













COMMANDER FANS

Top Performance with Variable Speed Precision

Plan your next ventilation strategy with the AP 36" or 54" Commander fans designed to provide optimal airflow with high efficiency, low maintenance direct drive control.





High Performance, permanent magnet electric motor design

Options and features include:

• Single and three phase power supplies

• 36" and 54" models available

• Reduces total fan energy costs

Industry leading drive allows for the use of failsafe relays or backup thermostats as required.



High performance, permanent magnet motor runs cool to the touch and supplies constant torque to the propeller.



ALUMINUM MOTOR MOUNTS, STAINLESS STEEL HARDWARE AND NON-CORROSIVE PROPS



DURABLE FIBERGLASS AND POLY CONE OPTIONS

- RollSeal[®] offerings maintain efficiency and increase performance
- Low maintenance (No Belts, No Pulleys, No Grease)

Remote access through the EDGE[®] control system
0-10 volt or 10-0 volt input for speed control of the fan

- Optistick and Smart Phone App allow for easy parameter changes and simplified diagnostics
- Reduced wiring costs, no need for control relay to engage fan
- User defined RPM when failsafe mode is engaged by backup thermostat or relay
- High performance permanent magnet motor runs cool to the touch and supplies constant torque to the propeller
- Output on drive to monitor motor current

Dia.	H.P.	A	ВС		D	Е	Recommended Wall Opening		
36"	1.5	54.5"	26.75"	44.375"	46.75"	46.75"	44.5" x 44.5"		
54"	3	57.5"	28.95"	65"	64"	62"	58" x 60.5"		

54" Commander fan center to center spacing on wall with cone: 65"





