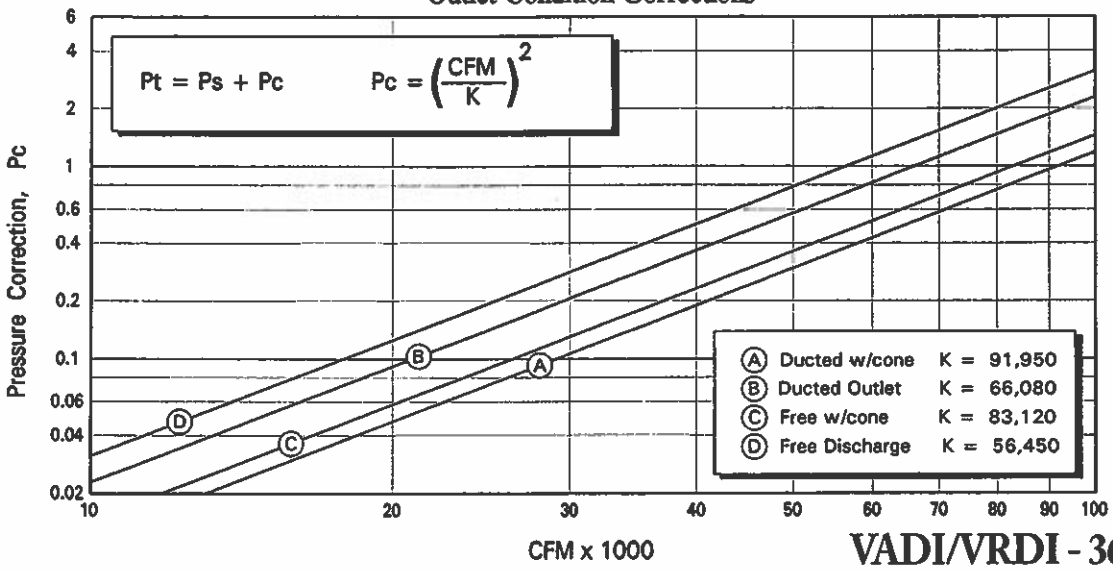
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 54F21

Fan Outlet Area = 16.50 sq.ft.
Cone Outlet Area = 24.67 sq.ft.
Tip Speed = 14.35 x RPM
Minimum Blade Angle for VRDI = -5 deg.

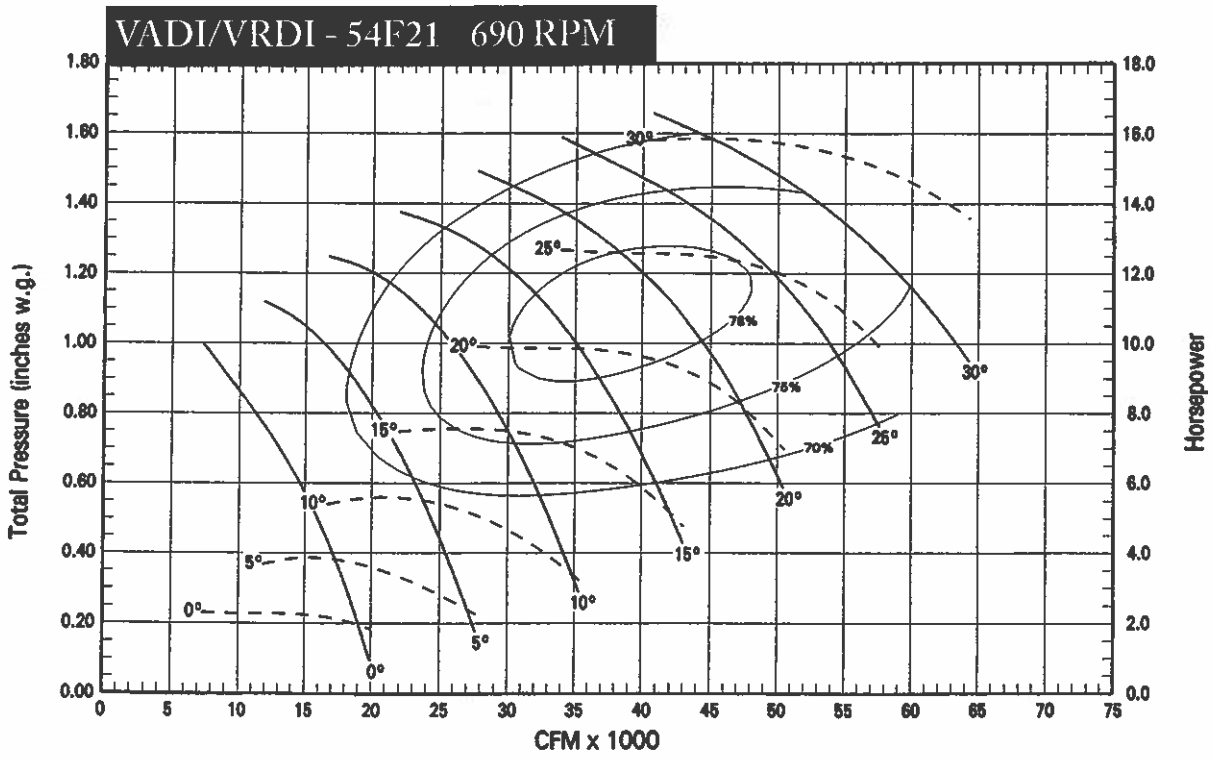
Minimum Frame Size for VADI = 182T
Minimum Frame Size for VRDI = 213T
Maximum Motor Frame Size = 365T

Outlet Condition Corrections



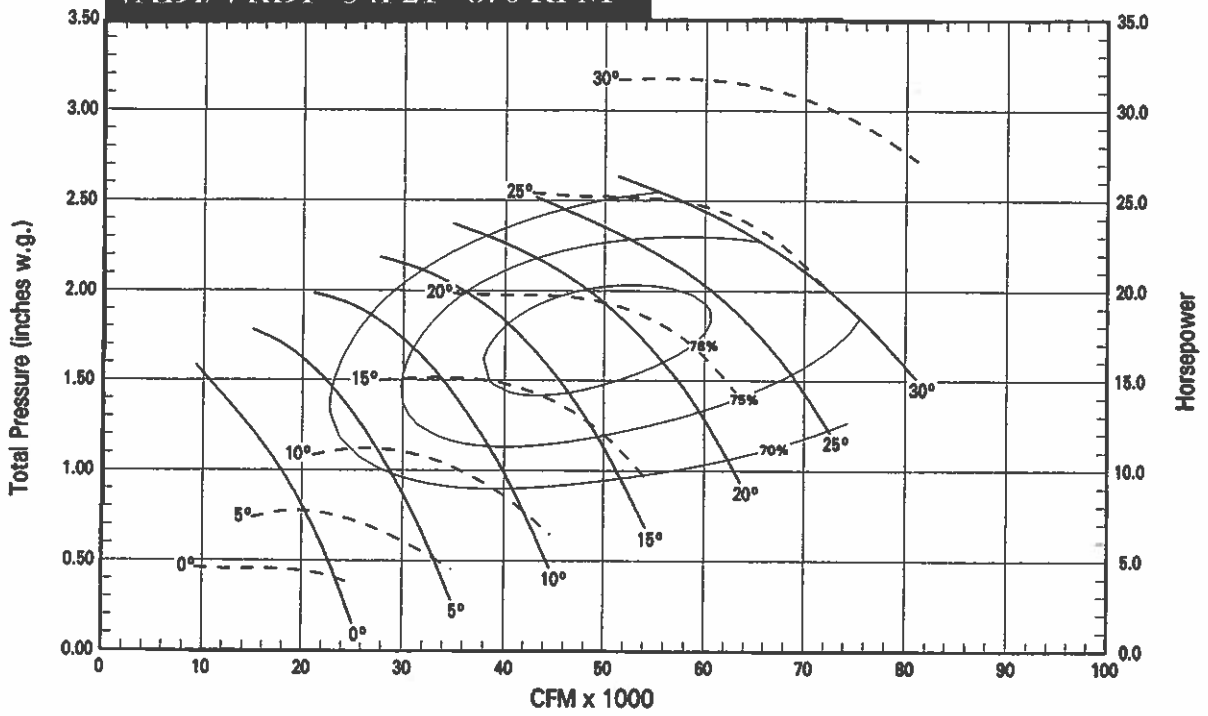
VADI/VRDI - 36F17

The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



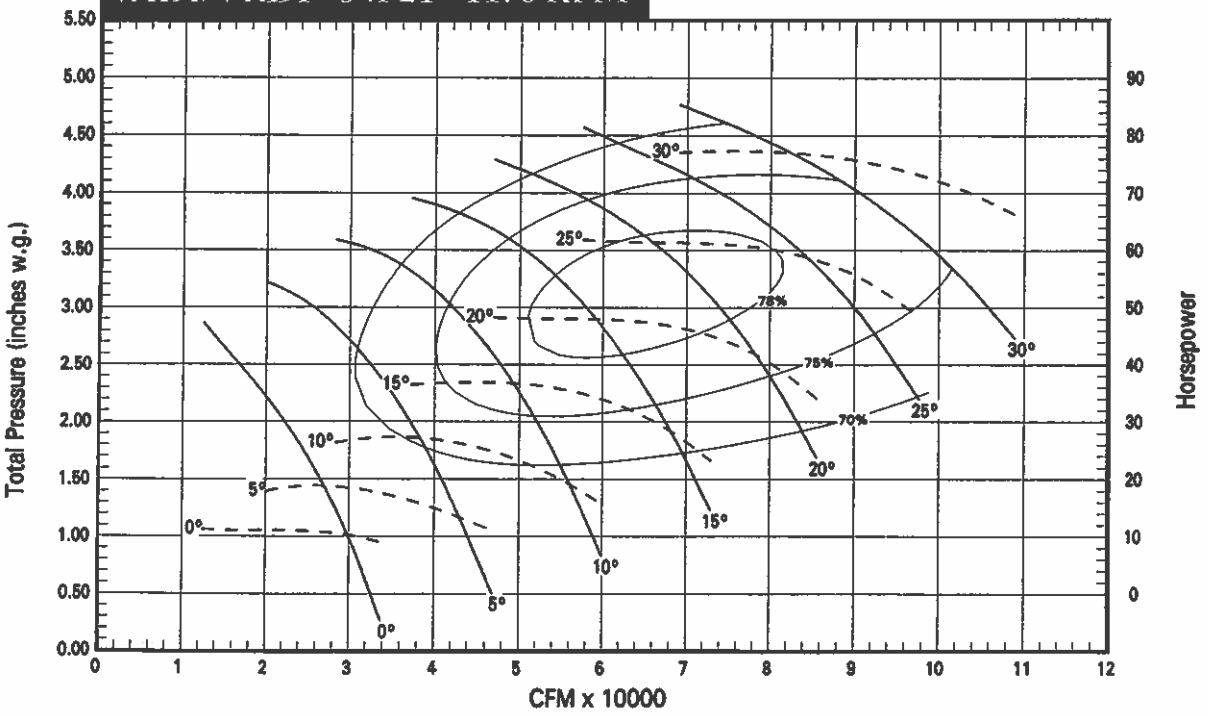
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 54F21 870 RPM



Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 54F21 1170 RPM



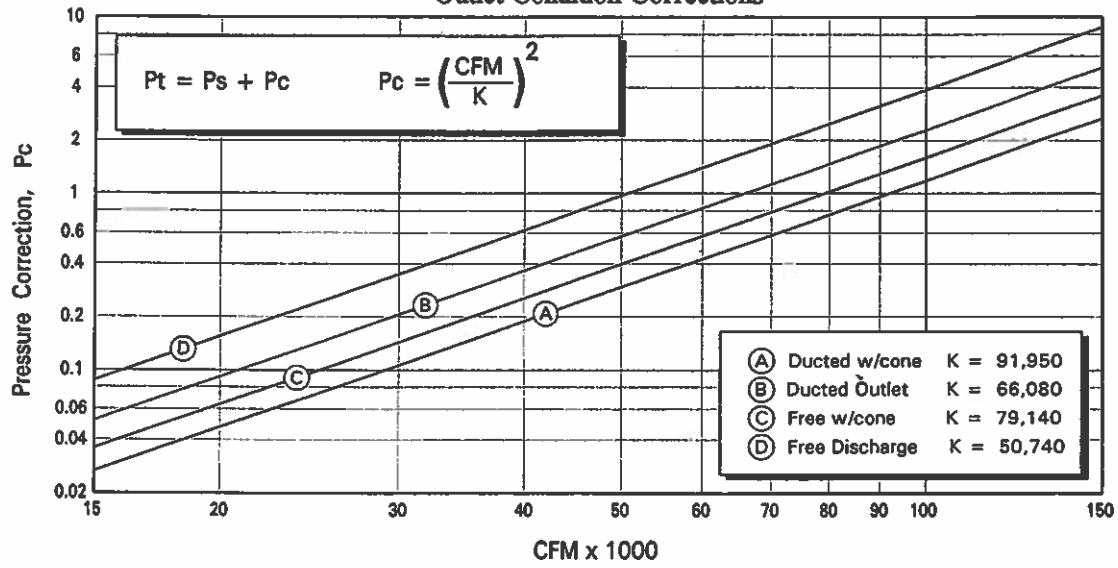
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 54F26

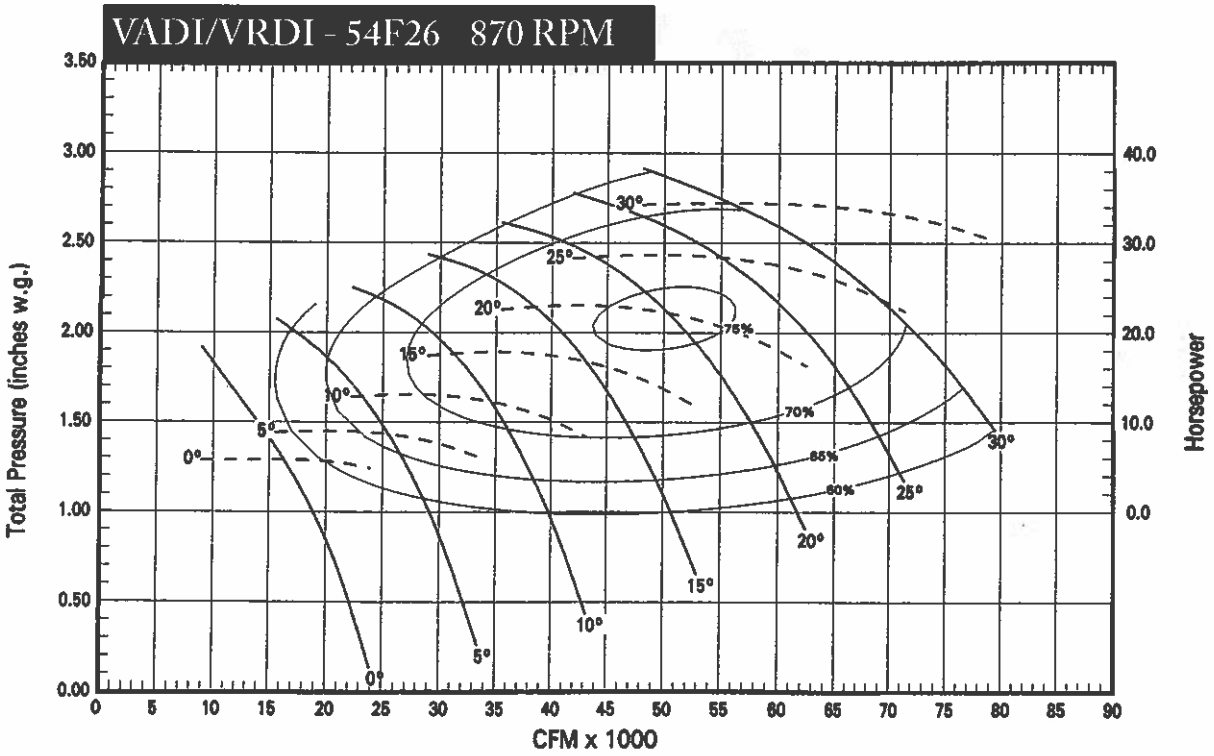
Fan Outlet Area = 16.50 sq.ft.
Cone Outlet Area = 24.67 sq.ft.
Tip Speed = 14.35 x RPM
Minimum Blade Angle for VRDI = -5 deg.

Minimum Frame Size for VADI = 254T
Minimum Frame Size for VRDI = 254T
Maximum Motor Frame Size = 445T

Outlet Condition Corrections

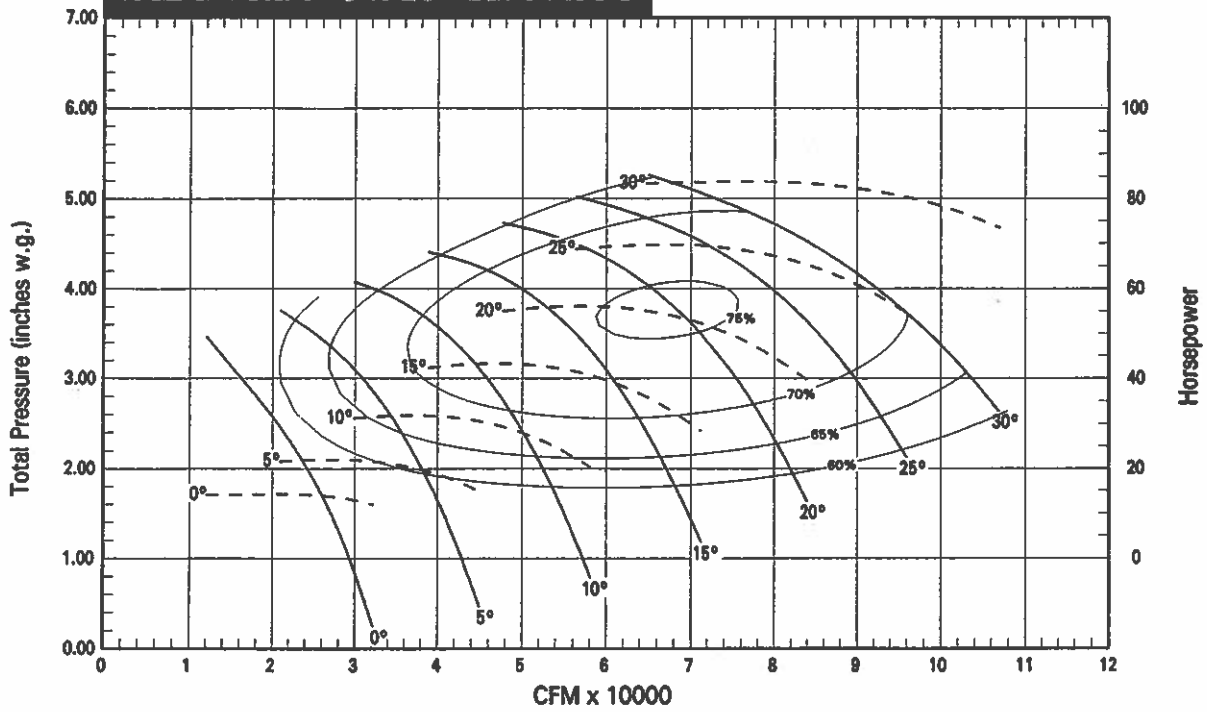


The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



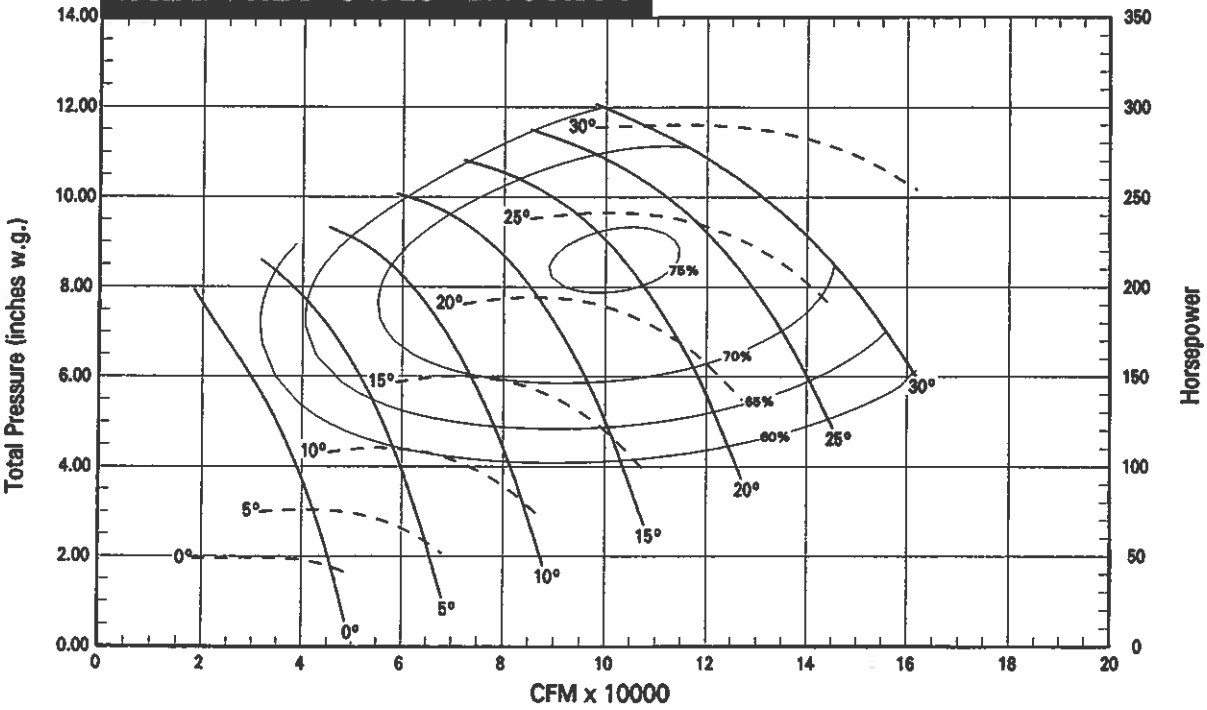
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 54F26 1170 RPM



Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 54F26 1770 RPM



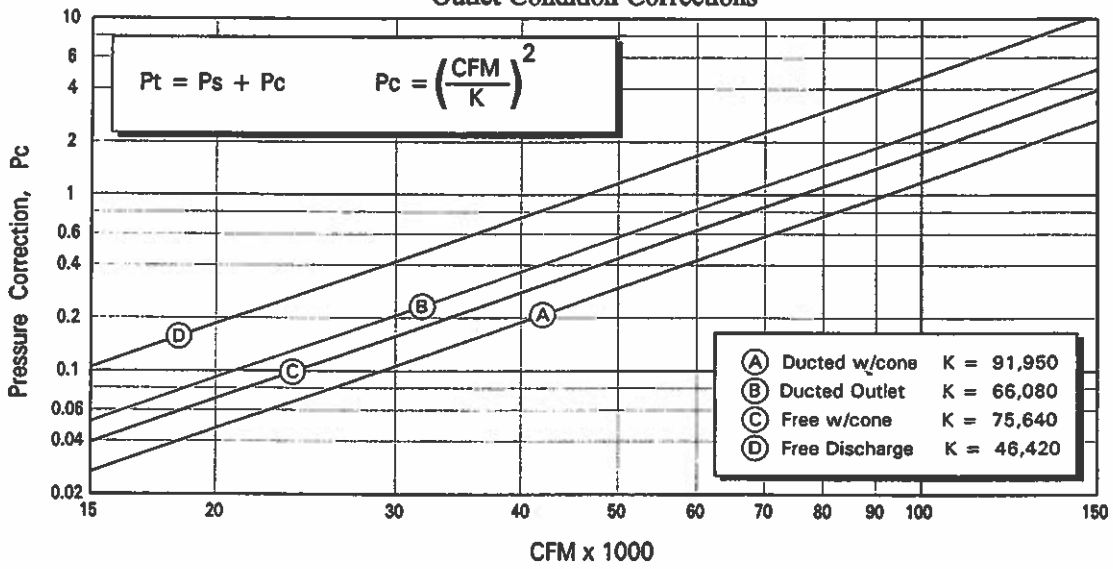
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI - 54F30

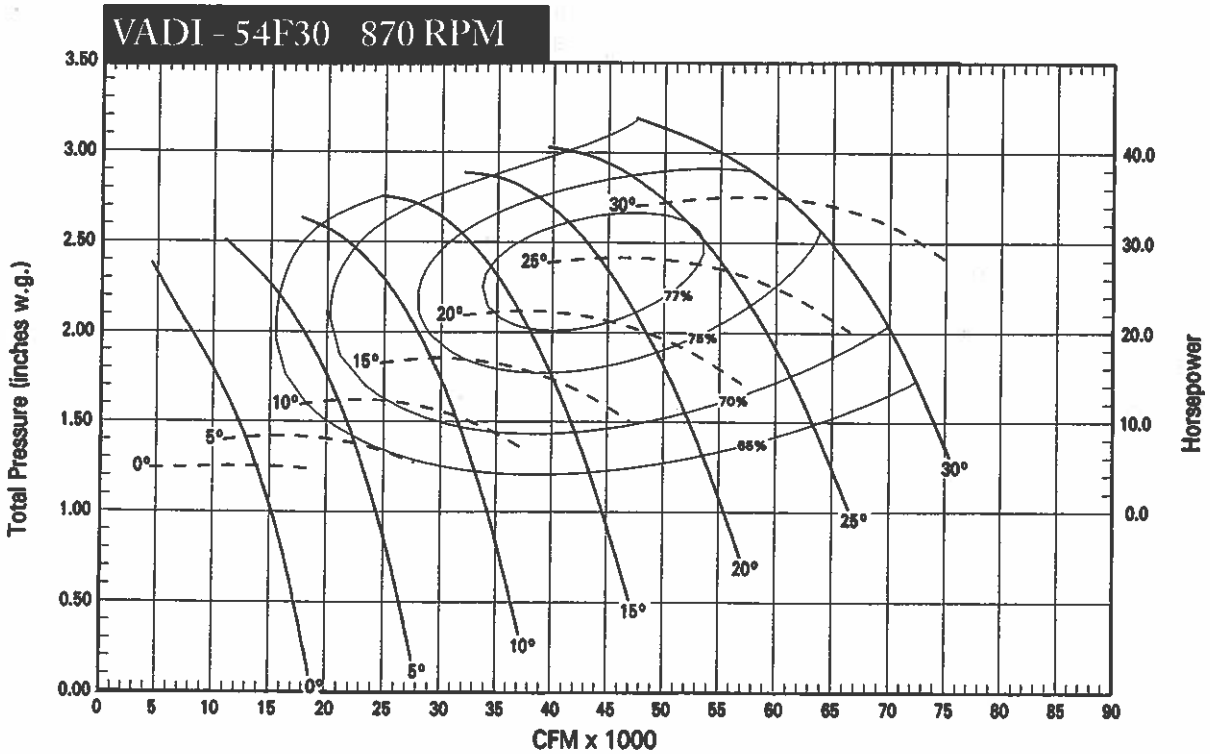
Fan Outlet Area = 16.50 sq.ft.
Cone Outlet Area = 24.67 sq.ft.
Tip Speed = 14.35 x RPM

Minimum Motor Frame Size = 254T
Maximum Motor Frame Size = 445T

Outlet Condition Corrections

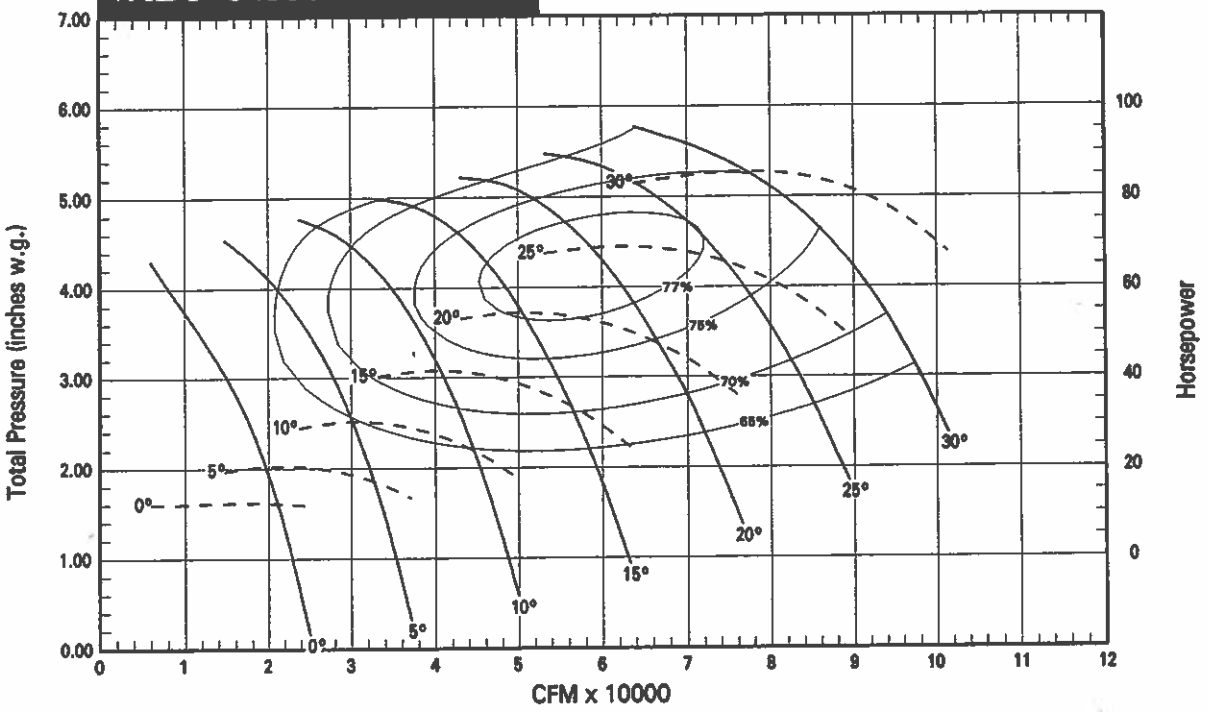


The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



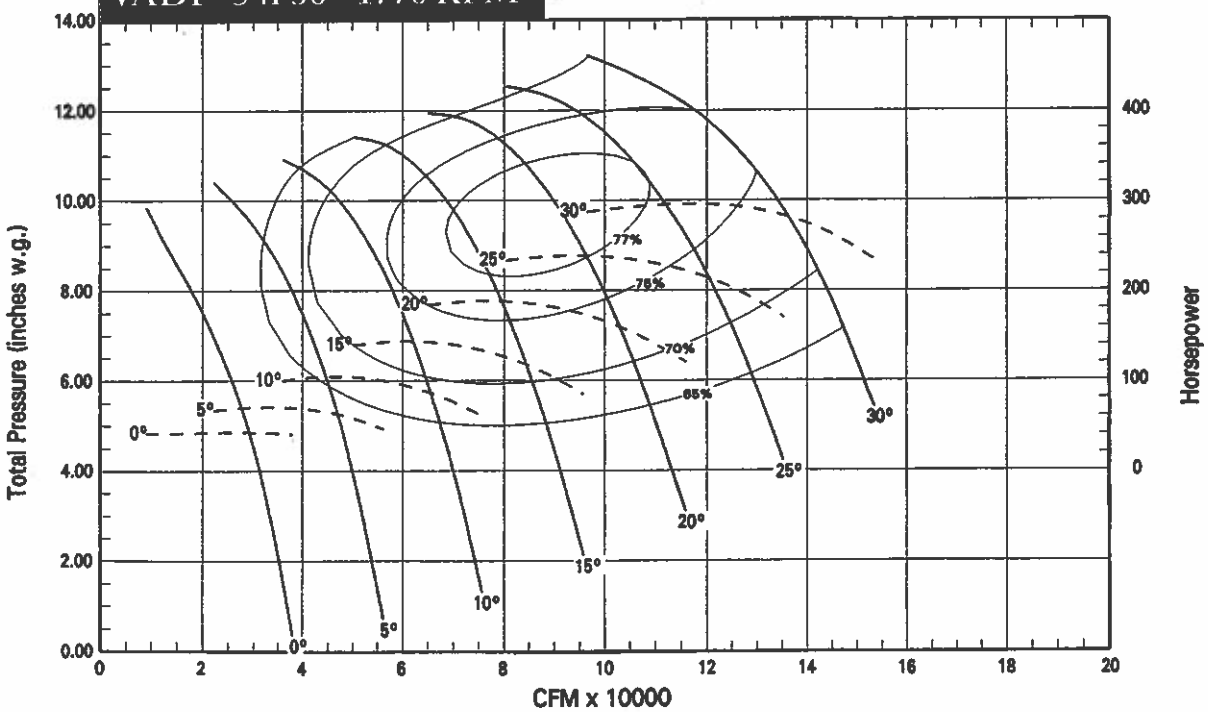
Performance shown is for Model VADI with inlet and outlet ducts.

VADI - 54F30 1170 RPM



Performance shown is for Model VADI with inlet and outlet ducts.

VADI - 54F30 1770 RPM



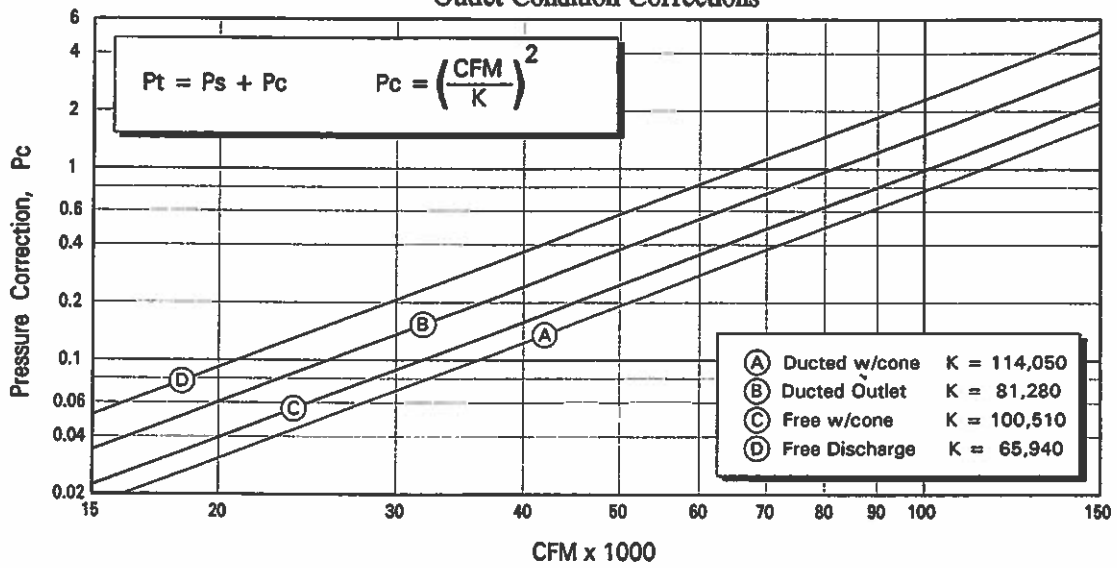
Performance shown is for Model VADI with inlet and outlet ducts.

VADI/VRDI - 60H26

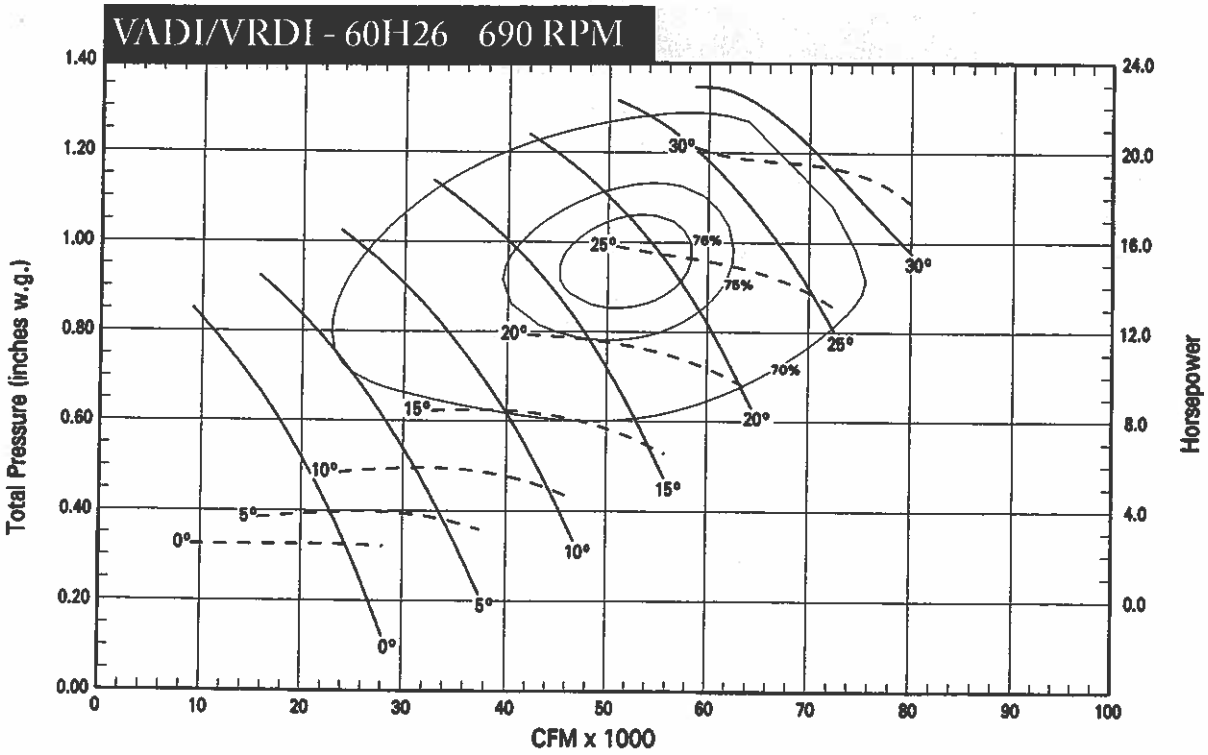
Fan Outlet Area = 20.29 sq.ft.
Cone Outlet Area = 30.68 sq.ft.
Tip Speed = 15.91 x RPM
Minimum Blade Angle for VRDI = -5 deg.