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36" COMN ROLLSEAL®	/IAND	ER IER	36" COMN PVC SHUTT	ИAND TER	ER	54" COMN ROLLSEAL®	/IANDI SHUTT	ER ER	54" COMMANDER PVC SHUTTER			
230 VAC 60	HZ		230 VAC 61	Hz		230 VAC 6			230 VAC 60 Hz			
Single Phas	te Pow	er	Single Pha	e Pow	er	Single Pha	se Pow	er	Single Phase Power			
Bess Lab Test 19244			Bess Lab Tes	st 1924	3	Bess Lab Tes	st 18576	5	Bess Lab Tes	st 1857	5	
1207 RPM	AFR	0.93	1207 RPM	AFR	0.91	708 RPM	AFR	0.89	708 RPM	AFR	0.89	
Static Pressure	Airflow	Efficiency	Static Pressure	Airflow	Efficiency	Static Pressure	Airflow	Efficiency	Static Pressure	Airflow	Efficiency	
0.00	17,880	14.38	0.00	17,120	13.27	0.00	36,500	19.22	0.00	35,200	17.90	
0.05	17,330	13.39	0.05	16,650	12.48	0.05	35,200	17.60	0.05	33,900	16.49	
0.10	16,810	12.53	0.10	16,030	11.62	0.10	34,100	16.51	0.10	32,700	15.34	
0.15	16,250	11.75	0.15	15,610	11.05	0.15	32,900	15.24	0.15	31,500	14.26	
0.20	15,670	11.01	0.20	15,110	10.47	0.20	31,400	14.06	0.20	30,300	13.35	
0.25	15,090	10.43	0.25	14,440	9.96	0.25	30,100	13.12	0.25	28,800	12.30	
0.30	14,440	9.90	0.30	13,770	9.41	0.30	28,500	12.12	0.30	27,100	11.33	
1080 RPM	AFR	0.88	1080 RPM	AFR	0.88	0.35	26,800	11.13	0.35	25,300	10.42	
Static Pressure	Airflow	Efficiency	Static Pressure	Airflow	Efficiency	0.40	25,000	10.20	0.40	23,300	9.48	
0.00	15,990	17.99	0.00	15,320	16.54	0.45	22,500	9.11	0.45	20,600	8.34	
0.05	15,340	16.48	0.05	14,730	15.34	0.50	19,100	7.85	0.50	15,900	6.62	
0.10	14,660	15.08	0.10	14,150	14.26	693 KPIVI	AFK	0.88	693 KPIVI	AFK	0.89	
0.15	14,100	14.09	0.15	13,600	13.41	Static Pressure	Airtiow	Efficiency	Static Pressure	AITTIOW	Efficiency	
0.20	13,520	13.18	0.20	12,900	12.48	0.00	35,600	19.79	0.00	34,400	18.63	
0.25	12,790	12.13	0.25	12,270	11.60	0.05	34,600	18.57	0.05	33,200	17.24	
0.50 060 RPM	12,120 A ER	0.84	0.50 060 RPM	11,550 A ER	0.01	0.10	33,400	17.15	0.10	31,900	13.90	
Sou Rrivi	Airflow	U.04 Efficiency	Static Pressure	Airflow	U.OZ	0.13	20.600	14.66	0.79	29.400	13.75	
Static Fressure	14_230	22.73	Static Flessure	13 530	20.72	0.20	29.000	13.48	0.20	25,400	12.68	
0.00	13.420	22.75	0.00	12,960	19.11	0.20	27,200	12.28	0.20	26,200	11.70	
0.05	13,420	20.00	0.05	12,900	19.11	0.50	27,200	12.20	0.50	20,200	-11.70-	
	-12810	18 54	0.10	12 330	17.51	617 RPM	4FR	0.85	617 RPM	ΔFR	0.84	
0.10	12,810	18.54	0.10	12,330	17.51 <u>16.13</u>	617 RPM	AFR Airflow	0.85 Ffficiency	617 RPM Static Pressure	AFR Airflow	0.84 Ffficiency	
0.10	12,810 12,120 11,440	18.54 16.97 15.42	0.10 0.15 0.20	12,330 11,660 10.870	17.51 16.13 14.69	617 RPM Static Pressure	AFR Airflow	0.85 Efficiency	617 RPM Static Pressure	AFR Airflow 30.700	0.84 Efficiency 23.45	
0.10	12,810 12,120 11,440 10,510	18.54 16.97 15.42 13.92	0.10 0.15 0.20 0.25	12,330 11,660 10,870 9 790	17.51 16.13 14.69 13.12	617 RPM Static Pressure 0.00	AFR Airflow 32,300 31.900	0.85 Efficiency 25.78	617 RPM Static Pressure 0.00	AFR Airflow 30,700 -29.500	0.84 Efficiency 23.45 21.53	
0.10 0.15 0.20 0.25 0.30	12,810 12,120 11,440 10,510 9 280	18.54 16.97 15.42 13.92 	0.10 0.15 0.20 0.25 	12,330 11,660 10,870 9,790 8,420	17.51 16.13 14.69 13.12 -11.53	617 RPM Static Pressure 0.00 0.05 0.10	AFR Airflow 32,300 31,900 30,300	0.85 Efficiency 25.78 24.06 -21.64	617 RPM Static Pressure 0.00 0.05 	AFR Airflow 30,700 29,500 -28.100	0.84 Efficiency 23.45 21.53 	
0.10 0.15 0.20 0.25 0.30 841 RPM	12,810 12,120 11,440 10,510 9,280 AFR	18.54 16.97 15.42 13.92 12.54 0.76	0.10 0.15 0.20 0.25 0.30 841 RPM	12,330 11,660 10,870 9,790 8,420 AFR	17.51 16.13 14.69 13.12 11.53 0.71	617 RPM Static Pressure 0.00 0.05 0.10 0.15	AFR Airflow 32,300 31,900 30,300 28,800	0.85 Efficiency 25.78 24.06 21.64 -19.70	617 RPM Static Pressure 0.00 0.05 0.10 0.15	AFR Airflow 30,700 29,500 28,100 26,600	0.84 Efficiency 23.45 21.53 19.58 	
0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure	12,810 12,120 11,440 10,510 9,280 AFR Airflow	18.54 16.97 15.42 13.92 12.54 0.76 Efficiency	0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure	12,330 11,660 10,870 9,790 8,420 AFR Airflow	17.51 16.13 14.69 13.12 11.53 0.71 Efficiency	617 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20	AFR Airflow 32,300 31,900 30,300 28,800 27,200	0.85 Efficiency 25.78 24.06 21.64 19.70 17.94	617 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20	AFR Airflow 30,700 29,500 28,100 26,600 24,900	0.84 Efficiency 23.45 21.53 19.58 17.85 _ 16.12	
0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00	12,810 12,120 11,440 10,510 9,280 AFR Airflow 12,410	18.54 16.97 15.42 13.92 12.54 0.76 Efficiency 29.27	0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00	12,330 11,660 10,870 9,790 8,420 AFR Airflow 11,820	17.51 16.13 14.69 13.12 11.53 0.71 Efficiency 26.80	617 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25	AFR Airflow 32,300 31,900 30,300 28,800 27,200 25,200	0.85 Efficiency 25.78 24.06 21.64 19.70 17.94 _ 16.09	617 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25	AFR Airflow 30,700 29,500 28,100 26,600 24,900 22,800	0.84 Efficiency 23.45 21.53 19.58 17.85 16.12 _ 14.38	