Minimum Frame Size for VADI = 254T
Minimum Frame Size for VRDI = 254T
Maximum Motor Frame Size = 445T

Outlet Condition Corrections

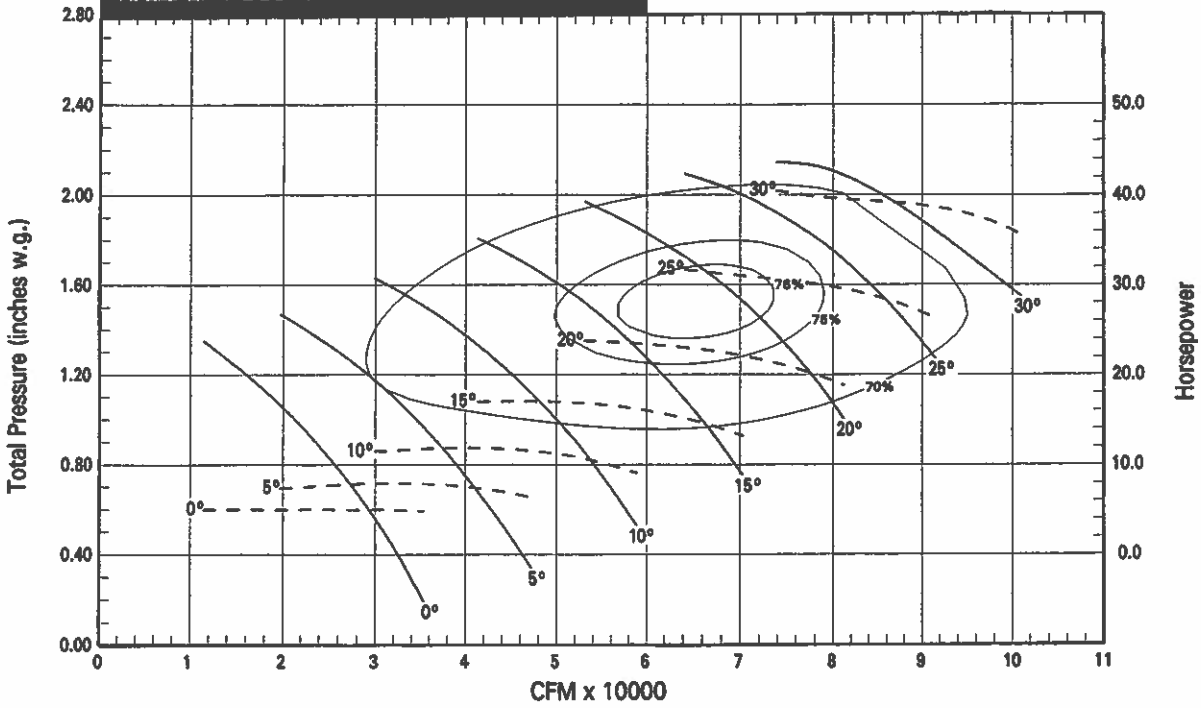


The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



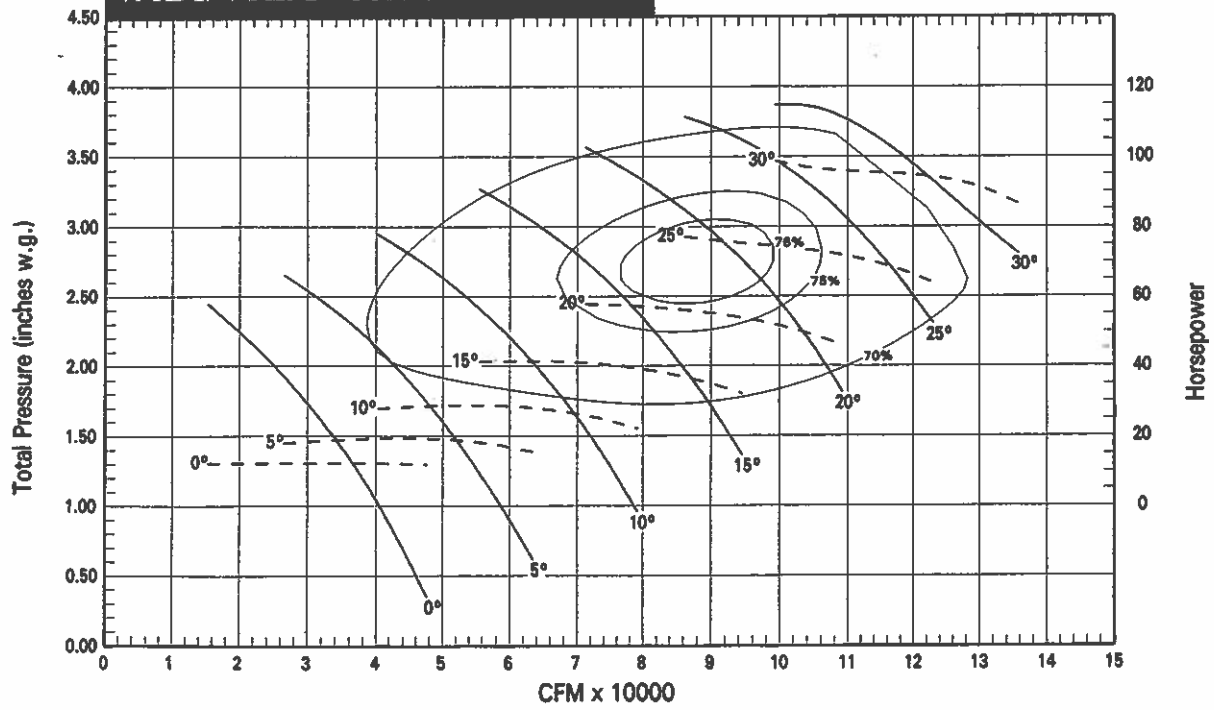
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 60H26 870 RPM



Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 60H26 1170 RPM



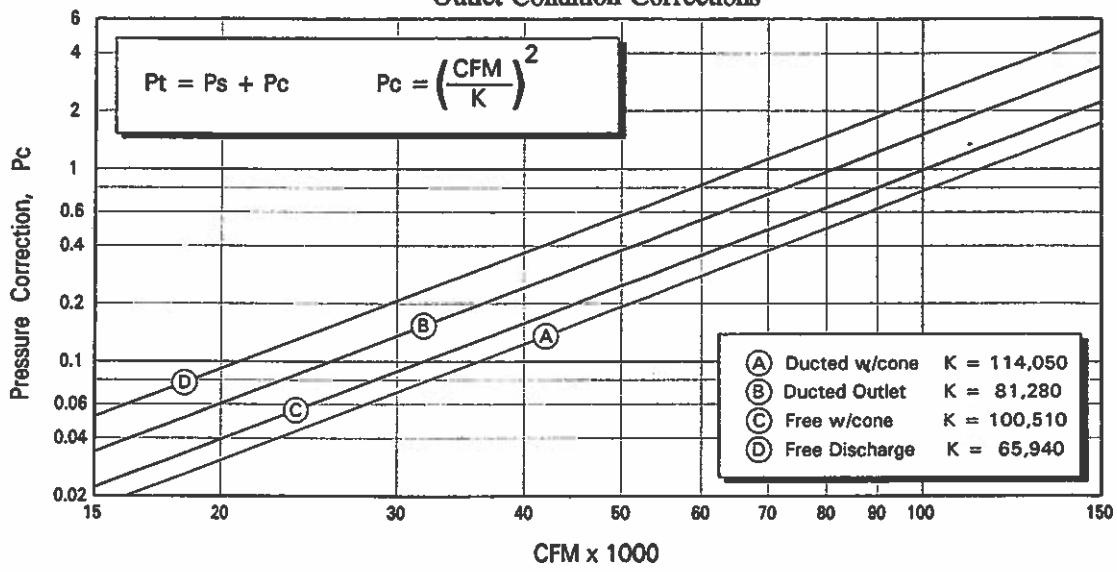
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 60F26

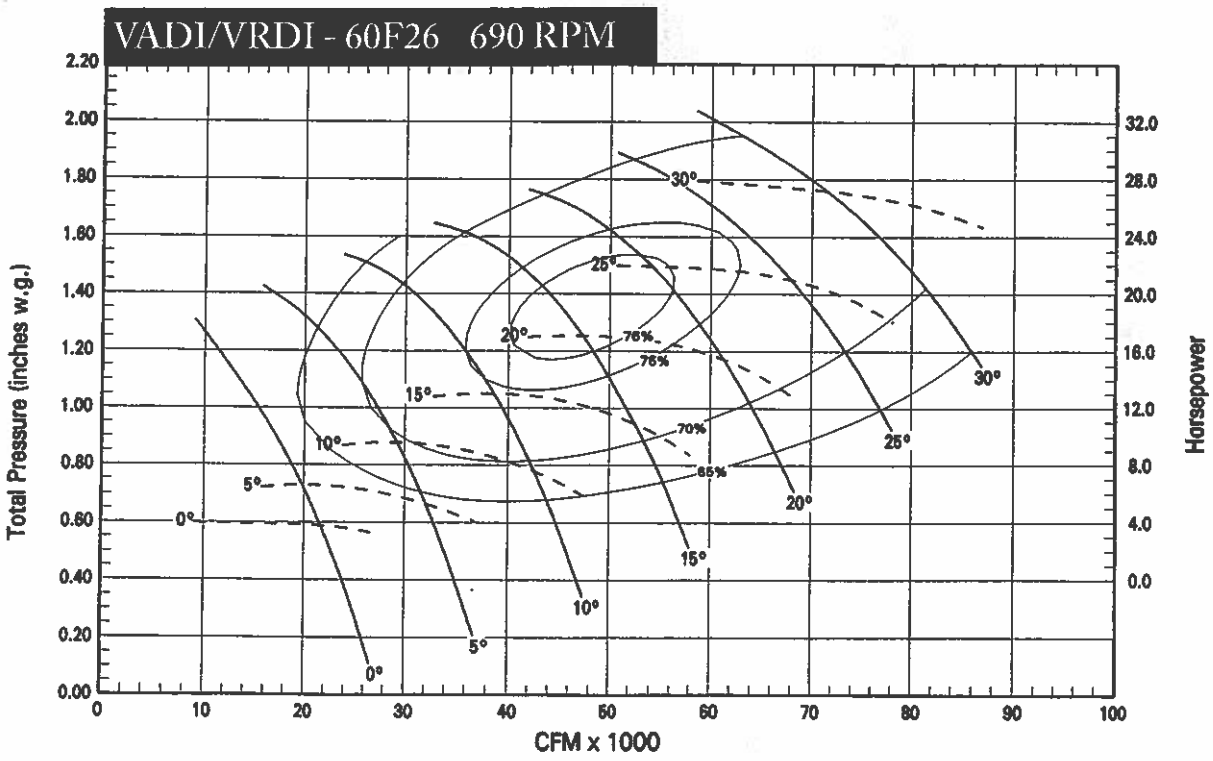
Fan Outlet Area = 20.29 sq.ft.
Cone Outlet Area = 30.68 sq.ft.
Tip Speed = 15.91 x RPM
Minimum Blade Angle for VRDI = -5 deg.

Minimum Frame Size for VADI = 254T
Minimum Frame Size for VRDI = 254T
Maximum Motor Frame Size = 445T

Outlet Condition Corrections

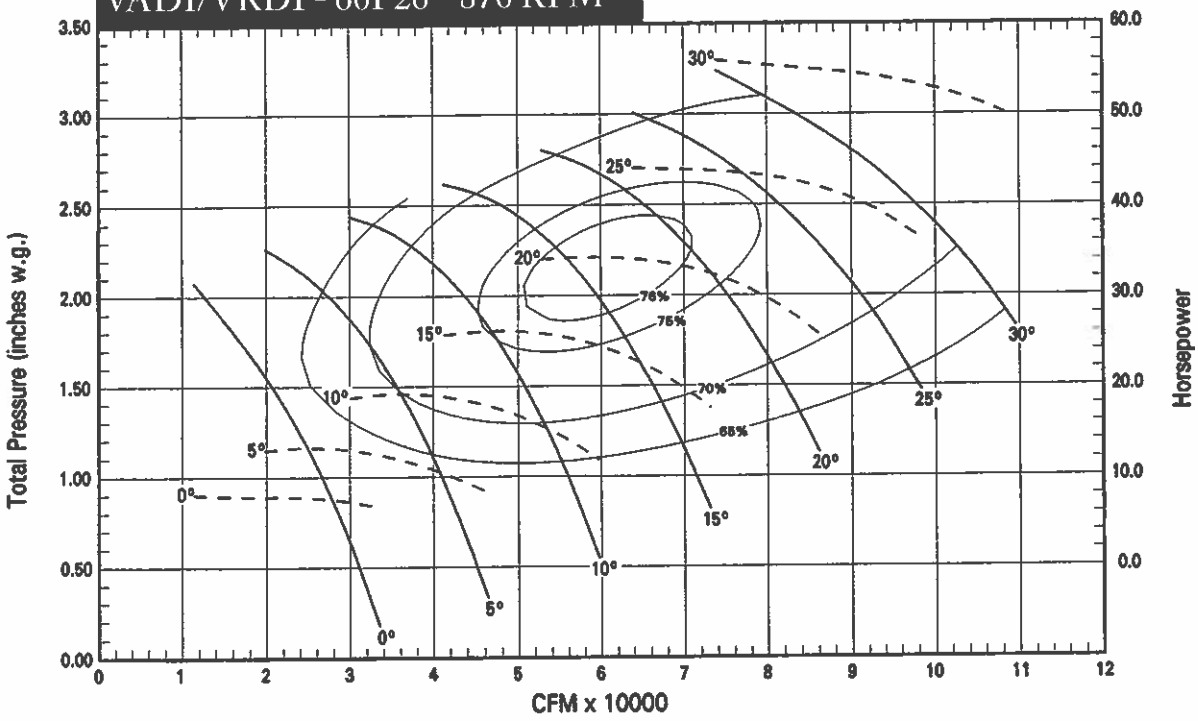


The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



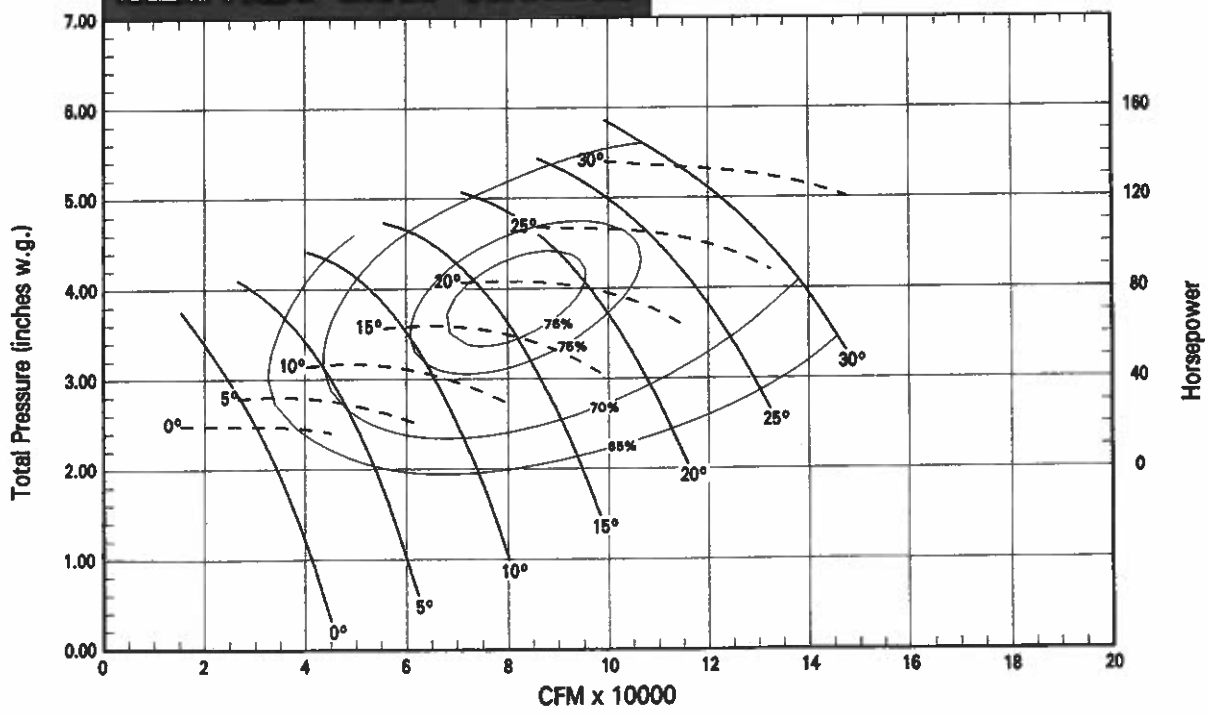
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 60F26 870 RPM



Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 60F26 1170 RPM



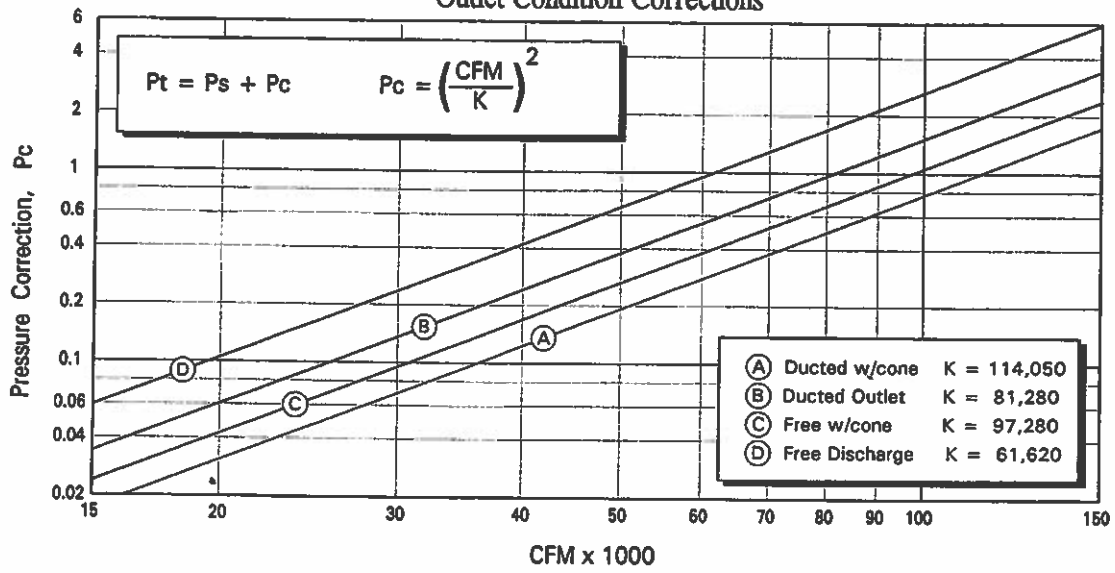
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI - 60F30

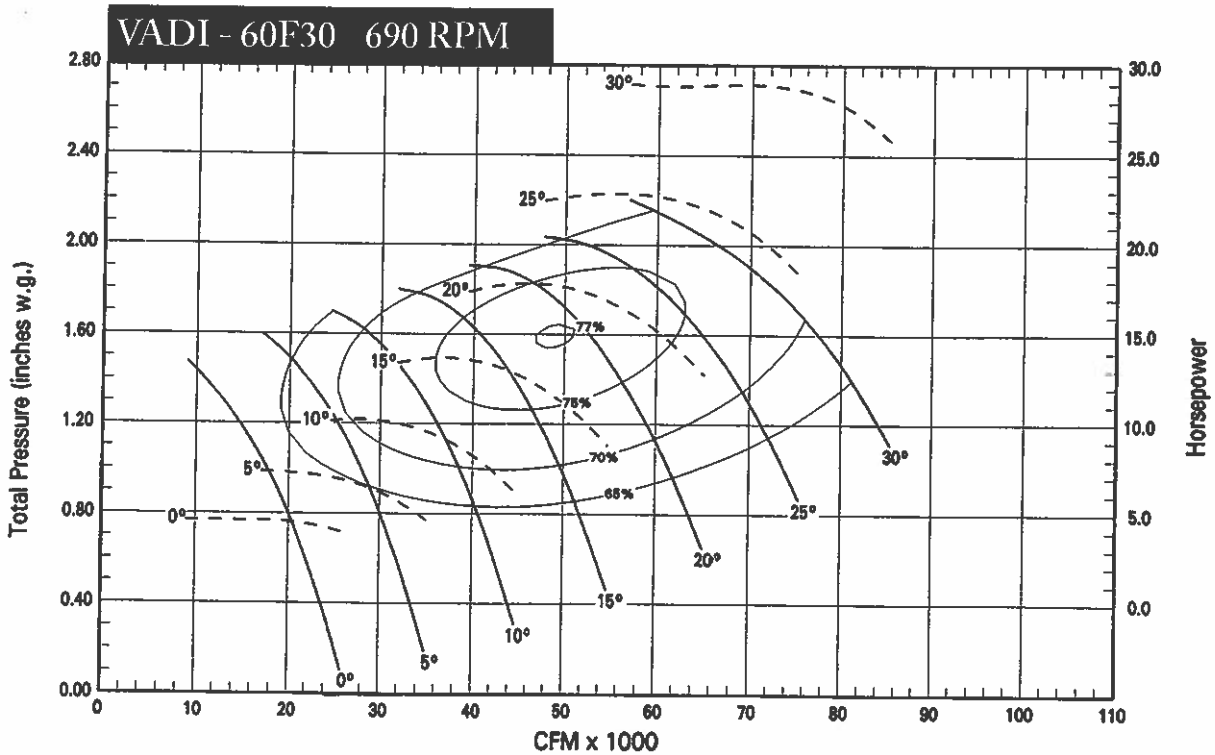
Fan Outlet Area = 20.29 sq.ft.
Cone Outlet Area = 30.68 sq.ft.
Tip Speed = 15.91 x RPM

Minimum Motor Frame Size = 254T
Maximum Motor Frame Size = 445T

Outlet Condition Corrections

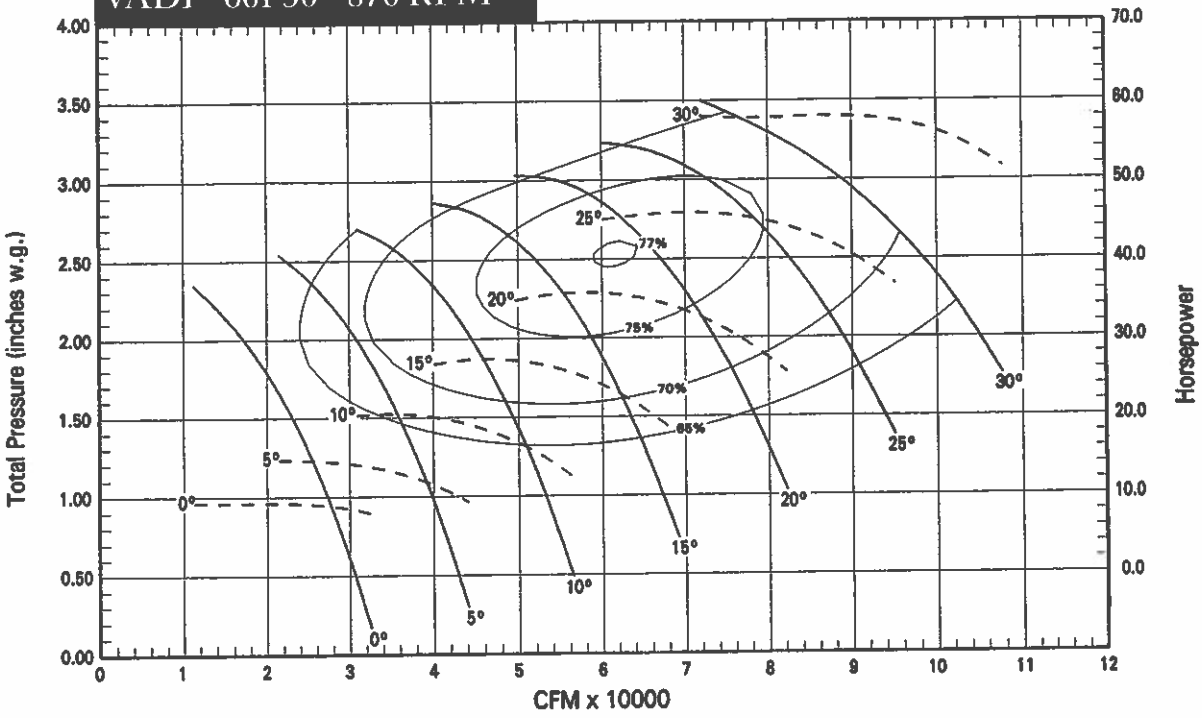


The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



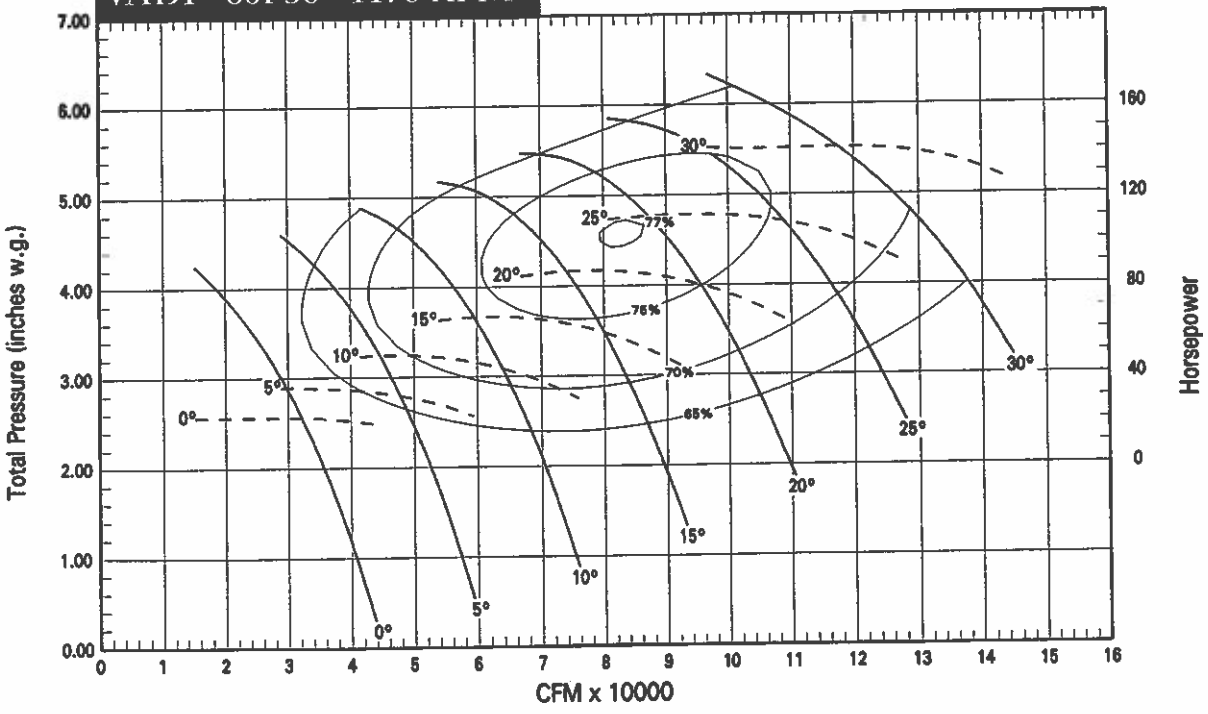
Performance shown is for Model VADI with inlet and outlet ducts.

VADI - 60F30 870 RPM



Performance shown is for Model VADI with inlet and outlet ducts.

VADI - 60F30 1170 RPM

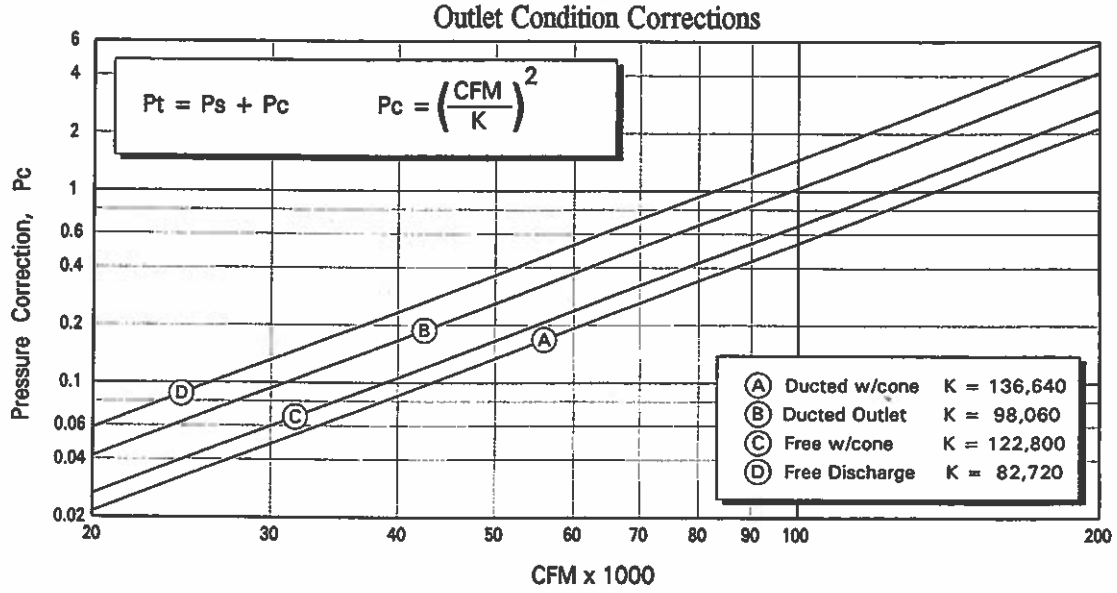


Performance shown is for Model VADI with inlet and outlet ducts.

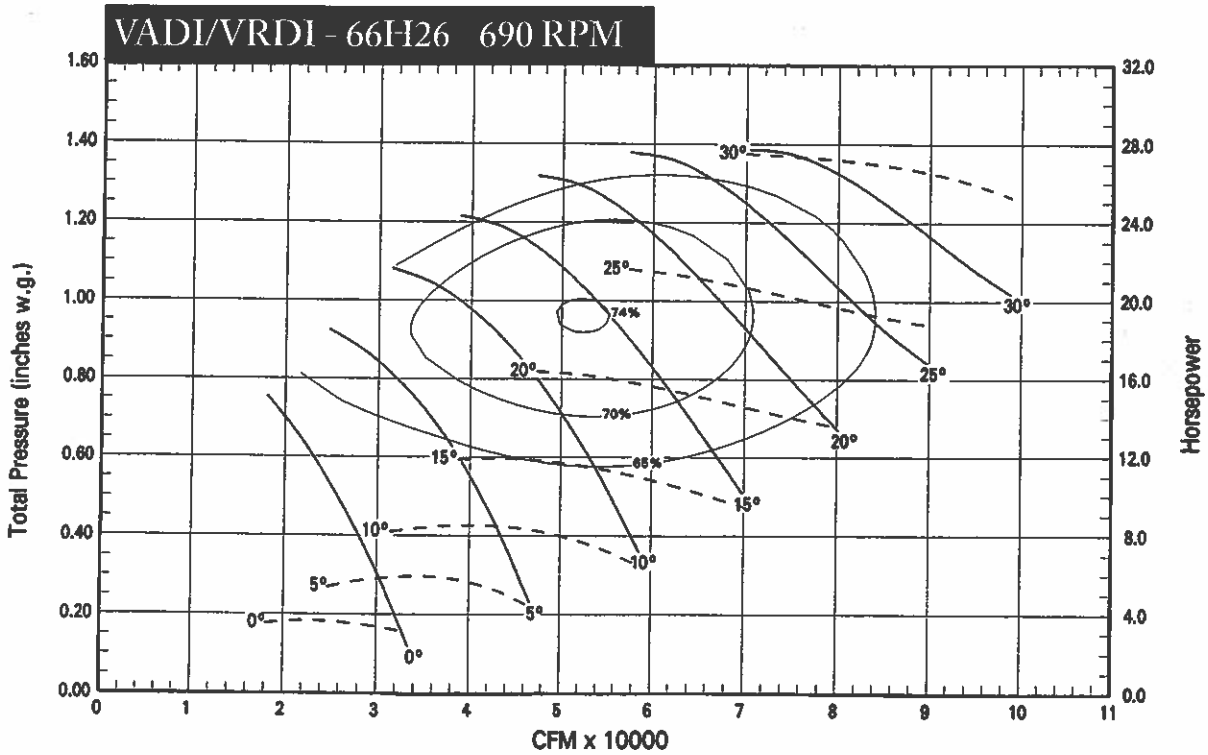
VADI/VRDI - 66H26

Fan Outlet Area = 24.48 sq.ft.
Cone Outlet Area = 36.67 sq.ft.
Tip Speed = 17.48 x RPM
Minimum Blade Angle for VRDI = -5 deg.

Minimum Frame Size for VADI = 254T
Minimum Frame Size for VRDI = 254T
Maximum Motor Frame Size = 445T

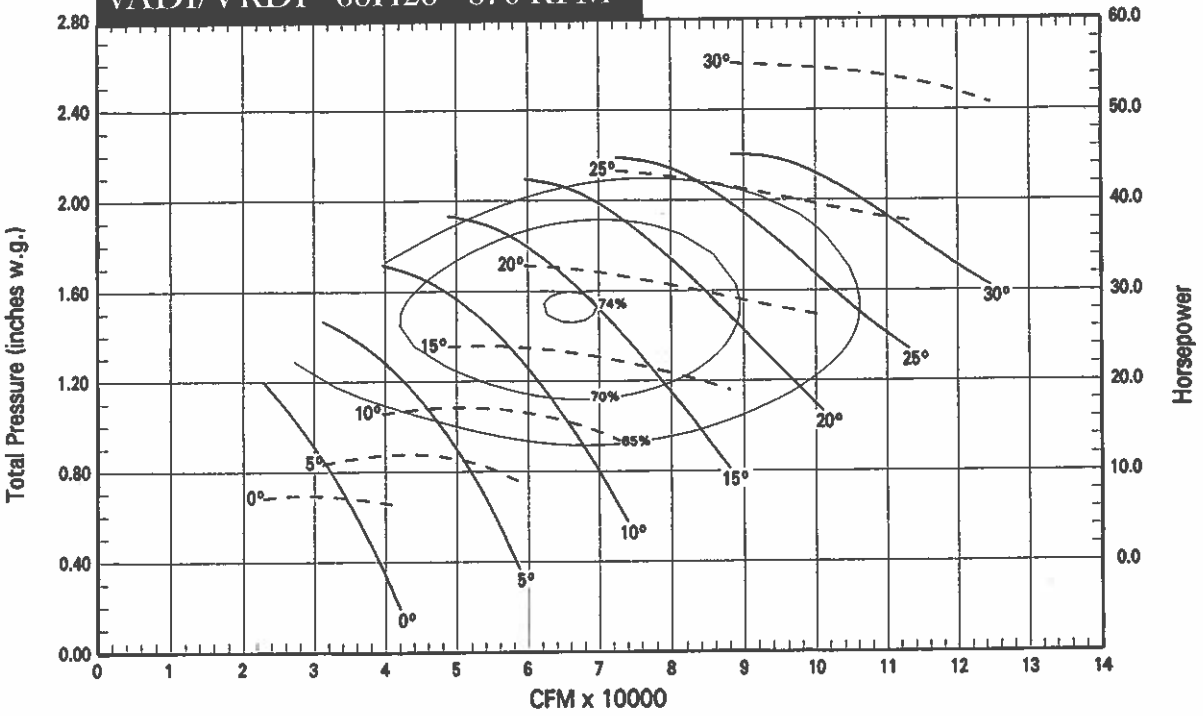


The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



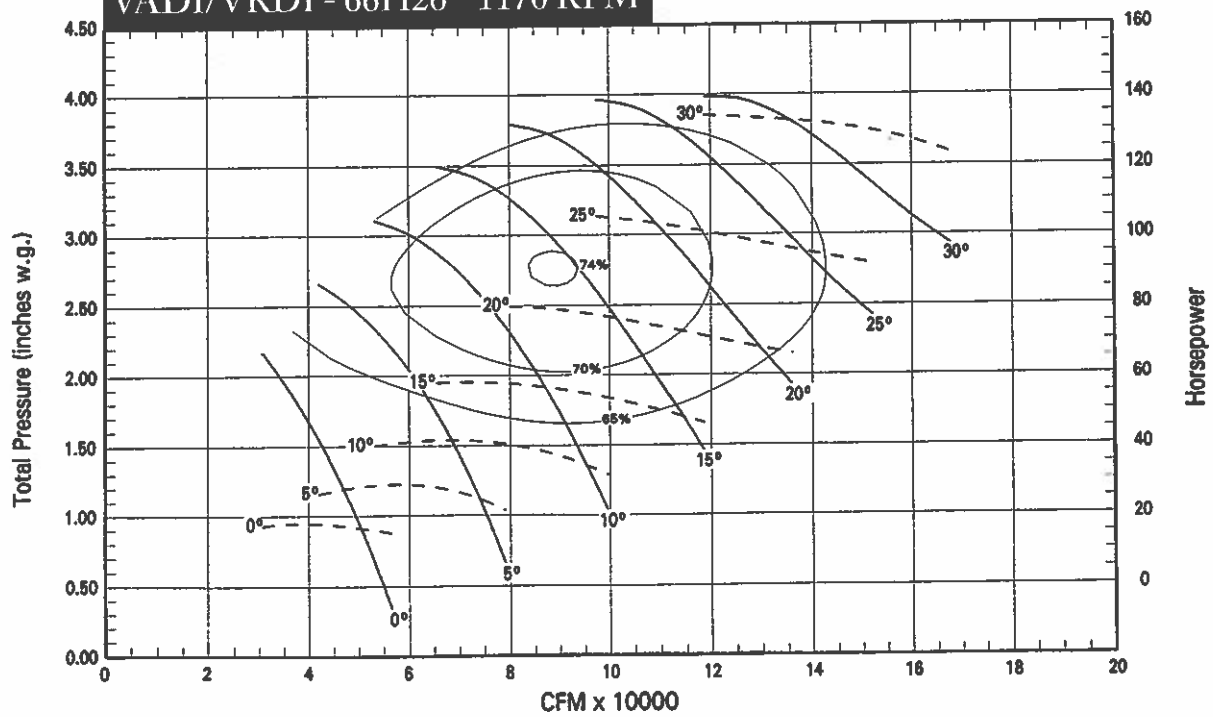
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 66H26 870 RPM



Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 66H26 1170 RPM



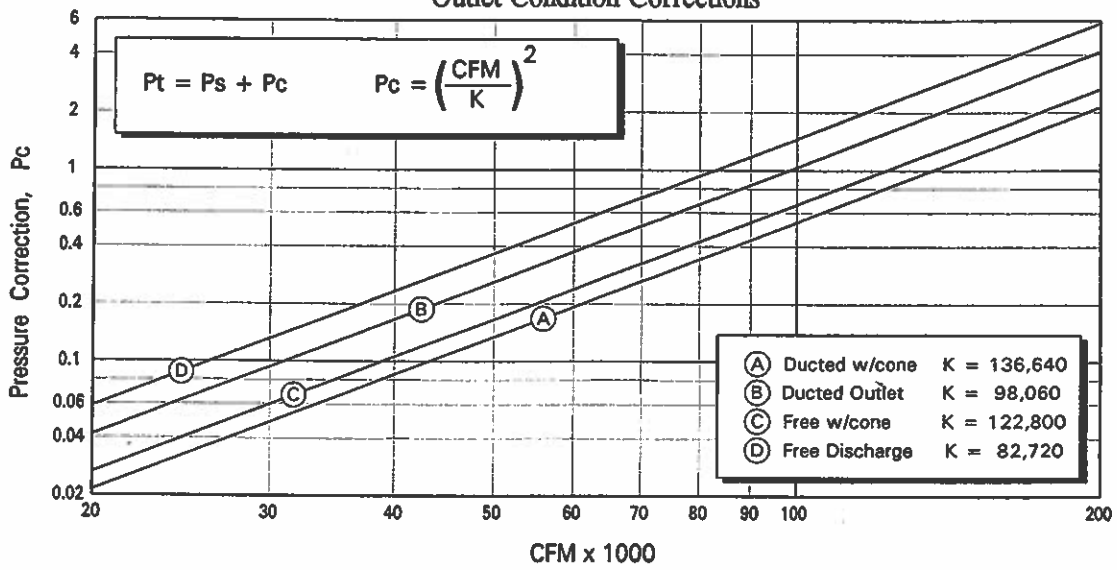
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 66F26

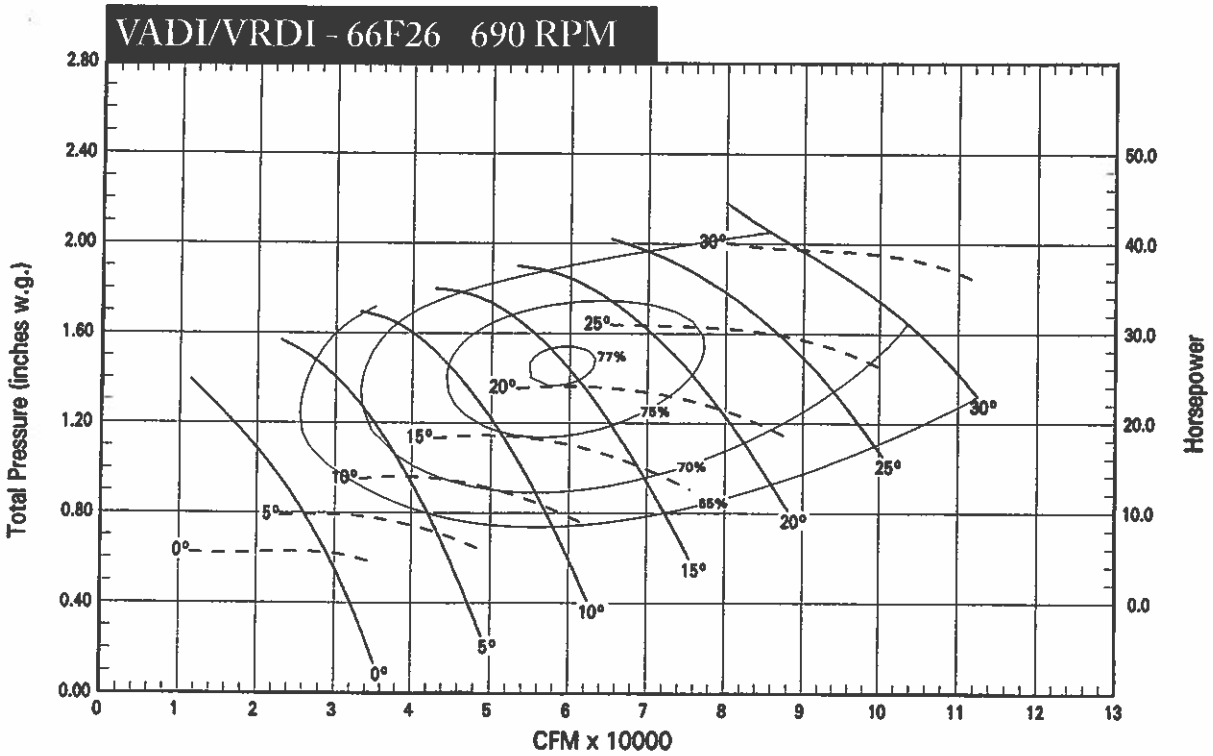
Fan Outlet Area = 24.48 sq.ft.
Cone Outlet Area = 36.67 sq.ft.
Tip Speed = 17.48 x RPM
Minimum Blade Angle for VRDI = -5 deg.