0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05	12,810 12,120 11,440 10,510 9,280 AFR Airflow 12,410 11,580	18.54 16.97 15.42 13.92 12.54 0.76 Efficiency 29.27 25.28	0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05	12,330 11,660 10,870 9,790 8,420 AFR Airflow 11,820 11,100	17.51 16.13 14.69 13.12 11.53 0.71 Efficiency 26.80 23.77	617 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30	AFR Airflow 32,300 31,900 30,300 28,800 27,200 25,200 23,200	0.85 Efficiency 25.78 24.06 21.64 19.70 17.94 16.09 14.47	617 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30	AFR Airflow 30,700 29,500 28,100 26,600 24,900 22,800 20,400	0.84 Efficiency 23.45 21.53 19.58 17.85 16.12 14.38 12.68	
0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10	12,810 12,120 11,440 10,510 9,280 AFR Airflow 12,410 11,580 10,840	18.54 16.97 15.42 13.92 12.54 0.76 Efficiency 29.27 25.28 22.77	0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10	12,330 11,660 10,870 9,790 8,420 AFR Airflow 11,820 11,100 10,420	17.51 16.13 14.69 13.12 11.53 0.71 Efficiency 26.80 23.77 21.53	617 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 554 RPM	AFR Airflow 32,300 31,900 20,300 28,800 27,200 25,200 23,200 AFR	0.85 Efficiency 25.78 24.06 21.64 19.70 17.94 16.09 14.47 0.79	617 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 554 RPM	AFR Airflow 30,700 29,500 28,100 26,600 24,900 22,800 22,800 AFR	0.84 Efficiency 23.45 21.53 19.58 17.85 16.12 14.38 12.68 0.78	
0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.15	12,810 12,120 11,440 9,280 AFR Airflow 12,410 11,580 10,840 10,040	18.54 16.97 15.42 13.92 12.54 0.76 Efficiency 29.27 25.28 22.77 20.36	0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.15	12,330 11,660 9,790 8,420 AFR Airflow 11,820 11,100 10,420 9,490	17.51 16.13 14.69 13.12 11.53 0.71 Efficiency 26.80 23.77 21.53 19.09	617 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 554 RPM Static Pressure	AFR Airflow 32,300 31,900 28,800 27,200 25,200 23,200 AFR Airflow	0.85 Efficiency 25.78 24.06 21.64 19.70 17.94 16.09 14.47 0.79 Efficiency	617 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 554 RPM Static Pressure	AFR Airflow 30,700 29,500 28,100 26,600 24,900 22,800 20,400 AFR Airflow	0.84 Efficiency 23.45 21.53 19.58 17.85 16.12 14.38 12.68 0.78 Efficiency	
0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20	12,810 12,120 11,440 9,280 AFR Airflow 12,410 11,580 10,840 10,040 9,030	18.54 16.97 15.42 13.92 12.54 0.76 Efficiency 29.27 25.28 22.77 20.36 17.99	0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20	12,330 11,660 9,790 8,420 AFR Airflow 11,820 11,100 10,420 9,490 8,190	17.51 16.13 14.69 13.12 11.53 0.71 Efficiency 26.80 23.77 21.53 19.09 16.35	617 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 554 RPM Static Pressure 0.00	AFR Airflow 32,300 31,900 28,800 27,200 25,200 23,200 AFR Airflow 28,900	0.85 Efficiency 25.78 24.06 21.64 19.70 17.94 16.09 14.47 0.79 Efficiency 32.15	617 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 554 RPM Static Pressure 0.00	AFR Airflow 29,500 28,100 26,600 24,900 22,800 20,400 AFR Airflow 27,800	0.84 Efficiency 23.45 21.53 19.58 17.85 16.12 14.38 12.68 0.78 Efficiency 29.20	
0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25	12,810 12,120 11,440 9,280 AFR Airflow 12,410 11,580 10,840 10,040 9,030 7,540	18.54 16.97 15.42 12.54 0.76 Efficiency 29.27 25.28 22.77 20.36 17.99 15.32	0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25	12,330 11,660 9,790 8,420 AFR Airflow 11,820 11,100 10,420 9,490 8,190 6,090	17.51 16.13 14.69 13.12 11.53 0.71 Efficiency 26.80 23.77 21.53 19.09 16.35 12.82	617 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 554 RPM Static Pressure 0.00 0.05	AFR Airflow 32,300 31,900 28,800 27,200 25,200 23,200 AFR Airflow 28,900 27,400	0.85 Efficiency 25.78 24.06 21.64 19.70 17.94 16.09 14.47 0.79 Efficiency 32.15 28.45	617 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 554 RPM Static Pressure 0.00 0.05	AFR Airflow 29,500 28,100 26,600 24,900 22,800 20,400 AFR Airflow 27,800 26,200	0.84 Efficiency 23.45 21.53 19.58 17.85 16.12 14.38 12.68 0.78 Efficiency 29.20 25.89	
0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30	12,810 12,120 11,440 9,280 AFR Airflow 12,410 11,580 10,840 10,040 9,030 7,540 4,440	18.54 16.97 15.42 12.54 0.76 Efficiency 29.27 25.28 22.77 20.36 17.99 15.32 9.67	0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30	12,330 11,660 9,790 8,420 AFR Airflow 11,820 11,100 10,420 9,490 8,190 6,090 3,900	17.51 16.13 14.69 13.12 11.53 0.71 Efficiency 26.80 23.77 21.53 19.09 16.35 12.82 8.02	617 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 554 RPM Static Pressure 0.00 0.05 0.10	AFR Airflow 32,300 31,900 28,800 27,200 25,200 23,200 AFR Airflow 28,900 27,400 25,600	0.85 Efficiency 25.78 24.06 21.64 19.70 17.94 16.09 14.47 0.79 Efficiency 32.15 28.45 25.00	617 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 554 RPM Static Pressure 0.00 0.05 0.10	AFR Airflow 29,500 28,100 26,600 24,900 22,800 20,400 AFR Airflow 27,800 26,200 24,600	0.84 Efficiency 23.45 21.53 19.58 17.85 16.12 14.38 12.68 0.78 Efficiency 29.20 25.89 23.12	