Minimum Frame Size for VADI = 254T
Minimum Frame Size for VRDI = 254T
Maximum Motor Frame Size = 445T

Outlet Condition Corrections

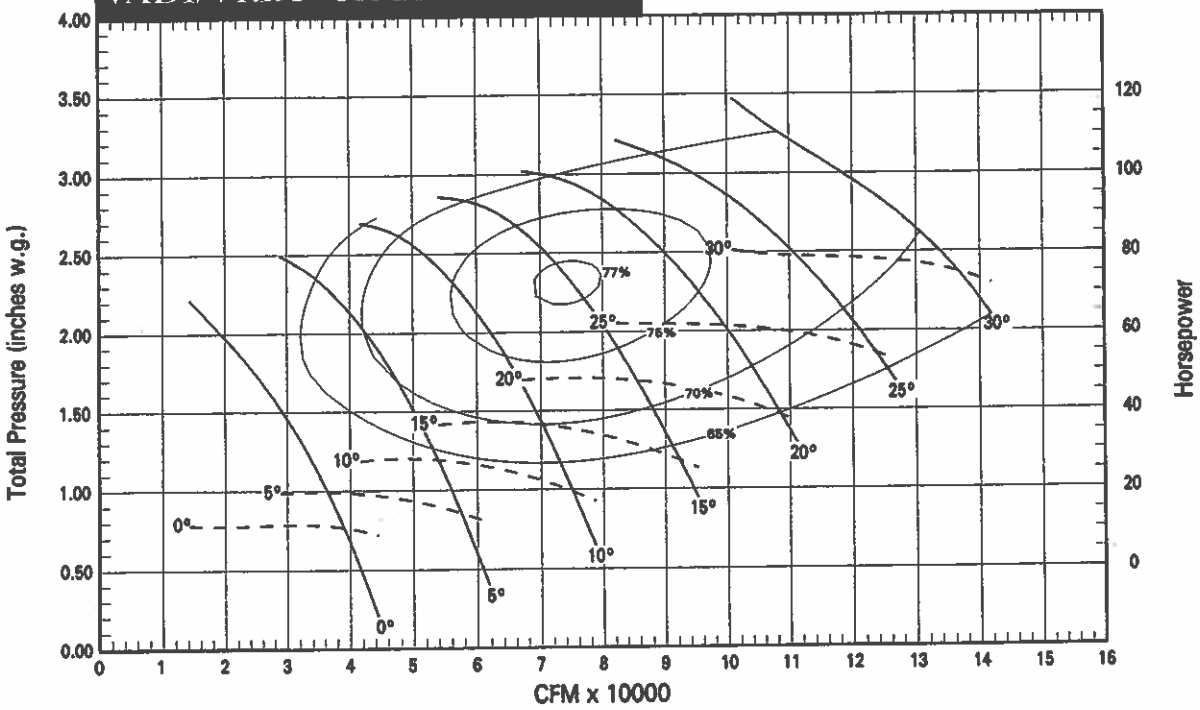


The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



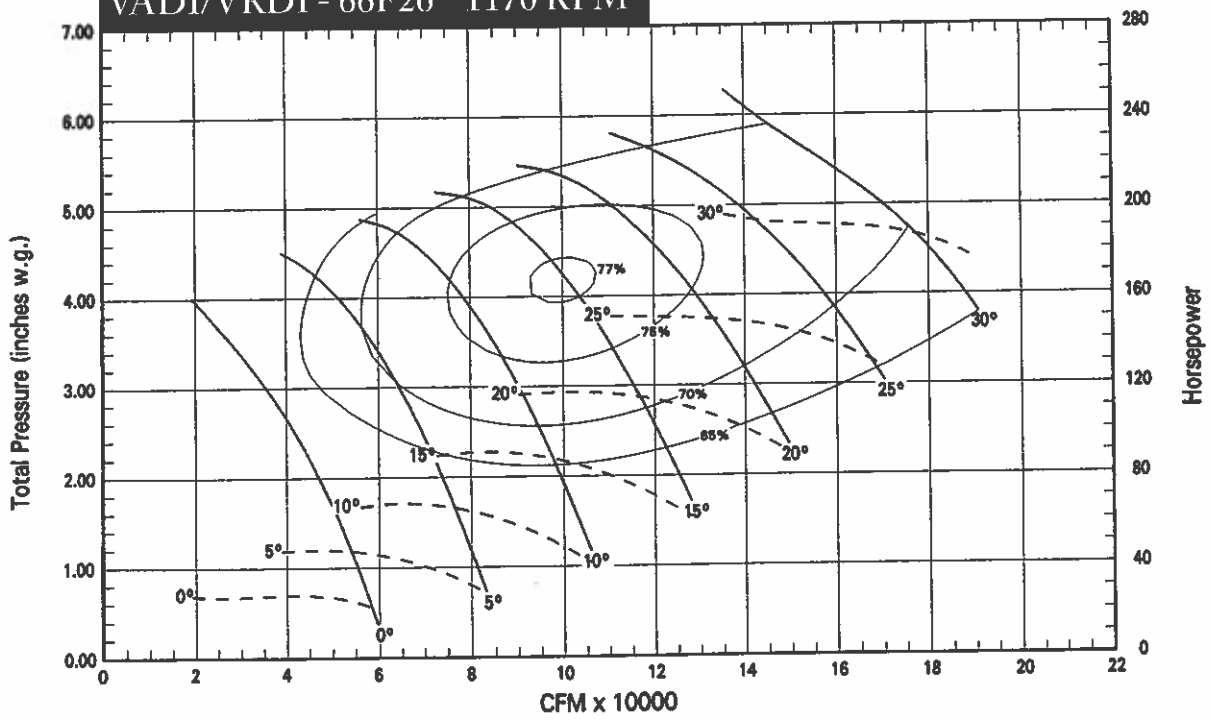
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 66F26 870 RPM



Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 66F26 1170 RPM

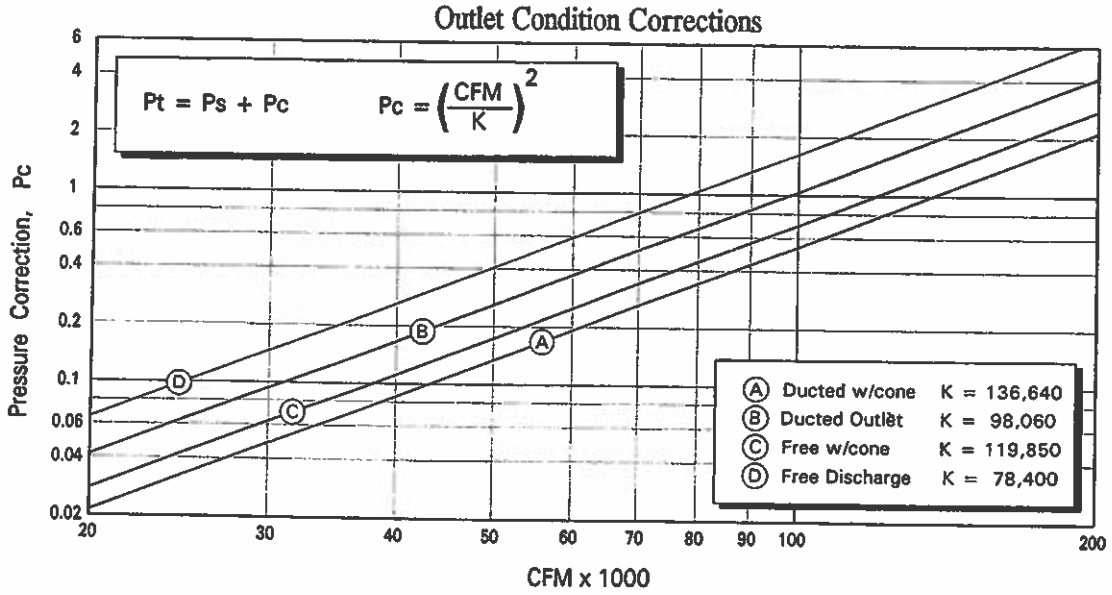


Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

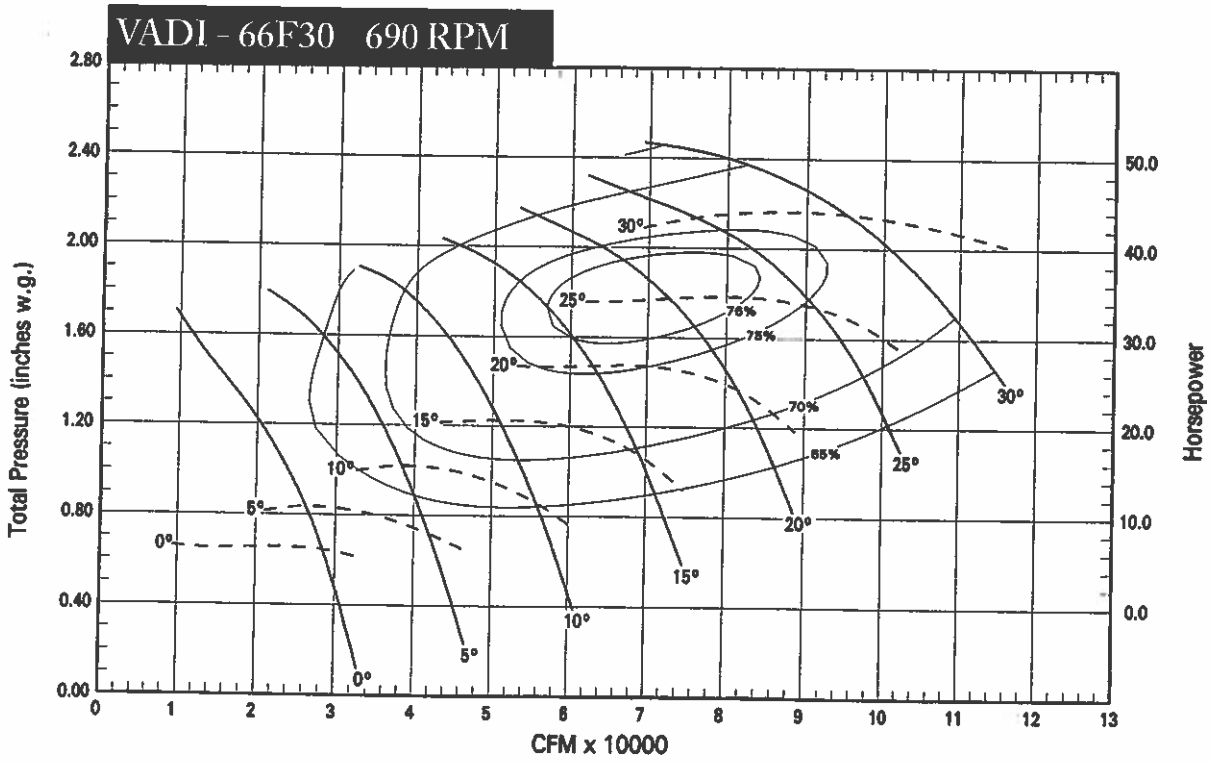
VADI - 66F30

Fan Outlet Area = 24.48 sq.ft.
Cone Outlet Area = 36.67 sq.ft.
Tip Speed = 17.48 x RPM

Minimum Motor Frame Size = 254T
Maximum Motor Frame Size = 445T

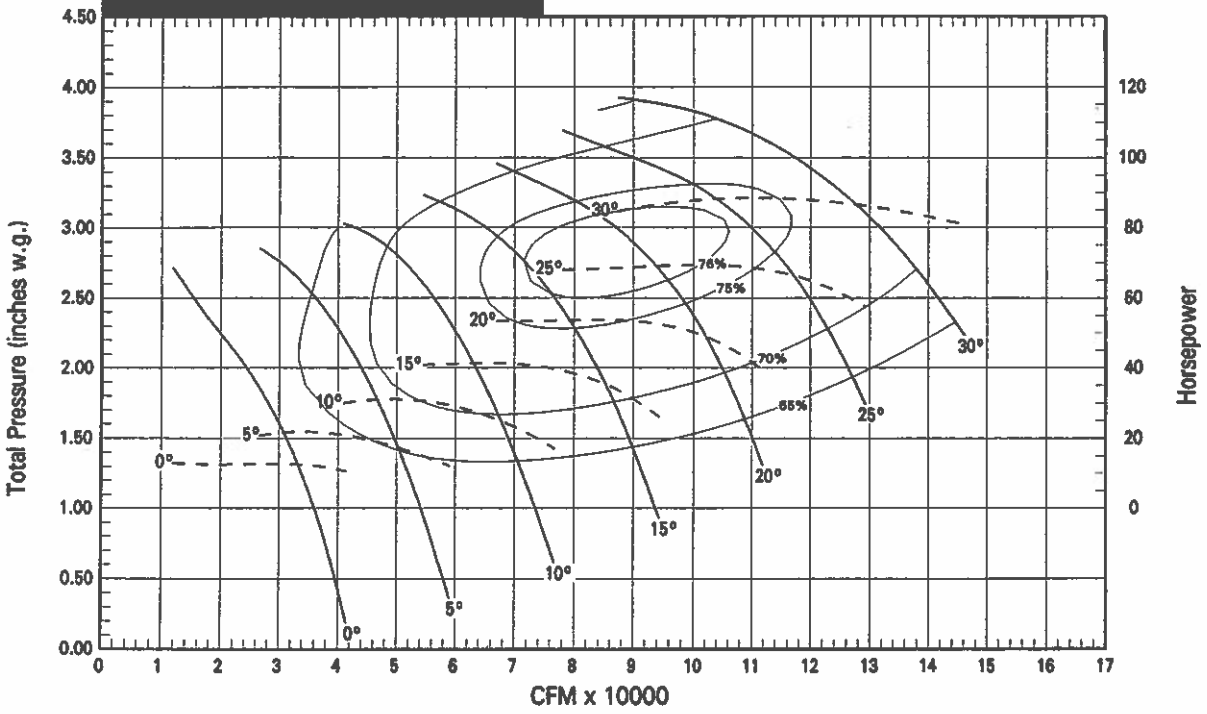


The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



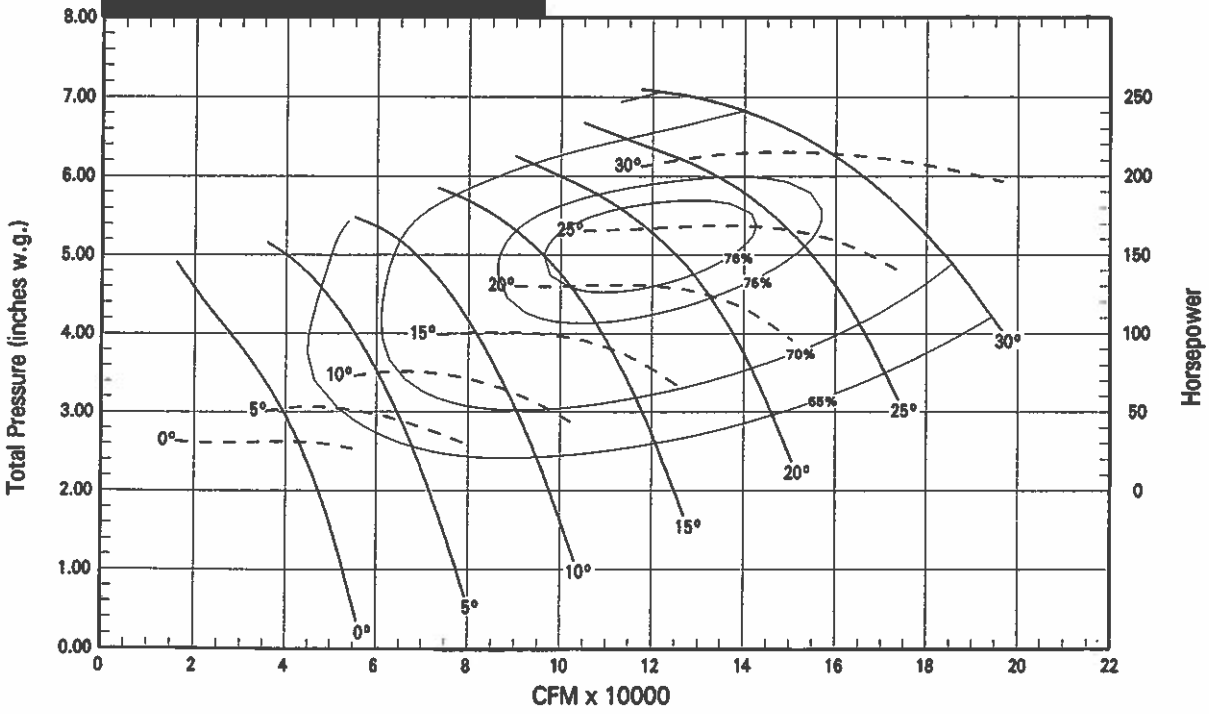
Performance shown is for Model VADI with inlet and outlet ducts.

VADI - 66F30 870 RPM



Performance shown is for Model VADI with inlet and outlet ducts.

VADI - 66F30 1170 RPM



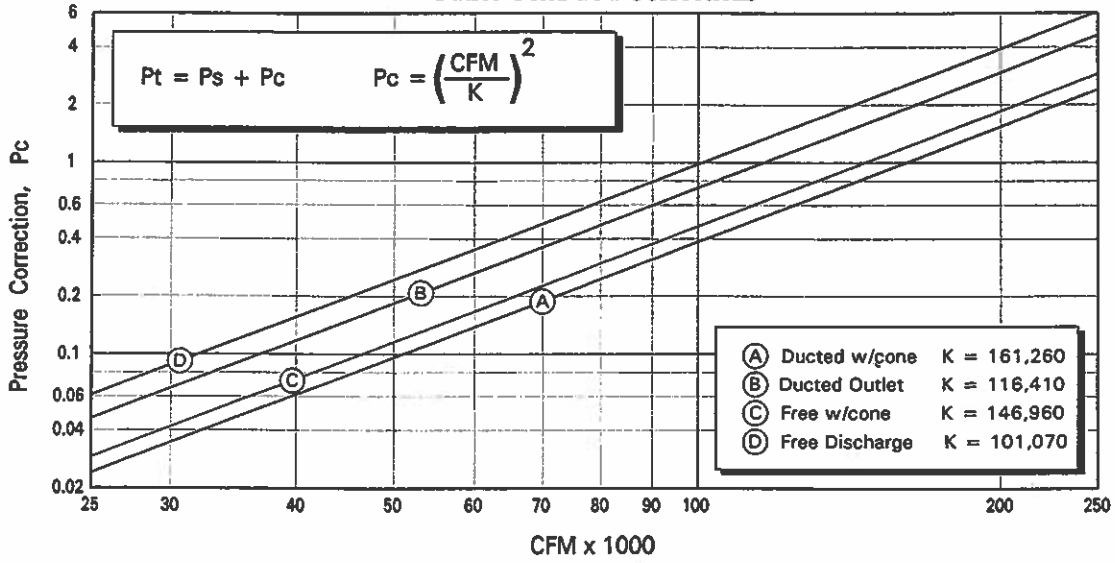
Performance shown is for Model VADI with inlet and outlet ducts.