0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 721 RPM	12,810 12,120 11,440 10,510 9,280 AFR Airflow 12,410 11,580 10,840 10,040 9,030 7,540 4,440 AFR	18.54 16.97 15.42 13.92 12.54 0.76 Efficiency 29.27 25.28 22.77 20.36 17.99 15.32 9.67 0.53	0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 721 RPM	12,330 11,660 9,790 8,420 AFR Airflow 11,820 11,100 10,420 9,490 8,190 6,090 3,900 AFR	17.51 16.13 14.69 13.12 11.53 0.71 Efficiency 26.80 23.77 21.53 19.09 16.35 12.82 8.02 0.42	617 RPM Static Pressure 0.00 0.05 0.10 0.20 0.25 0.30 554 RPM Static Pressure 0.00 0.05 0.10 0.15	AFR Airflow 32,300 31,900 28,800 27,200 25,200 23,200 AFR Airflow 28,900 27,400 25,600 23,700	0.85 Efficiency 25.78 24.06 19.70 17.94 16.09 14.47 0.79 Efficiency 32.15 28.45 25.00 22.19	617 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 554 RPM Static Pressure 0.00 0.05 0.10 0.15	AFR Airflow 30,700 29,500 28,100 24,900 22,800 20,400 AFR Airflow 27,800 26,200 24,600 22,700	0.84 Efficiency 23.45 21.53 19.58 17.85 16.12 14.38 12.68 0.78 Efficiency 29.20 25.89 23.12 20.51	
0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 721 RPM Static Pressure	12,810 12,120 11,440 9,280 AFR Airflow 12,410 11,580 10,840 10,040 9,030 7,540 4,440 AFR Airflow	18.54 16.97 15.42 12.54 0.76 Efficiency 29.27 25.28 22.77 20.36 17.99 15.32 9.67 0.53 Efficiency	0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 721 RPM Static Pressure	12,330 11,660 9,790 8,420 AFR Airflow 11,820 11,100 10,420 9,490 8,190 6,090 3,900 AFR Airflow	17.51 16.13 14.69 13.12 11.53 0.71 Efficiency 26.80 23.77 21.53 19.09 16.35 12.82 8.02 0.42 Efficiency	617 RPM Static Pressure 0.00 0.05 0.10 0.20 0.25 0.30 554 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20	AFR Airflow 32,300 31,900 28,800 27,200 25,200 23,200 AFR Airflow 28,900 27,400 25,600 23,700 21,700	0.85 Efficiency 25.78 24.06 21.64 19.70 17.94 16.09 14.47 0.79 Efficiency 32.15 28.45 25.00 22.19 19.51	617 RPM Static Pressure 0.00 0.05 0.10 0.20 0.25 0.30 554 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20	AFR Airflow 29,500 28,100 26,600 24,900 22,800 22,800 20,400 AFR Airflow 27,800 26,200 24,600 22,700 20,500	0.84 Efficiency 23.45 21.53 19.58 17.85 16.12 14.38 12.68 0.78 Efficiency 29.20 25.89 23.12 20.51 18.00	
0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 721 RPM Static Pressure 0.00	12,810 12,120 11,440 10,510 9,280 AFR Airflow 12,410 11,580 10,840 10,040 9,030 7,540 4,440 AFR Airflow 10,590	18.54 16.97 15.42 12.54 0.76 Efficiency 29.27 25.28 22.77 20.36 17.99 15.32 9.67 0.53 Efficiency 38.79	0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 721 RPM Static Pressure 0.00	12,330 11,660 9,790 8,420 AFR Airflow 11,820 11,100 10,420 9,490 8,190 6,090 3,900 AFR Airflow 9,970	17.51 16.13 14.69 13.12 11.53 0.71 Efficiency 26.80 23.77 21.53 19.09 16.35 12.82 8.02 0.42 Efficiency 35.35	617 RPM Static Pressure 0.00 0.15 0.20 0.25 0.30 554 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25	AFR Airflow 32,300 31,900 28,800 27,200 25,200 23,200 AFR Airflow 28,900 27,400 25,600 23,700 21,700 19,000	0.85 Efficiency 25.78 24.06 21.64 19.70 17.94 16.09 14.47 0.79 Efficiency 32.15 28.45 25.00 22.19 19.51 16.64	617 RPM Static Pressure 0.00 0.05 0.10 0.20 0.25 0.30 554 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.20	AFR Airflow 29,500 28,100 26,600 24,900 22,800 22,800 20,400 AFR Airflow 27,800 26,200 24,600 24,600 24,600 24,600 17,100	0.84 Efficiency 23.45 21.53 19.58 17.85 16.12 14.38 12.68 0.78 Efficiency 29.20 25.89 23.12 20.51 18.00 14.72	
0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 721 RPM Static Pressure 0.00 0.05	12,810 12,120 11,440 9,280 AFR Airflow 12,410 11,580 10,840 10,040 9,030 7,540 4,440 AFR Airflow 10,590 9,670	18.54 16.97 15.42 13.92 12.54 0.76 Efficiency 29.27 25.28 22.77 20.36 17.99 15.32 9.67 0.53 Efficiency 38.79 32.45	0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 721 RPM Static Pressure 0.00 0.05	12,330 11,660 9,790 8,420 AFR Airflow 11,820 11,100 10,420 9,490 8,190 6,090 3,900 AFR Airflow 9,970 9,110	17.51 16.13 14.69 13.12 11.53 0.71 Efficiency 26.80 23.77 21.53 19.09 16.35 12.82 8.02 0.42 Efficiency 35.35 30.37	617 RPM Static Pressure 0.00 0.05 0.10 0.20 0.25 0.30 554 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30	AFR Airflow 32,300 31,900 28,800 27,200 25,200 23,200 AFR Airflow 28,900 27,400 27,400 25,600 23,700 21,700 19,000 15,100	0.85 Efficiency 25.78 24.06 21.64 19.70 17.94 16.09 14.47 0.79 Efficiency 32.15 28.45 25.00 22.19 19.51 16.64 13.33	617 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 554 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30	AFR Airflow 29,500 28,100 26,600 24,900 22,800 20,400 4,780 27,800 26,200 26,200 24,600 22,700 22,700 20,500 17,100	0.84 Efficiency 23.45 21.53 19.58 17.85 16.12 14.38 12.68 0.78 Efficiency 29.20 25.89 23.12 20.51 18.00 14.72 10.37	
0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 721 RPM Static Pressure 0.00 0.05 0.05	12,810 12,120 11,440 10,510 9,280 AFR Airflow 12,410 11,580 10,840 10,040 9,030 7,540 4,440 AFR Airflow 10,590 9,670 8,770	18.54 16.97 15.42 13.92 12.54 0.76 Efficiency 29.27 25.28 22.77 20.36 17.99 15.32 9.67 0.53 Efficiency 38.79 32.45 28.02	0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 721 RPM Static Pressure 0.00 0.05 0.05 0.10	12,330 11,660 9,790 8,420 AFR Airflow 11,820 11,100 10,420 9,490 8,190 6,090 3,900 AFR Airflow 9,970 9,110 8,080	17.51 16.13 14.69 13.12 11.53 0.71 Efficiency 26.80 23.77 21.53 19.09 16.35 12.82 8.02 0.42 Efficiency 35.35 30.37 25.49	617 RPM Static Pressure 0.00 0.15 0.20 0.25 0.30 554 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 425 RPM	AFR Airflow 32,300 31,900 28,800 27,200 25,200 23,200 AFR Airflow 28,900 27,400 27,400 25,600 23,700 21,700 19,000 15,100 AFR	0.85 Efficiency 25.78 24.06 21.64 19.70 17.94 16.09 14.47 0.79 Efficiency 32.15 28.45 25.00 22.19 19.51 16.64 13.33 0.40	617 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 554 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 422 RPM	AFR Airflow 29,500 28,100 24,900 22,800 22,800 20,400 4,780 20,400 26,200 26,200 24,600 22,700 24,600 17,100 11,900 AFR	0.84 Efficiency 23.45 21.53 19.58 17.85 16.12 14.38 12.68 0.78 Efficiency 29.20 25.89 23.12 20.51 18.00 14.72 10.37 0.32	