VADI/VRDI - 72H26

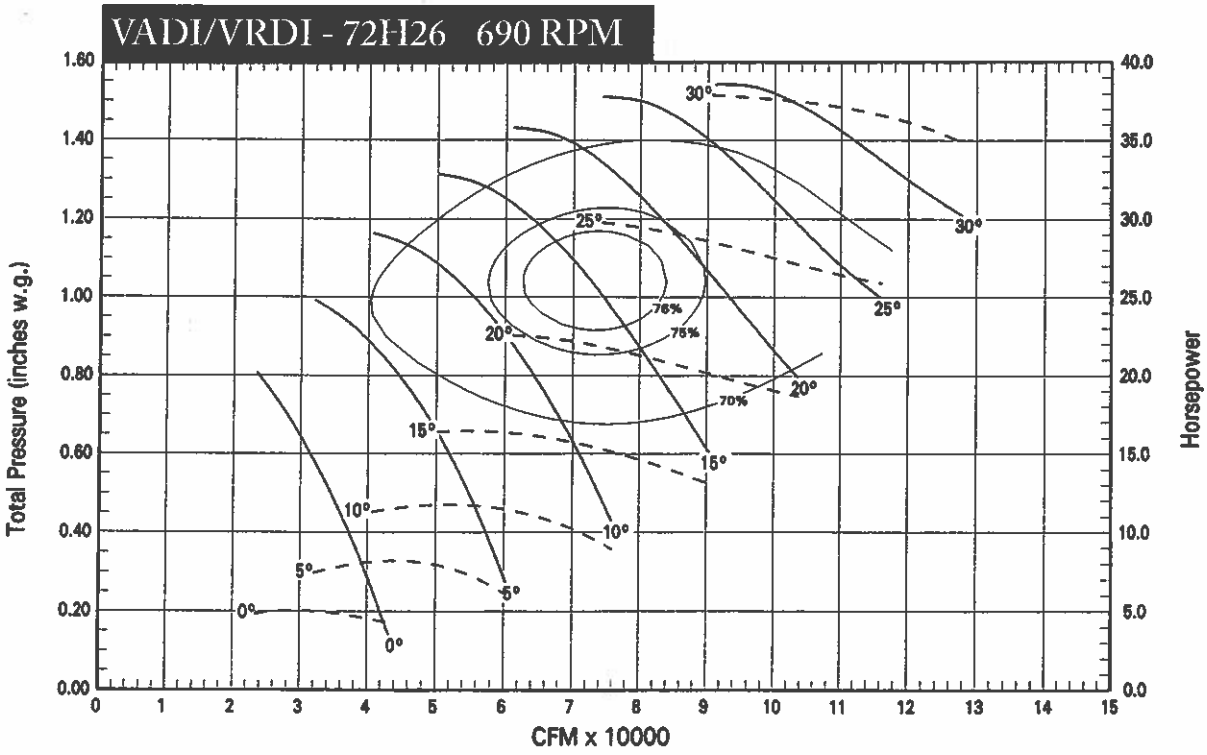
Fan Outlet Area = 29.07 sq.ft.
Cone Outlet Area = 43.20 sq.ft.
Tip Speed = 19.05 x RPM
Minimum Blade Angle for VRDI = -5 deg.

Minimum Frame Size for VADI = 254T
Minimum Frame Size for VRDI = 254T
Maximum Motor Frame Size = 445T

Outlet Condition Corrections

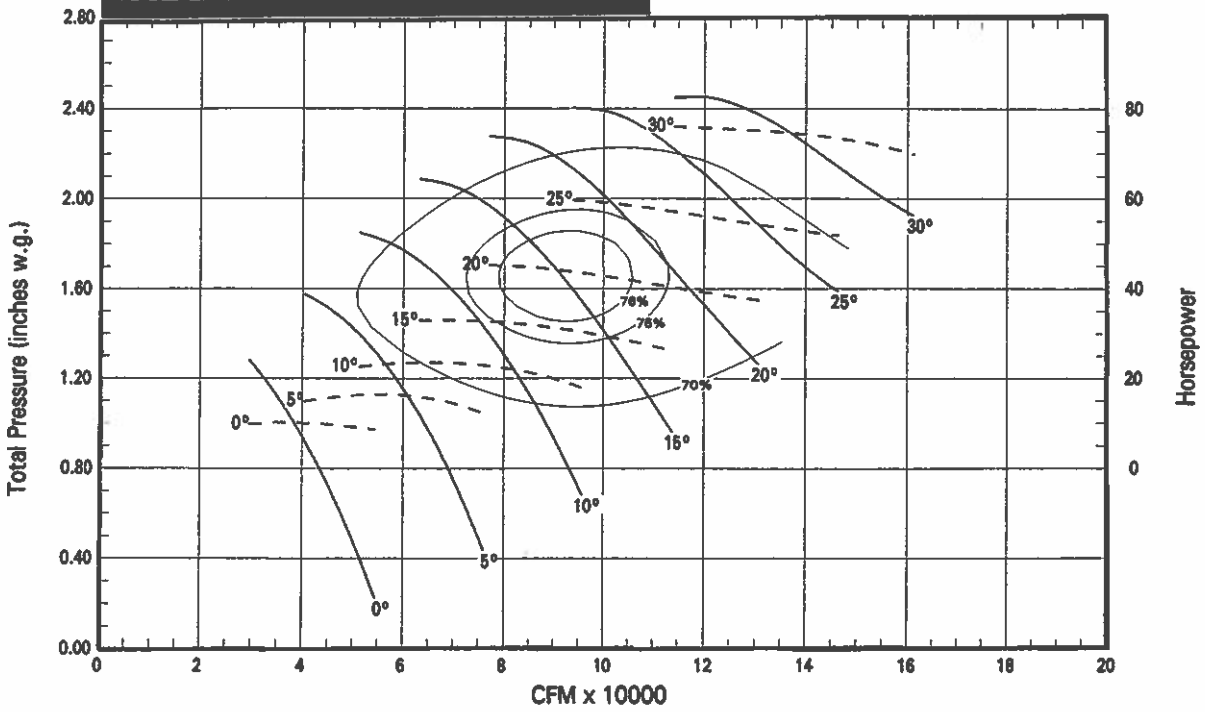


The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



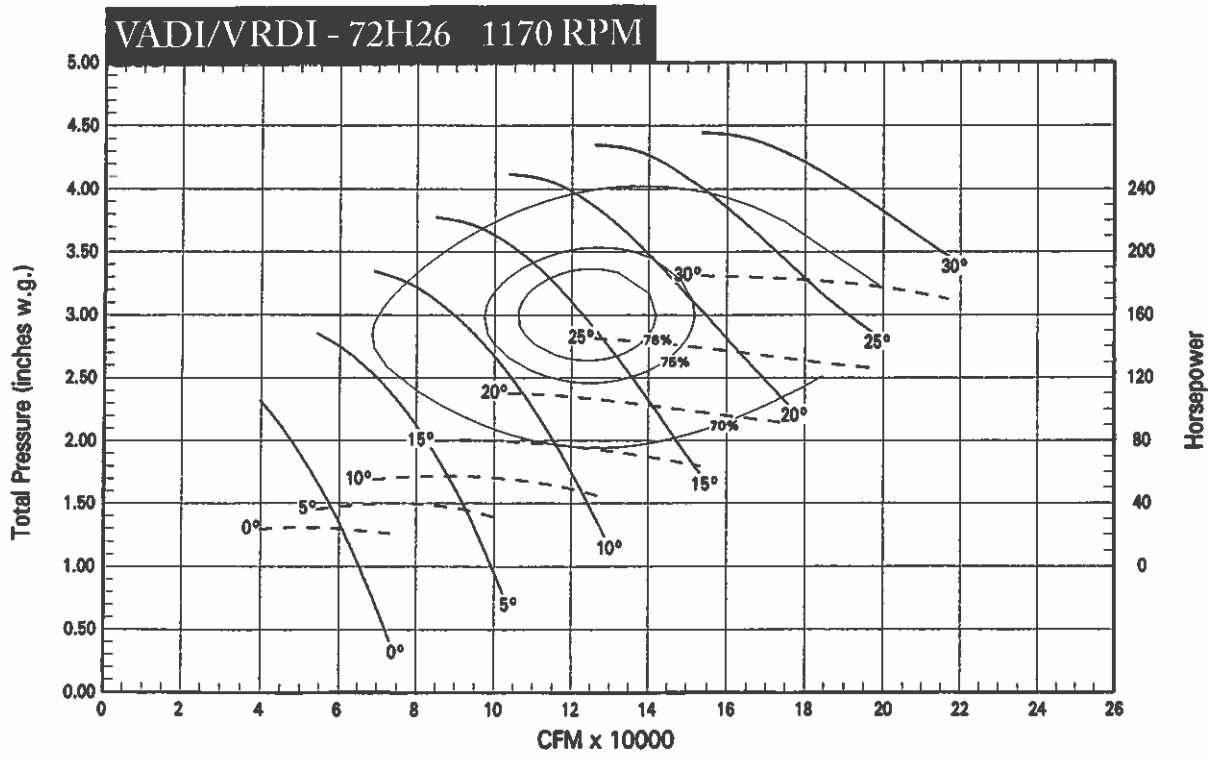
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI/VRDI - 72H26 870 RPM

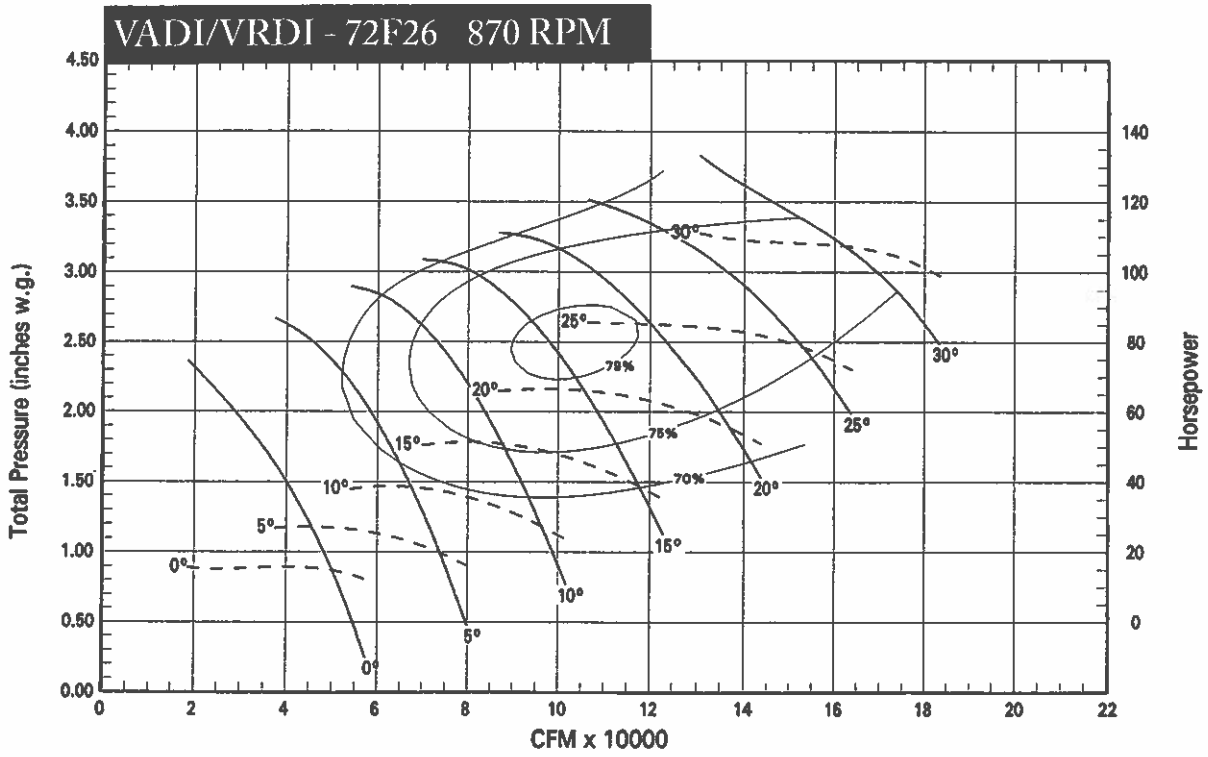


Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

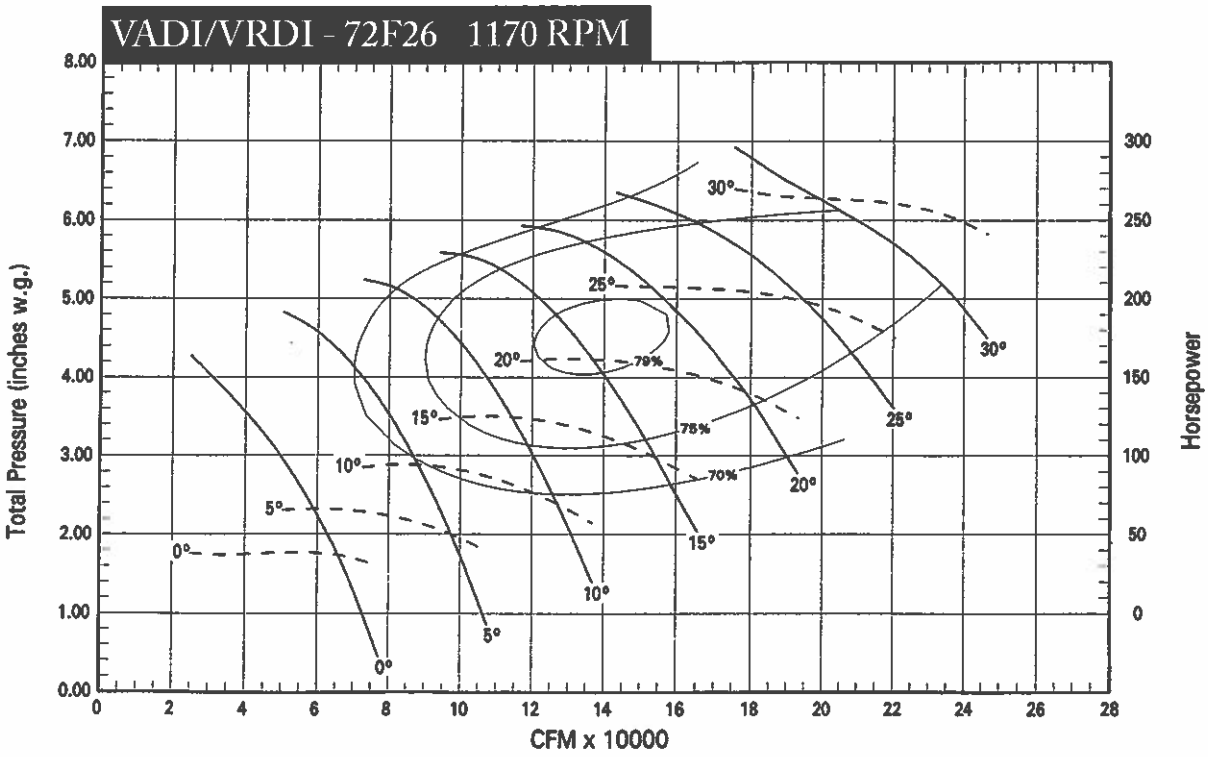
VADI/VRDI - 72H26 1170 RPM



Performance shown is for Model VADI/VRDI with inlet and outlet ducts.



Performance shown is for Model VADI/VRDI with inlet and outlet ducts.



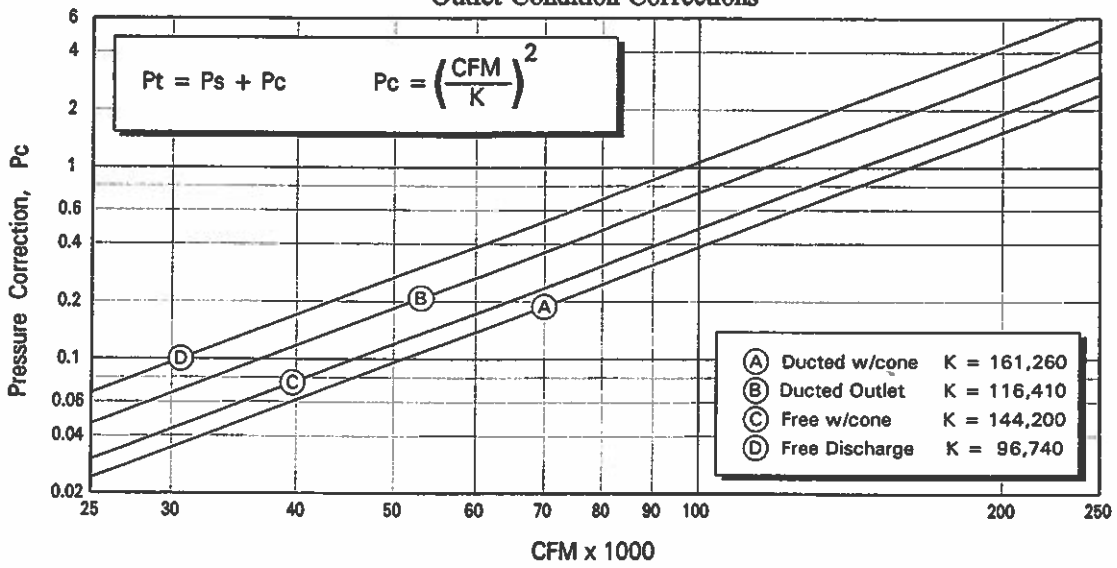
Performance shown is for Model VADI/VRDI with inlet and outlet ducts.

VADI - 72F30

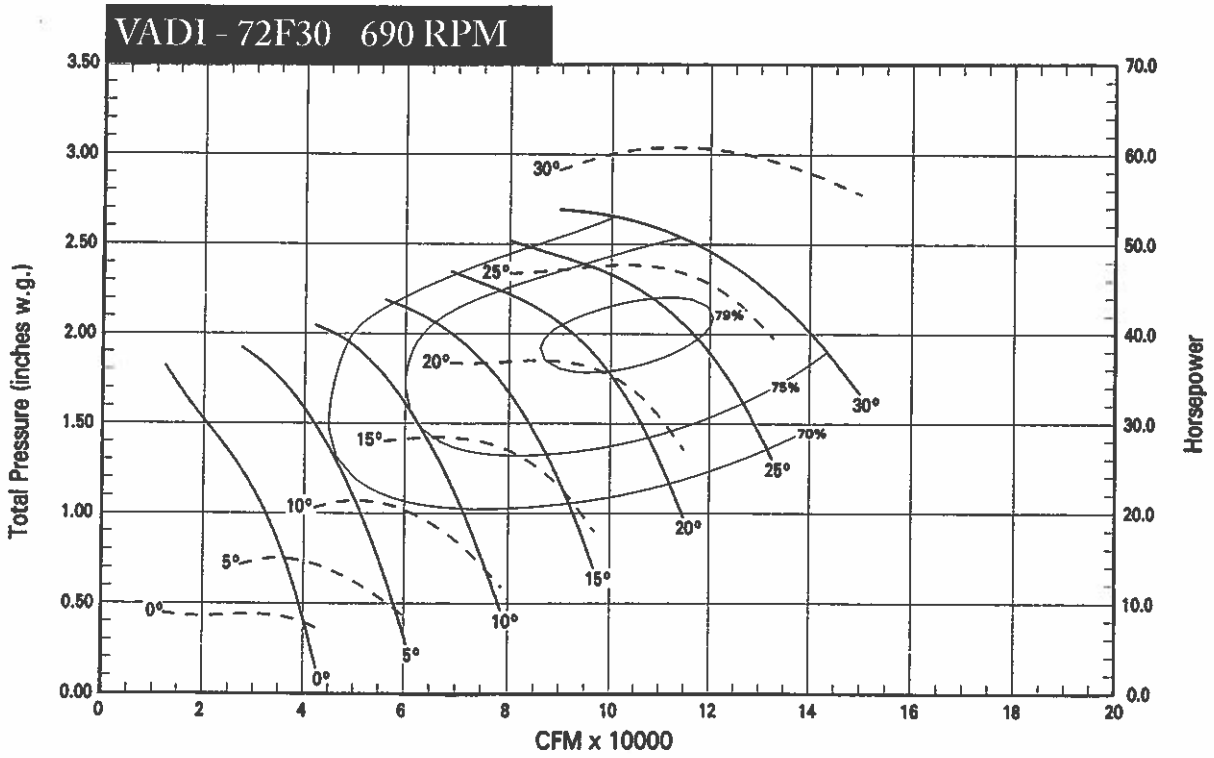
Fan Outlet Area = 29.07 sq.ft.
Cone Outlet Area = 43.20 sq.ft.
Tip Speed = 19.05 x RPM

Minimum Motor Frame Size = 254T
Maximum Motor Frame Size = 445T

Outlet Condition Corrections

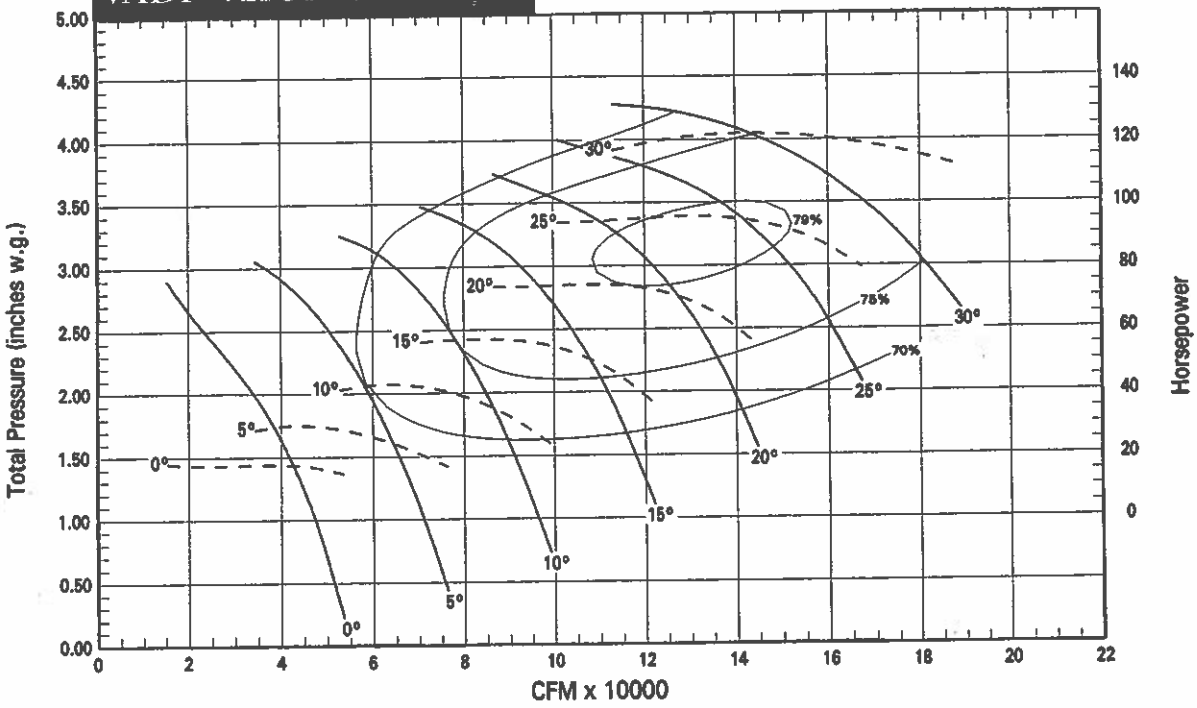


The AMCA Certified Ratings Seal applies only to fan performance with Ducted Outlet - Correction Factor B.



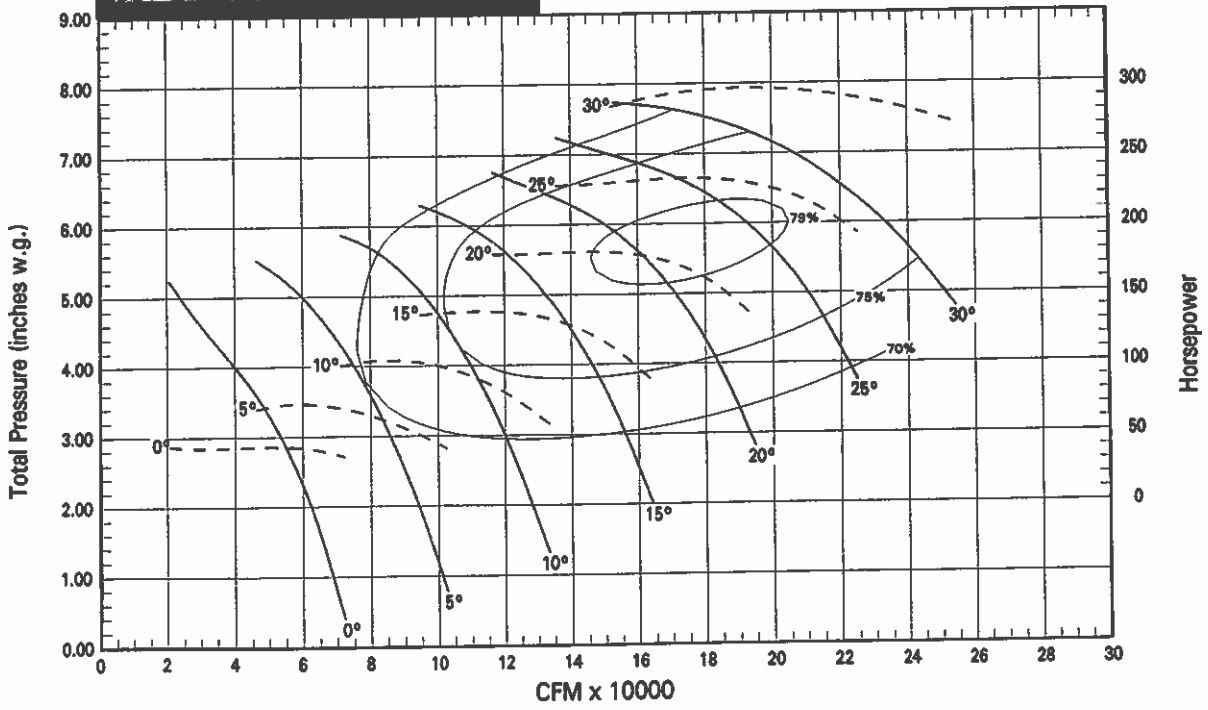
Performance shown is for Model VADI with inlet and outlet ducts.

VADI - 72F30 870 RPM



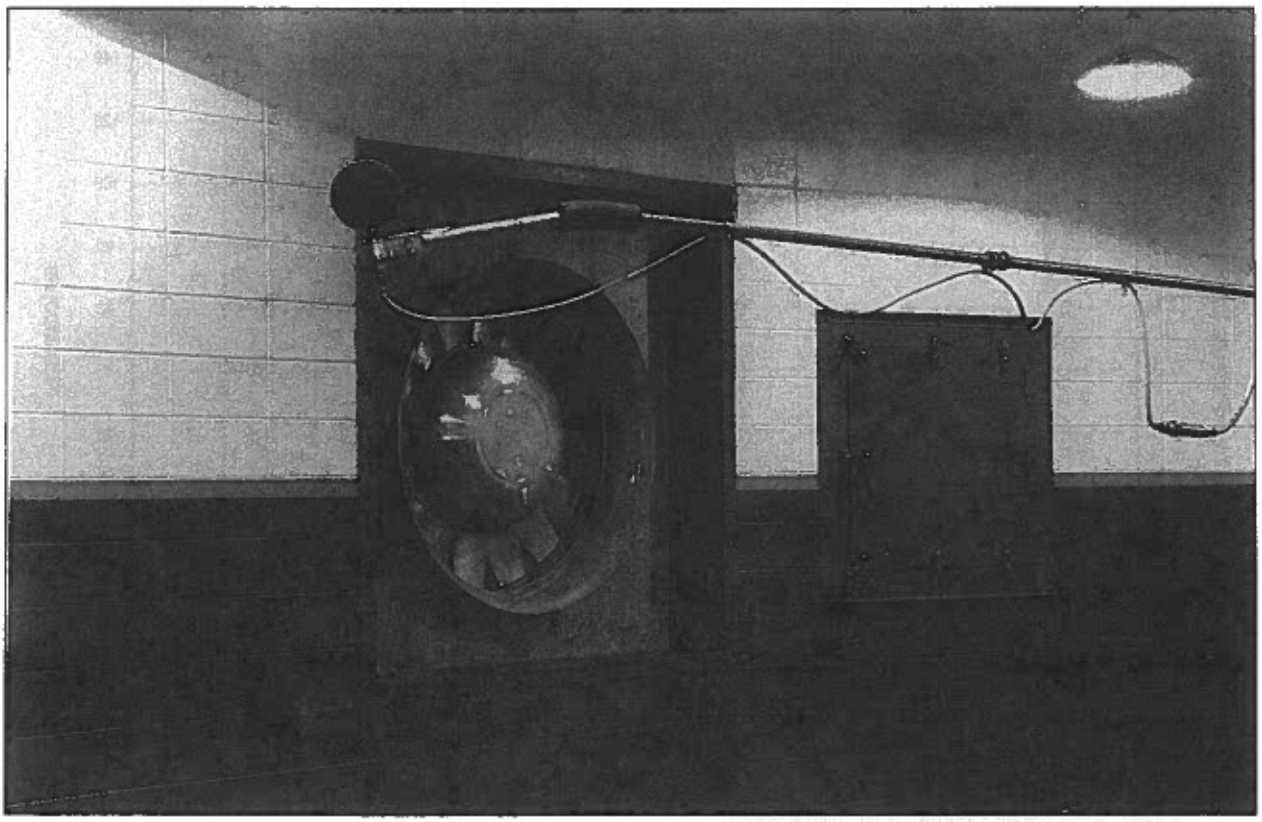
Performance shown is for Model VADI with inlet and outlet ducts.

VADI - 72F30 1170 RPM



Performance shown is for Model VADI with inlet and outlet ducts.

Sound Data



Reverberant Sound Chamber

Vane axial fans in this brochure were tested in a reverberant sound chamber. Methods and procedures used in these tests provide sound power ratings which may be used as a comparison against other fans rated similarly.

The test method requires use of a reference sound source (RSS), a small direct drive centrifugal fan of known sound power levels.

Sound pressure levels are recorded with the RSS operating. The fan is then operated without the RSS in operation at various performance points of interest for the given test speed, and the fan sound pressure levels are recorded. Since the sound power levels of the RSS are known, the substitution method is used to determine the sound power levels of the fan for each operating point.

Accuracy of these test methods are dependent upon several variables. These variables include reverberant room response, instrument error, fan operating points and accuracy of the RSS.

Within the present state of the art, differences in sound power levels of 2dB or less are not considered significant. In comparing products of different manufacturers, it is good practice to disregard differences of less than 4dB. This is particularly true in the first octave band where differences of 6dB or less should be disregarded.

Sound power data acquired from the tests is presented in this manual as dB (re 10^{-12} watt) in each of the eight octave bands. Provisions are made for interpolating the data to obtain the sound power levels at the desired point of operation.

Sound power is an absolute quantity of sound energy per unit of time and is valuable for determining sound levels at a variety of conditions.

For detailed application information on sound power level ratings see AMCA publication 303.

Definitions

Sound Power Level

Measurements of acoustic power generated by a fan when operating at a specific point. In this manual sound power levels are expressed as dB's (re 10^{-12} watt) and are published for each of the eight octave bands (described below). Sound power is acoustic power radiating from a sound source and cannot be heard by the human ear just as candlepower of a light cannot be seen by the human eye. It is useful in comparing fans of various manufacturers and for calculating sound pressure (described below).

Sound power levels published in this manual are measured at the fan inlet. Outlet sound power levels are considered to be approximately the same as inlet sound power levels.

Since these fans were tested with a free inlet and an inlet bell, no duct end reflection corrections were added to the measured sound power levels.

Radiated Sound Power

Sound transmitted from the fan housing is called radiated sound power. Radiated sound power for vane axial fans is generally less than inlet/outlet sound power levels and is not included in sound testing and data published by most manufacturers.

Sound Pressure Level

Acoustic pressure which can be heard by a microphone or listener at a specific location is sound pressure. Sound pressure is a variable determined by the acoustical environment. The acoustical environment is affected by items such as wall coverings, ceiling tiles, carpets, furniture and any other sound-absorbing device.

Decibel (dB)

A logarithmic term used to describe units of sound power or sound pressure. The suggested method of expressing decibels is "decibels of sound power" or "decibels of sound pressure" in order to avoid confusion.

Octave Bands

A range of sound frequencies generally within the capability of human hearing (50 to 15000 Hz). This range of frequencies is divided into eight octave bands. An octave is the span between two frequencies, one of which is twice the frequency of the other.

See the chart below for center frequencies assigned to each octave band.

Octave Band	1	2	3	4	5	6	7	8
Center Frequency (Hz)	63	125	250	500	1000	2000	4000	8000

Attenuation

The reduction in sound as it travels from it's origin to the point of reception. Sound may be attenuated by sound absorbing materials, in-line sound attenuators, room furnishings and other items which absorb or deflect sound waves.

In a "hemispherical free field" at a distance of at least one wavelength from the radiating source, sound will attenuate or decay 6 dB each time the distance from the fan is doubled.

Acoustical Diffuser Cone

An add-on diffuser and silencer used for vane axial fan. The acoustical diffuser cone serves the two-fold purpose of (1) allowing high velocity discharge airflow to gradually expand and reduce velocity pressure losses and (2) to attenuate sound transmitted from the fan outlet. Some acoustical diffuser cones are equipped with a center cone which reduces core turbulence and provides additional sound attenuation.

Acoustical Silencer

In-line acoustical silencers are typically installed at the inlet or outlet or both ends of a vane axial fan. They are usually double wall construction with a perforated inner liner and sound absorbing material such as fiberglass packed between the walls. Acoustical silencers add considerable length to a vane axial fan and are ineffective with regard to sound radiated through the fan housing. Additional pressure losses are also experienced with most acoustical silencers.

Sound Trap™ Vane Axial

IAP's patented double shell vane axial fan housing designed to reduce inlet and radiated sound power levels. No additional pressure losses are experienced with Sound Trap™ fans when compared to standard vane axial fans. See brochure VXS-TD-10-0.

Calculating Belt Drive Sound Power Levels

To calculate sound power levels for belt drive vane axial fans, use the following formula:

$$Lw = Lw_b + \text{Eff. Corr.}$$

Whereas:
Lw = Sound Power Level.
Lw_b = Base Sound Power Level.
Eff. Corr. = Efficiency Correction Factor.

1. Determine the Base Sound Power levels for a specific fan, hub size and fan speed on pages 99 and 100. Base sound power levels in the eight octave bands are published for each fan size/hub size combination and for five specific fan speeds. Use interpolation to select base sound power levels for RPM's not shown.

Example: VABSI-24F14
2050 RPM

Base Sound Power Levels are:

Octave Band	1	2	3	4	5	6	7	8
Lw_b	86	88	93	94	92	87	82	78

2. Determine the Efficiency Correction Factor. To calculate the Efficiency Correction Factor use the following steps:

- Record the Unit Maximum Static Efficiency (Max. S.E.) from the Base Sound Power Level charts on pages 99 and 100.

- Calculate the Efficiency Ratio.

$$\text{Efficiency Ratio} = \frac{\text{Maximum Static Efficiency}}{\text{*Actual Static Efficiency}}$$

* To calculate actual static efficiency use the following formula:

$$\text{Static Efficiency} = \frac{\text{CFM x Ps}}{\text{Bhp x 6356}} \times 100\%$$

- Enter the Efficiency Correction Factor Chart on pages 99 and 100 with the efficiency ratio. Read efficiency corrections (dB) from the chart.

Example: VABSI-24F14
8000 CFM - .25" Static Pressure
1.39 Bhp

Max. Static Efficiency = 64%
Actual Static Efficiency = 23%
64% divided by 23% = 2.78
Efficiency Correction Factor = 10

3. dB Correction For Sound Trap™ Fans
Use the following corrections for Sound Trap™ construction:

Octave Band	1	2	3	4	5	6	7	8
dB Reduction	0	-3	-7	-10	-10	-7	-7	-1

4. Finally, total the values found in paragraphs 1 through 3 to determine Lw:

Octave Band	1	2	3	4	5	6	7	8
Step 1:	86	88	93	94	92	87	82	78
Step 2:	10	10	10	10	10	10	10	10
Step 3:	0	-3	-7	-10	-10	-7	-7	-1
Lw:	96	95	96	94	92	90	85	87

Belt Drive Sound Power Data

See Page 98 for instructions

VABI-18

Fan Model and RPM	Octave Band 1	2	3	4	5	6	7	8	Max. S.E.
18F14 900	62	67	68	66	60	54	50	46	55
1700	77	76	81	81	79	74	67	63	
2600	85	86	87	90	90	86	80	75	
3500	91	93	92	96	97	95	90	83	
4300	94	97	96	100	101	100	96	89	

VABI-20

Fan Model and RPM	Octave Band 1	2	3	4	5	6	7	8	Max. S.E.
20F14 1000	66	72	72	70	65	60	55	51	58
1700	78	78	84	83	81	76	70	66	
2450	85	86	89	91	90	86	81	76	
3200	90	92	93	97	97	94	89	83	
3900	93	96	95	101	101	100	95	89	

VABI-24

Fan Model and RPM	Octave Band 1	2	3	4	5	6	7	8	Max. S.E.
24F14 850	69	75	74	72	67	62	58	54	64
1450	80	82	86	85	82	77	73	69	
2050	86	88	93	94	92	87	82	78	
2650	91	93	96	99	98	95	90	85	
3250	94	97	99	104	103	101	96	91	
24F17 850	68	73	74	72	66	62	59	56	61
1450	79	80	86	86	82	76	73	70	
2050	85	87	90	93	91	87	82	79	
2650	89	92	94	99	98	95	89	85	
3250	93	96	97	103	103	101	95	91	

VABI-30

Fan Model and RPM	Octave Band 1	2	3	4	5	6	7	8	Max. S.E.
30F14 800	75	80	78	76	72	67	62	57	58
1250	82	87	89	87	84	80	75	70	
1700	88	90	97	94	93	89	84	79	
2150	92	94	101	100	98	95	90	85	
2600	95	98	103	105	103	100	96	91	
30F17 800	72	80	78	77	72	68	64	60	60
1250	81	84	89	87	85	80	76	72	
1700	87	88	95	95	93	89	84	80	
2150	91	93	98	101	99	95	91	87	
2600	94	97	99	105	103	101	96	92	
30F21 800	69	76	77	74	69	65	62	60	62
1250	79	78	89	85	82	77	73	71	
1700	85	86	91	94	90	86	82	79	
2150	89	91	93	100	96	93	88	85	
2600	92	95	94	105	101	99	94	90	

VABI-36

Fan Model and RPM	Octave Band 1	2	3	4	5	6	7	8	Max. S.E.
36F14 650	78	79	77	76	72	66	59	52	60
1000	83	90	87	86	84	80	73	66	
1400	88	94	96	94	93	89	84	77	
1800	91	96	103	99	99	97	92	85	
2150	94	99	106	104	103	101	97	90	
36F17 650	74	80	78	77	72	67	62	57	61
1000	81	86	88	87	84	80	75	70	
1400	87	90	97	95	94	89	84	79	
1800	92	94	100	101	100	96	92	87	
2150	95	97	102	105	104	101	97	92	
36F21 650	73	83	80	77	73	68	64	60	64
1000	81	86	91	88	85	81	76	72	
1400	87	89	98	97	94	90	86	81	
1800	92	94	100	104	101	97	93	88	
2150	95	97	101	108	105	102	98	93	
36F26 650	72	81	81	77	72	67	64	61	60
1000	80	84	93	89	84	80	75	72	
1400	86	89	96	98	94	89	85	81	
1800	90	93	98	105	101	96	92	87	
2150	93	96	99	110	106	101	97	92	

VABI-42

Fan Model and RPM	Octave Band 1	2	3	4	5	6	7	8	Max. S.E.
42F17 550	76	80	81	78	72	67	62	57	61
850	82	88	90	90	86	80	75	70	
1200	88	92	97	98	96	90	85	80	
1550	93	96	101	104	103	98	92	87	
1850	96	99	104	107	107	103	97	92	
42F21 550	77	82	81	80	74	69	63	57	65
850	83	89	91	90	87	82	77	71	
1200	89	93	99	98	97	92	87	81	
1550	93	97	103	104	103	99	94	89	
1850	96	99	105	108	107	105	100	94	
42F26 550	75	83	81	78	74	68	64	60	63
850	82	87	92	89	86	81	76	72	
1200	87	91	98	98	95	91	86	81	
1550	92	95	101	104	102	98	94	88	
1850	95	98	103	109	106	103	99	93	

Efficiency Correction Factors

Efficiency Ratio	1	1.05	1.1	1.2	1.4	1.7+
Efficiency Correction (dB)	0	2	4	6	8	10

The AMCA Certified Ratings Seal applies to air performance ratings only.