0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.25 0.20 0.25 0.30 721 RPM Static Pressure 0.00 0.05 0.10 0.05 0.10 0.05	12,810 12,120 11,440 9,280 AFR Airflow 12,410 11,580 10,840 10,040 9,030 7,540 4,440 AFR Airflow 10,590 9,670 8,770 7,670	18.54 16.97 15.42 13.92 12.54 0.76 Efficiency 29.27 25.28 22.77 20.36 17.99 15.32 9.67 0.53 Efficiency 38.79 32.45 28.02 23.73	0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 721 RPM Static Pressure 0.00 0.05 0.10 0.05	12,330 11,660 9,790 8,420 AFR Airflow 11,820 11,100 9,490 8,190 6,090 3,900 AFR Airflow 9,970 9,110 8,080 6,560	17.51 16.13 14.69 13.12 11.53 0.71 Efficiency 26.80 23.77 21.53 19.09 16.35 12.82 8.02 0.42 Efficiency 35.35 30.37 25.49 20.76	617 RPM Static Pressure 0.00 0.15 0.20 0.25 0.30 554 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 425 RPM Static Pressure	AFR Airflow 32,300 31,900 28,800 27,200 25,200 23,200 AFR Airflow 28,900 27,400 27,400 25,600 23,700 21,700 19,000 15,100 AFR Airflow	0.85 Efficiency 25.78 24.06 19.70 17.94 16.09 14.47 0.79 Efficiency 32.15 28.45 25.00 22.19 19.51 16.64 13.33 0.40 Efficiency	617 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 554 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 422 RPM Static Pressure	AFR Airflow 29,500 28,100 24,900 22,800 22,800 20,400 4,780 20,400 24,600 24,600 24,600 22,700 24,600 17,100 11,900 AFR Airflow	0.84 Efficiency 23.45 21.53 19.58 17.85 16.12 14.38 12.68 0.78 Efficiency 29.20 25.89 23.12 20.51 18.00 14.72 10.37 0.32 Efficiency	
0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.25 0.30 721 RPM Static Pressure 0.00 0.05 0.10 0.15 0.10 0.15 0.10	12,810 12,120 11,440 9,280 AFR Airflow 12,410 11,580 10,840 10,040 9,030 7,540 4,440 AFR Airflow 10,590 9,670 8,770 7,670 5,570	18.54 16.97 15.42 12.54 0.76 Efficiency 29.27 25.28 22.77 20.36 17.99 15.32 9.67 0.53 Efficiency 38.79 32.45 28.02 23.73 18.57	0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 721 RPM Static Pressure 0.00 0.05 0.10 0.15 0.10 0.15 0.10	12,330 11,660 9,790 8,420 AFR Airflow 11,820 11,100 9,490 8,190 6,090 3,900 3,900 AFR Airflow 9,970 9,110 8,080 6,560 4,120	17.51 16.13 14.69 13.12 11.53 0.71 Efficiency 26.80 23.77 21.53 19.09 16.35 12.82 8.02 0.42 Efficiency 35.35 30.37 25.49 20.76 13.55	617 RPM Static Pressure 0.00 0.15 0.20 0.25 0.30 554 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 425 RPM Static Pressure 0.30	AFR Airflow 32,300 31,900 28,800 27,200 25,200 23,200 AFR Airflow 28,900 27,400 25,600 23,700 23,700 21,700 19,000 15,100 AFR Airflow 22,200	0.85 Efficiency 25.78 24.06 19.70 17.94 16.09 14.47 0.79 Efficiency 32.15 28.45 25.00 22.19 19.51 16.64 13.33 0.40 Efficiency 54.55	617 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 554 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 422 RPM Static Pressure 0.00	AFR Airflow 29,500 28,100 24,900 22,800 22,800 20,400 4,7 20,400 22,700 24,600 24,600 22,700 24,600 17,100 17,100 17,100 4,7 8,00 17,100 1,900 4,00 1,900 0,	0.84 Efficiency 23.45 21.53 19.58 17.85 16.12 14.38 12.68 0.78 Efficiency 29.20 25.89 23.12 20.51 18.00 14.72 10.37 0.32 Efficiency 47.06	
0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 721 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.15 0.20 0.15 0.20 0.25 0.30	12,810 12,120 11,440 9,280 AFR Airflow 12,410 11,580 10,840 10,040 9,030 7,540 4,440 AFR Airflow 10,590 9,670 8,770 7,670 5,570 2,640	18.54 16.97 15.42 13.92 12.54 0.76 Efficiency 29.27 25.28 22.77 20.36 17.99 15.32 9.67 0.53 Efficiency 38.79 32.45 28.02 23.73 18.57 8.35	0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 721 RPM Static Pressure 0.00 0.05 0.10 0.15 0.10 0.15 0.20 0.15 0.20 0.25	12,330 11,660 9,790 8,420 AFR Airflow 11,820 11,100 10,420 9,490 8,190 6,090 3,900 3,900 4,120 9,110 8,080 6,560 4,120 2,120	17.51 16.13 14.69 13.12 11.53 0.71 Efficiency 26.80 23.77 21.53 19.09 16.35 12.82 8.02 0.42 Efficiency 35.35 30.37 25.49 20.76 13.55 6.44	617 RPM Static Pressure 0.00 0.05 0.10 0.25 0.20 0.25 0.30 554 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 425 RPM Static Pressure 0.00 0.25 0.30 425 RPM	AFR Airflow 32,300 31,900 28,800 27,200 25,200 23,200 AFR Airflow 25,600 23,700 25,600 21,700 19,000 15,100 AFR Airflow 22,200 20,2	0.85 Efficiency 25.78 24.06 19.70 17.94 16.09 14.47 0.79 Efficiency 32.15 28.45 25.00 22.19 19.51 16.64 13.33 0.40 Efficiency 54.55 43.86	617 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 554 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 422 RPM Static Pressure 0.00 0.25 0.30	AFR Airflow 29,500 28,100 24,900 22,800 22,800 20,400 4FR Airflow 27,800 24,600 24,600 22,700 24,600 17,100 11,900 4FR Airflow 20,800 18,800	0.84 Efficiency 23.45 21.53 19.58 17.85 16.12 14.38 12.68 0.78 Efficiency 29.20 25.89 23.12 20.51 18.00 14.72 10.37 0.32 Efficiency 47.06 39.09	
0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 721 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 721 RPM Static Pressure 0.00 0.25 0.25 0.20 0.25	12,810 12,120 11,440 9,280 AFR Airflow 12,410 11,580 10,840 10,040 9,030 7,540 4,440 AFR Airflow 10,590 9,670 8,770 7,670 5,570 2,640 AFR	18.54 16.97 15.42 13.92 12.54 0.76 Efficiency 29.27 25.28 22.77 20.36 17.99 15.32 9.67 0.53 Efficiency 38.79 32.45 28.02 23.73 18.57 8.35 N/A	0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 721 RPM Static Pressure 0.00 0.05 0.10 0.05 0.10 0.05 0.10 0.05 0.10 0.05 0.10 0.25 0.20 0.25 602 RPM	12,330 11,660 9,790 8,420 AFR Airflow 11,820 11,100 10,420 9,490 8,190 6,090 3,900 4,190 9,970 9,110 8,080 6,560 4,120 2,120 AFR	17.51 16.13 14.69 13.12 11.53 0.71 Efficiency 26.80 23.77 21.53 19.09 16.35 12.82 8.02 0.42 Efficiency 35.35 30.37 25.49 20.76 13.55 6.44 N/A	617 RPM Static Pressure 0.00 0.05 0.10 0.25 0.30 554 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 425 RPM Static Pressure 0.00 0.25 0.30 425 RPM	AFR 32,300 31,900 28,800 27,200 25,200 25,200 23,200 4FR Airflow 25,600 27,400 25,600 23,700 21,700 19,000 15,100 AFR Airflow 22,200 20,000 17,300	0.85 Efficiency 25.78 24.06 21.64 19.70 17.94 16.09 14.47 0.79 Efficiency 32.15 28.45 25.00 22.19 19.51 16.64 13.33 0.40 Efficiency 54.55 43.86 35.31	617 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 554 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 422 RPM Static Pressure 0.00 0.05 0.10 0.25 0.30 422 RPM	AFR Airflow 29,500 28,100 24,900 22,800 22,800 22,800 20,400 4,780 20,200 24,600 24,600 24,600 24,600 24,600 17,100 11,900 4,78 Airflow 20,800 18,800 16,000	0.84 Efficiency 23.45 21.53 19.58 17.85 16.12 14.38 12.68 0.78 Efficiency 29.20 25.89 23.12 20.51 18.00 14.72 10.37 0.32 Efficiency 47.06 39.09 31.62	
0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 721 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 721 RPM Static Pressure 0.00 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.30 0.25 0.25 0.25	12,810 12,120 11,440 9,280 AFR Airflow 12,410 11,580 10,840 10,040 9,030 7,540 4,440 AFR Airflow 10,590 9,670 8,770 7,670 5,570 2,640 AFR Airflow	18.54 16.97 15.42 13.92 12.54 0.76 Efficiency 29.27 25.28 22.77 20.36 17.99 15.32 9.67 0.53 Efficiency 38.79 32.45 28.02 23.73 18.57 8.35 N/A Efficiency	0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 721 RPM Static Pressure 0.00 0.05 0.10 0.05 0.10 0.05 0.10 0.05 0.10 0.25 0.20 0.25 602 RPM Static Pressure	12,330 11,660 9,790 8,420 AFR Airflow 11,820 11,100 10,420 9,490 8,190 6,090 3,900 AFR Airflow 9,970 9,110 8,080 6,560 4,120 2,120 AFR Airflow	17.51 16.13 14.69 13.12 11.53 0.71 Efficiency 26.80 23.77 21.53 19.09 16.355 12.82 8.02 0.42 Efficiency 35.35 30.37 25.49 20.76 13.55 6.44 N/A Efficiency	617 RPM Static Pressure 0.00 0.05 0.10 0.25 0.30 554 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 425 RPM Static Pressure 0.00 0.25 0.30 425 RPM Static Pressure 0.00 0.05 0.10 0.15	AFR Airflow 32,300 31,900 28,800 27,200 25,200 23,200 23,200 23,200 23,200 23,200 23,200 23,200 23,700 25,600 23,700 21,700 19,000 15,100 4FR Airflow 22,200 20,000 17,300 14,300	0.85 Efficiency 25.78 24.06 21.64 19.70 17.94 16.09 14.47 0.79 Efficiency 32.15 28.45 25.00 22.19 19.51 16.64 13.33 0.40 Efficiency 54.55 43.86 35.31 27.98	617 RPM Static Pressure 0.00 0.05 0.10 0.20 0.25 0.30 554 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 422 RPM Static Pressure 0.00 0.25 0.30 422 RPM Static Pressure 0.00	AFR Airflow 29,500 28,100 24,900 22,800 22,800 22,800 20,400 4,780 20,400 20,400 20,200 24,600 24,600 22,700 24,600 11,900 11,900 4,78 0 11,900 11,900 11,900 11,900 11,900 11,900 10,800 16,000 10,500	0.84 Efficiency 23.45 21.53 19.58 17.85 16.12 14.38 12.68 0.78 Efficiency 29.20 25.89 23.12 20.51 18.00 14.72 10.37 0.32 Efficiency 47.06 39.09 31.62 20.92	
0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 721 RPM Static Pressure 0.00 0.05 0.10 0.05 0.10 0.05 0.10 0.05 0.10 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.20	12,810 12,120 11,440 9,280 AFR Airflow 12,410 11,580 10,840 10,040 9,030 7,540 4,440 4,440 4,440 4,440 9,030 7,540 4,440 5,570 5,570 2,640 4,570 2,640 4,47 8,770 2,640 4,47 8,770 2,640 4,47 8,770 2,640 4,47 8,770 2,640 4,47 8,770 2,640 4,47 8,770 2,640 4,47 8,770 2,640 2,640 4,47 8,770 2,640 2,640 4,47 8,770 2,640 4,47 1,670 2,640 4,47 1,670 2,640 4,47 1,670 2,640 4,47 2,640 4,40 4,40 4,40 4,40 4,40 4,40 4,40	18.54 16.97 15.42 12.54 0.76 Efficiency 29.27 25.28 22.77 20.36 17.99 15.32 9.67 0.53 Efficiency 38.79 32.45 28.02 23.73 18.57 8.35 N/A Efficiency 52.69	0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 721 RPM Static Pressure 0.00 0.05 0.10 0.05 0.10 0.05 0.10 0.05 0.10 0.25 602 RPM Static Pressure 0.00	12,330 11,660 9,790 8,420 AFR Airflow 11,820 11,100 10,420 9,490 8,190 6,090 3,900 AFR Airflow 9,970 9,110 8,080 6,560 4,120 2,120 4,120 2,120 AFR Airflow 8,080	17.51 16.13 14.69 13.12 11.53 0.71 Efficiency 26.80 23.77 21.53 19.09 16.35 12.82 8.02 0.42 Efficiency 35.35 30.37 25.49 20.76 13.55 6.44 N/A Efficiency 45.91	617 RPM Static Pressure 0.00 0.15 0.20 0.25 0.30 554 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 425 RPM Static Pressure 