Belt Drive Sound Power Data

See Page 98 for instructions

VABI-48

Fan Model and RPM	Octave Band 1	2	3	4	5	6	7	8	Max. S.E.
48F21 400	80	81	81	78	73	66	59	52	
700	88	93	93	93	89	84	77	70	
1000	92	98	101	100	99	94	88	81	60
1300	96	102	107	106	106	102	96	89	
1600	100	104	110	111	111	108	103	96	
48F26 400	78	81	79	77	72	67	61	55	
700	85	92	93	91	88	83	78	72	
1000	91	96	102	100	98	94	89	83	63
1300	95	99	106	106	104	101	96	90	
1600	99	102	108	111	109	107	102	97	
48F30 400	75	82	79	76	72	66	61	56	
700	84	89	93	91	88	83	77	72	
1000	90	93	101	99	97	94	88	83	65
1300	94	97	104	106	104	101	96	90	
1600	98	101	105	112	109	107	102	96	

VABI-54

Fan Model and RPM	Octave Band 1	2	3	4	5	6	7	8	Max. S.E.
54F21 400	83	84	84	82	76	69	61	53	
650	91	95	94	95	91	85	77	69	
900	94	100	102	102	100	95	88	80	60
1150	97	104	107	106	107	103	96	88	
1400	100	106	111	111	111	108	103	95	
54F26 400	80	83	82	80	75	69	63	57	
650	86	92	93	92	89	84	78	72	
900	91	96	101	100	98	93	87	81	62
1150	95	100	106	105	104	101	95	89	
1400	98	103	108	110	109	106	101	95	
54F30 400	79	84	82	80	75	70	65	60	
650	86	92	94	92	89	84	79	74	
900	91	96	102	100	98	94	89	84	65
1150	96	99	105	106	104	101	96	91	
1400	99	102	108	111	109	106	102	97	

VABI-60

Fan Model and RPM	Octave Band 1	2	3	4	5	6	7	8	Max. S.E.
60F26 400	82	85	84	81	76	71	66	61	
600	87	93	93	92	88	83	78	73	
850	92	98	101	100	97	93	88	83	58
1100	96	101	107	106	104	101	96	91	
1300	99	104	109	110	109	105	100	95	
60F30 400	81	85	84	81	77	71	67	63	
600	86	92	93	91	88	83	79	75	
850	91	97	102	100	97	94	88	84	62
1100	96	100	106	107	104	101	96	91	
1300	98	103	108	110	108	105	101	96	

VABI-66

Fan Model and RPM	Octave Band 1	2	3	4	5	6	7	8	Max. S.E.
66F26 350	82	84	82	79	75	70	66	62	
550	88	94	93	92	88	83	79	75	
750	93	98	101	99	96	92	87	83	58
950	96	101	106	105	103	99	94	90	
1150	99	104	110	110	108	104	99	95	
66F30 350	81	84	82	79	75	71	67	63	
550	87	93	93	91	88	83	79	75	
750	92	97	100	99	96	92	87	83	62
950	96	100	106	105	102	99	94	90	
1150	99	103	108	109	107	104	100	95	

VABI-72

Fan Model and RPM	Octave Band 1	2	3	4	5	6	7	8	Max. S.E.
72F26 350	84	87	85	81	76	73	71	69	
550	90	96	96	94	89	85	82	80	
700	94	99	102	100	96	91	88	86	58
850	96	102	106	105	101	97	93	91	
1050	100	105	110	110	107	103	98	96	
72F30 350	84	87	84	81	77	73	69	65	
550	91	96	96	93	89	86	82	78	
700	95	99	102	99	96	92	88	84	62
850	98	102	106	105	101	98	94	90	
1050	101	105	110	110	106	103	99	95	

Efficiency Correction Factors

Efficiency Ratio	1	1.05	1.1	1.2	1.4	1.7+
Efficiency Correction (dB)	0	2	4	6	8	10

The AMCA Certified Ratings Seal applies to air performance ratings only.

Calculating Direct Drive Sound Power Levels

To calculate sound power levels for direct drive vane axial fans, use the following formula:

$$Lw = Lw_b + \text{Eff. Corr.} + 10\ Log_{10}\ (CFM \times P_T^2)$$

Whereas:
Lw = Sound Power Level.
Lw_b = Base Sound Power Level.
Eff. Corr. = Efficiency Correction Factor.
$10\ Log_{10}\ (CFM \times P_T^2)$ = Volume/Pressure Correction Factor

1. Determine the Base Sound Power levels for a specific fan, hub size and fan speed on pages 103, 104 or 105. Base sound power levels in the eight octave bands are published for each fan size/hub size combination and for each charted fan speed.

Example: VADSI-24F14-20A
1770 RPM

Base Sound Power Levels are:

Octave Band	1	2	3	4	5	6	7	8
Lw_b	36	38	43	43	41	36	31	27

2. Determine the Efficiency Correction Factor. To calculate the Efficiency Correction Factor use the following steps:

- Record the Unit Maximum Efficiency (Max. Eff.) from the Base Sound Power Level charts on pages 103, 104 or 105.

- Calculate the Efficiency Ratio using the following formula:

$$\text{Efficiency Ratio} = \frac{\text{Maximum Total Efficiency}}{\text{*Actual Total Efficiency}}$$

* Actual total efficiencies are displayed on the performance charts or may be calculated as shown below.

$$\text{Total Efficiency} = \frac{CFM \times P_T}{Bhp \times 6356} \times 100\%$$

- Enter the Efficiency Correction Factor Chart on pages 103, 104 or 105 with the efficiency ratio. Read efficiency corrections (dB) from the chart.

Example: VADSI-24F14-20A
Max. Total Efficiency = 77%
Actual Total Efficiency = 71%
77% divided by 71% = 1.09
Efficiency Correction Factor = 4 dB

3. Using the volume/pressure correction chart on page 102, determine the dB level for the volume/pressure correction. This is the 10 Log_{10} ($CFM \times P_T^2$) value shown in the formula at the beginning of this page.

Example: 20,000 CFM
2.0" Total Pressure
dB Value = 49

4. dB Correction For Sound Trap™ Fans
Use the following corrections for Sound Trap™ construction:

Octave Band	1	2	3	4	5	6	7	8
dB Reduction	0	-3	-7	-10	-10	-7	-7	-1

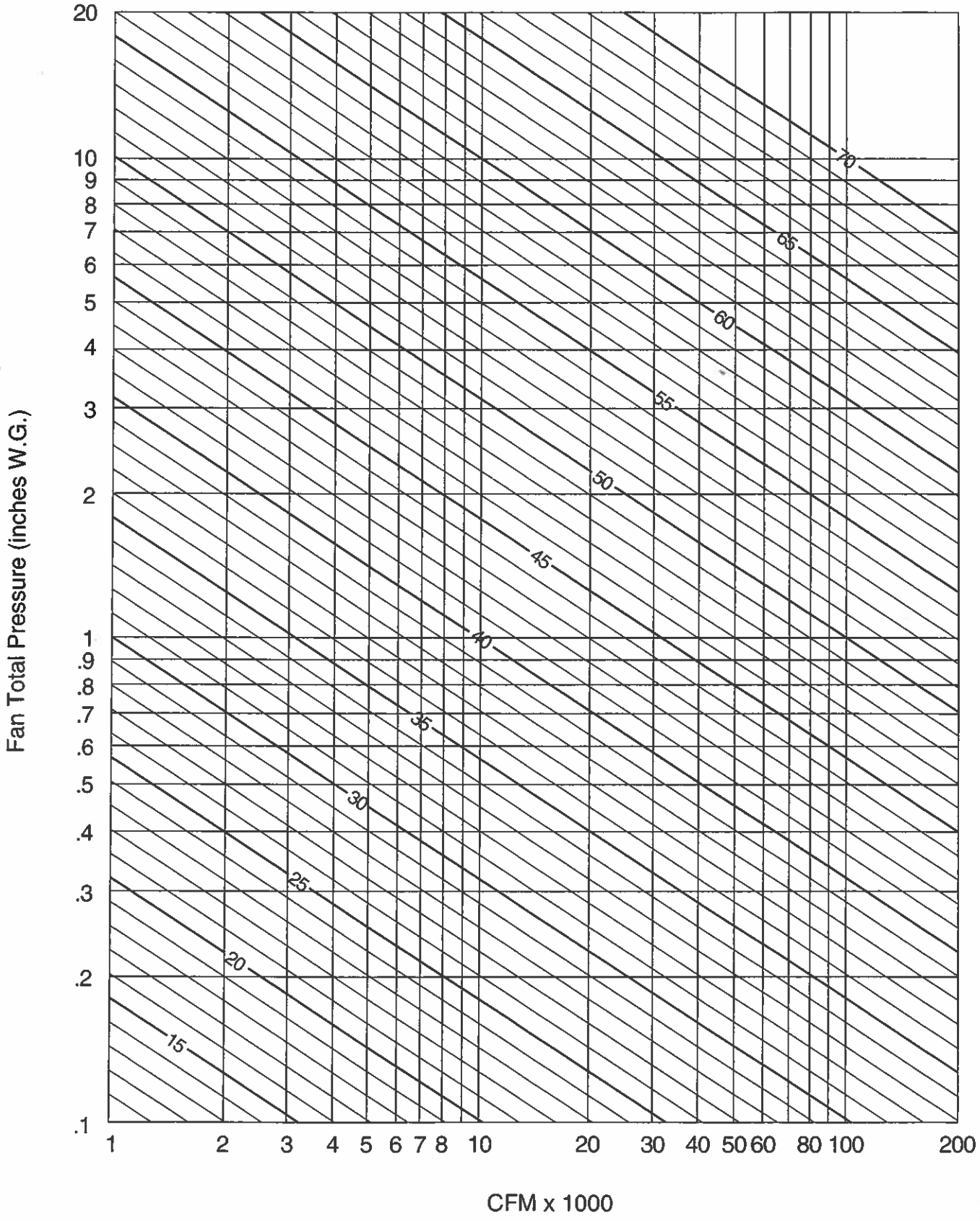
5. Finally, total the values found in paragraphs 1 through 4 to determine Lw:

Octave Band	1	2	3	4	5	6	7	8
Step 1:	36	38	43	43	41	36	31	27
Step 2:	4	4	4	4	4	4	4	4
Step 3:	49	49	49	49	49	49	49	49
Step 4:	0	-3	-7	-10	-10	-7	-7	-1
Lw:	89	88	89	86	84	82	77	79

Half-Bladed Fans

Half-bladed fans are identified with the letter "H" in the model number, for example VADI-20H14. The rotor has half the standard number of blades for higher efficiencies at low pressures. This reduced number of blades generates a lower blade pass frequency and requires a different set of base sound power levels. Sound data is published for each fan and hub size combination offered with half-bladed rotors on page 105.

Volume/Pressure Correction Chart



Direct Drive Base Sound Power Levels
Full - Bladed Rotors

See Page 101 for instructions

VADI-18

Fan Model and RPM		Octave Bands 1	2	3	4	5	6	7	8	Max. Eff
18F14	1170	38	40	43	42	38	31	26	22	
	1770	39	37	42	43	41	35	29	25	66
	3500	36	39	37	42	43	41	35	29	

VADI-20

Fan Model and RPM		Octave Bands 1	2	3	4	5	6	7	8	Max. Eff.
20F14	1170	37	41	43	42	38	32	27	23	
	1770	38	38	43	43	41	36	30	26	71
	3500	35	38	37	43	43	41	35	30	

VADI-24

Fan Model and RPM		Octave Bands 1	2	3	4	5	6	7	8	Max. Eff.
24F14	870	38	43	43	41	35	31	27	23	
	1170	37	41	43	42	38	33	28	24	77
	1770	36	38	43	43	41	36	31	27	
24F17	1170	36	39	43	42	38	33	29	26	
	1770	35	37	42	43	41	35	31	28	73
	3500	32	35	37	42	43	41	35	31	

VADI-30

Fan Model and RPM		Octave Bands 1	2	3	4	5	6	7	8	Max. Eff.
30F14	870	38	45	42	41	36	31	26	21	
	1170	36	43	43	41	38	34	29	24	76
	1770	35	38	45	42	41	37	32	27	
30F17	870	36	42	42	41	36	32	28	24	
	1170	35	39	43	41	38	34	30	26	74
	1770	34	36	42	42	40	36	32	28	
30F21	1170	34	34	44	40	37	32	28	26	
	1770	32	34	38	42	38	35	30	27	74
	3500	30	33	33	39	42	38	34	30	

VADI-36

Fan Model and RPM		Octave Bands 1	2	3	4	5	6	7	8	Max. Eff.
36F14	870	40	46	42	42	39	34	27	20	
	1170	37	44	43	42	41	37	30	23	80
	1770	34	40	46	42	42	40	34	27	
36F17	870	37	43	43	42	39	34	29	24	
	1170	36	40	44	43	41	36	31	26	79
	1770	34	37	43	43	42	39	34	29	
36F21	870	35	41	44	41	38	33	29	25	
	1170	34	37	46	43	40	36	31	27	78
	1770	32	35	41	45	41	38	34	29	
36F26	870	34	39	46	42	37	33	28	25	
	1170	33	36	46	44	39	35	30	26	69
	1770	31	34	39	46	42	37	33	28	

VADI-42

Fan Model and RPM		Octrave Bands 1	2	3	4	5	6	7	8	Max. Eff.
42F17	870	37	43	46	45	41	35	30	25	
	1170	36	40	45	46	43	38	32	27	81
	1770	34	37	43	46	45	41	35	30	
42F21	870	37	43	45	45	41	36	31	25	
	1170	35	40	46	45	44	39	33	27	79
	1770	33	37	42	46	44	42	37	31	
42F26	870	36	41	46	44	41	36	31	27	
	1170	35	38	46	45	42	39	33	29	75
	1770	33	36	41	46	44	41	36	31	

Efficiency Correction Factors

Efficiency Ratio	1	1.05	1.1	1.2	1.4	1.7 +
Efficiency Correction (dB)	0	2	4	6	8	10

The AMCA Certified Ratings Seal applies to air performance ratings only.

Direct Drive Base Sound Power Levels
Full - Bladed Rotors

See Page 101 for instructions

VADI-48

Fan Model and RPM		Octave Bands 1	2	3	4	5	6	7	8	Max. Eff.
48F21	870	40	46	47	47	45	40	33	26	
	1170	38	43	48	47	47	42	36	29	80
	1770	35	40	45	48	47	45	40	34	
48F26	870	38	43	47	45	43	39	33	27	
	1170	36	40	47	46	44	41	36	30	77
	1770	34	37	43	47	45	43	39	33	
48F30	870	36	40	48	45	43	38	32	27	
	1170	35	38	45	46	44	40	35	30	79
	1770	33	36	40	48	45	43	38	33	

VADI-54

Fan Model and RPM		Octave Bands 1	2	3	4	5	6	7	8	Max. Eff.
54F21	690	44	49	48	49	46	40	32	24	
	870	42	47	48	49	47	42	35	27	78
	1170	39	45	49	48	49	44	38	30	
54F26	870	39	44	48	47	45	40	34	28	
	1170	37	41	47	47	46	43	37	31	75
	1770	35	38	44	48	47	45	40	34	
54F30	870	37	42	48	46	44	39	34	29	
	1170	36	40	46	47	45	41	37	32	77
	1770	34	37	41	48	46	44	40	35	

VADI-60

Fan Model and RPM		Octave Bands 1	2	3	4	5	6	7	8	Max. Eff.
60F26	690	40	46	47	46	42	38	33	28	
	870	39	44	48	46	44	40	35	30	76
	1170	37	41	47	47	45	42	37	32	
60F30	690	39	45	48	46	43	38	33	29	
	870	38	43	48	47	44	40	35	31	77
	1170	36	40	46	47	45	42	37	32	

VADI-66

Fan Model and RPM		Octave Bands 1	2	3	4	5	6	7	8	Max. Eff.
66F26	690	40	46	47	46	42	38	33	29	
	870	39	44	48	46	44	40	35	31	77
	1170	37	41	47	47	45	42	37	33	
66F30	690	40	45	48	46	43	39	34	30	
	870	38	43	48	47	44	40	36	32	76
	1170	37	41	46	47	45	42	38	33	

VADI-72

Fan Model and RPM		Octave Bands 1	2	3	4	5	6	7	8	Max. Eff.
72F26	690	40	46	48	46	42	38	35	33	
	870	39	44	48	47	44	40	35	33	79
	1170	37	41	47	48	45	42	37	34	
72F30	690	41	45	48	45	42	38	34	30	
	870	39	44	48	47	43	40	36	32	79
	1170	38	42	46	47	44	41	37	33	

Efficiency Correction Factors

Efficiency Ratio	1	1.05	1.1	1.2	1.4	1.7+
Efficiency Correction (dB)	0	2	4	6	8	10

The AMCA Certified Ratings Seal applies to air performance ratings only.

Direct Drive Base Sound Power Levels
Half-Bladed Rotors

See Page 101 for instructions

VADI-18H14

	Octave Bands								
RPM	1	2	3	4	5	6	7	8	Max. Eff.
1170	43	44	44	43	39	33	30	28	
1770	42	44	44	44	42	37	31	29	58
3500	39	42	44	44	44	42	36	31	

VADI-20H14

	Octave Bands								
RPM	1	2	3	4	5	6	7	8	Max. Eff.
1170	44	44	44	43	39	34	30	27	
1770	42	45	44	44	42	38	32	29	71
3500	39	42	45	44	44	42	37	32	

VADI-24H14

	Octave Bands								
RPM	1	2	3	4	5	6	7	8	Max. Eff.
870	45	45	44	42	37	32	28	24	
1170	44	45	44	43	39	34	29	25	75
1770	42	45	45	44	42	38	32	28	

VADI-30H14

	Octave Bands								
RPM	1	2	3	4	5	6	7	8	Max. Eff.
870	45	45	44	43	38	32	28	24	
1170	44	45	44	43	40	34	29	25	75
1770	42	45	45	44	43	38	32	28	

VADI-36H14

	Octave Bands								
RPM	1	2	3	4	5	6	7	8	Max. Eff.
870	45	45	44	43	38	32	27	22	
1170	44	45	44	43	40	35	30	25	81
1770	41	45	45	44	43	39	33	28	

VADI-42H17

	Octave Bands								
RPM	1	2	3	4	5	6	7	8	Max. Eff.
870	47	47	45	44	41	35	30	25	
1170	45	47	46	45	43	38	32	27	78
1770	42	47	46	45	44	41	35	30	

VADI-48H21

	Octave Bands								
RPM	1	2	3	4	5	6	7	8	Max. Eff.
870	47	48	47	46	43	38	32	27	
1170	45	49	47	47	45	41	35	30	81
1770	43	47	48	47	46	44	39	33	

VADI-54H21

	Octave Bands								
RPM	1	2	3	4	5	6	7	8	Max. Eff.
690	48	48	47	45	42	37	32	27	
870	47	49	47	46	43	39	33	28	76
1170	45	49	48	47	45	41	36	31	

VADI-60H26

	Octave Bands								
RPM	1	2	3	4	5	6	7	8	Max. Eff.
690	47	48	47	46	44	39	33	28	
870	46	49	48	46	44	41	35	30	76
1170	44	48	48	47	45	43	37	32	

VADI-66H26

	Octave Bands								
RPM	1	2	3	4	5	6	7	8	Max. Eff.
690	47	48	48	47	44	39	33	29	
870	45	48	48	47	45	41	35	31	74
1170	44	47	48	48	46	43	37	33	

VADI-72H26

	Octave Bands								
RPM	1	2	3	4	5	6	7	8	Max. Eff.
690	47	49	48	47	44	39	33	29	
870	45	48	49	47	45	41	35	31	76
1170	44	47	49	48	46	43	37	33	

Efficiency Correction Factors

Efficiency Ratio	1	1.05	1.1	1.2	1.4	1.7+
Efficiency Correction (dB)	0	2	4	6	8	10

The AMCA Certified Ratings Seal applies to air performance ratings only.