0.00 0.25 0.30 425 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.15 0.20	AFR Airflow 32,300 31,900 28,800 27,200 25,200 23,200 AFR Airflow 25,600 27,400 25,600 23,700 21,700 19,000 4FR Airflow 22,200 20,000 17,300 14,300 7,900	0.85 Efficiency 25.78 24.06 21.64 19.70 17.94 16.09 14.47 0.79 Efficiency 32.15 28.45 25.00 22.19 19.51 16.64 13.33 0.40 Efficiency 54.55 43.86 35.31 27.98 15.55	617 RPM Static Pressure 0.00 0.15 0.20 0.25 0.30 554 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 422 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.15 0.20 0.15 0.20	AFR Airflow 29,500 28,100 24,900 22,800 22,800 22,800 20,400 4,780 27,800 26,200 24,600 24,600 22,700 24,600 11,900 11,900 4,78 Airflow 20,800 18,800 16,000 10,500 6,000	0.84 Efficiency 23.45 19.58 17.85 16.12 14.38 12.68 0.78 Efficiency 29.20 23.12 20.51 18.00 14.72 10.37 0.32 Efficiency 47.06 39.09 31.62 20.92 10.93	
0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.25 0.20 0.25 0.30 721 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 721 RPM Static Pressure 0.00 0.25 0.10 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.20 0.25	12,810 12,120 11,440 10,510 9,280 AFR Airflow 12,410 11,580 10,840 10,040 9,030 7,540 4,440 4,440 4,440 4,440 4,440 9,030 7,540 4,440 5,570 2,640 5,570 2,640 4,47R Airflow 8,800 7,720	18.54 16.97 15.42 13.92 12.54 0.76 Efficiency 29.27 25.28 22.77 20.36 17.99 15.32 9.67 0.53 Efficiency 38.79 32.45 28.02 23.73 18.57 8.35 N/A Efficiency 52.69 41.73	0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.15 0.10 0.15 0.20 0.25 0.30 721 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.05 0.10 0.15 0.20 0.25 0.30 721 RPM Static Pressure 0.00 0.25 0.20 0.25 0.20 0.25	12,330 11,660 9,790 8,420 AFR Airflow 11,820 11,100 10,420 9,490 8,190 6,090 3,900 AFR Airflow 9,970 9,110 8,080 6,560 4,120 2,120 4,120 2,120 AFR Airflow 8,080 6,560 4,120	17.51 16.13 14.69 13.12 11.53 0.71 Efficiency 26.80 23.77 21.53 19.09 16.35 12.82 8.02 0.42 Efficiency 35.35 30.37 25.49 20.76 13.55 6.44 N/A Efficiency 45.91 37.46	617 RPM Static Pressure 0.00 0.15 0.20 0.25 0.30 554 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 425 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.05 0.10 0.15 0.20 0.15 0.20 0.15 0.20 0.15 0.20	AFR Airflow 32,300 30,300 28,800 27,200 25,200 25,200 23,200 23,200 23,200 23,200 27,400 25,600 23,700 23,700 15,100 15,100 AFR Airflow 22,200 20,000 17,300 14,300 7,900	0.85 Efficiency 25.78 24.06 21.64 19.70 17.94 16.09 14.47 0.79 Efficiency 32.15 28.45 25.00 22.19 19.51 16.64 13.33 0.40 Efficiency 54.55 43.86 35.31 27.98 15.55	617 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 554 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 422 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.05 0.10 0.15 0.20 0.15 0.20 0.15 0.20	AFR Airflow 30,700 29,500 28,100 24,900 22,800 22,800 20,400 4,780 20,400 20,400 24,600 24,600 22,700 24,600 22,700 17,100 17,100 17,100 17,100 17,100 17,100 17,100 17,100 17,100 10,500 18,800 16,000 10,500 6,000	0.84 Efficiency 23.45 21.53 19.58 17.85 16.12 14.38 12.68 0.78 Efficiency 29.20 25.89 23.12 20.51 18.00 14.72 20.51 18.00 14.72 Efficiency 47.06 39.09 31.62 20.92 10.93	
0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 721 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 721 RPM Static Pressure 0.00 0.15 0.20 0.25 5 0.10 0.15 0.20 0.25 5 0.10 0.05 0.20	12,810 12,120 11,440 10,510 9,280 AFR Airflow 12,410 11,580 10,840 10,040 9,030 7,540 4,440 4,440 4,440 4,440 4,440 4,7590 9,670 8,770 5,570 2,640 5,570 2,640 4,47 Airflow 8,800 7,720 6,480	18.54 16.97 15.42 13.92 12.54 0.76 Efficiency 29.27 25.28 22.77 20.36 17.99 15.32 9.67 0.53 Efficiency 38.79 32.45 28.02 23.73 18.57 8.35 N/A Efficiency 52.69 41.73 33.40	0.10 0.15 0.20 0.25 0.30 841 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 721 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.05 0.10 0.15 0.20 0.25 602 RPM Static Pressure 0.00 0.25 602 RPM	12,330 11,660 9,790 8,420 AFR Airflow 11,820 11,100 9,490 8,190 6,090 3,900 3,900 4,120 9,970 9,110 8,080 6,560 4,120 2,120 4,120 2,120 4,120 2,120 4,120 5,090 4,120 2,120	17.51 16.13 14.69 13.12 11.53 0.71 Efficiency 26.80 23.77 21.53 19.09 16.35 12.82 8.02 0.42 Efficiency 35.35 30.37 25.49 20.76 13.55 6.44 N/A Efficiency 45.91 37.46 27.51	617 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 554 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 425 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.05 0.10 0.15 0.20	AFR Airflow 32,300 31,900 28,800 27,200 25,200 23,200 23,200 23,200 23,200 23,700 25,600 23,700 25,600 23,700 19,000 15,100 AFR Airflow 22,200 20,000 17,300 14,300 7,900	0.85 Efficiency 25.78 24.06 21.64 19.70 17.94 16.09 14.47 0.79 Efficiency 32.15 28.45 25.00 22.19 19.51 16.64 13.33 0.40 Efficiency 54.55 43.86 35.31 27.98 15.55	617 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 554 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 422 RPM Static Pressure 0.00 0.05 0.10 0.15 0.20 0.25 0.30 422 RPM	AFR Airflow 30,700 29,500 28,100 24,900 22,800 22,800 20,400 AFR Airflow 27,800 26,200 24,600 22,700 20,500 17,100 10,500 10	0.84 Efficiency 23.45 19.58 17.85 16.12 14.38 12.68 0.78 Efficiency 29.20 25.89 23.12 20.51 18.00 14.72 10.37 0.32 Efficiency 47.06 39.09 31.62 20.92 10.93	



PERFORMER & COMPETITOR FANS

Durable, Efficient and Reliable

The success of the modern facility depends on many issues of which longevity, efficiency and performance of the ventilation fans are a substantial part.

PERFORMER SERIES FANS

AP Performer series fans are available in a wide range of sizes, from 12" to 50" diameter, to accommodate most ventilation requirements. 12" to 36" diameter Performer series fans include direct drive, variable speed motors for efficient operation and minimal maintenance. A lifetime warranted composite fiberglass-blend blade won't corrode and is carefully balanced for maximum performance.







Unlike fans that use a smaller 48 frame motor, Performer direct drive fans include the larger 56-frame motor providing higher performance while allowing for much cooler motor temperatures on variable



Shown with optional fiberglass discharge cone.

speed applications. Performer direct drive fan motors include a full 3 year warranty.

Performer Belt Drive

Includes heavy duty 56-frame TEAO motors, 1" drive train (allowing for larger pillow block bearings and enhanced longevity), automatic belt tensioner, and large diameter pulleys with greasable pillow block bearings to promote greater belt wrap and extended life.

COMPETITOR SERIES FANS

Available in up to 54" models, harnessed with high efficiency motors, and capable of moving up to 30,000 cubic feet of air per minute, AP's Competitor series fans are the airflow champions. Competitor fans are available in 24" direct drive, variable speed models or 54" belt drive, single-speed models. Long lasting stainless steel props and durable fiberglass housings make Competitor fans a reliable choice for high airflow applications.

Competitor Direct Drive

2



Direct drive Competitor series fans feature high efficiency 1/3 HP motors and durable, fiber reinforced nylon propellers. A five bladed propeller

Shown with optional fiberglass discharge cone.

configuration provides for optimal air output while producing minimal operational load on the motor.

Competitor Belt Drive

Includes a high performance stainless steel prop, 1.75 HP motor, 1" drive train (allows for larger pillow block bearings enhancing longevity), automatic belt tensioner, and large diameter pulleys with greasable pillow block bearings promote greater belt wrap and extended life.



To be a top performer in today's marketplace, the modern pork producer needs a competitive edge.



Performer and Competitor fans feature durable and aerodynamic fiberglass housings with stainless steel mounting hardware for corrosion resistance.



Heavy duty fan guards with baked-on finish provide additional protection from inclement weather



For lasting durability, AP utilizes all aluminum motor mounts constructed of heavy gauge materials



Standard white PVC* shutters are available with plastic rod hinges

*Optional aluminum shutter available for 12" to 36" and 54" fans with optional motor operator where required.



PERFORMER SERIES FANS TECHNICAL DATA

SIZE	DRIVE	SPEED	НР	PHASE	VOLTAGE	FREQ.	SF	FULL LOAD AMPS	MOTOR RPM
APP-12F	Direct	Variable	1/4	1	115/230	50/60	1	3.0/1.5	1725
APP-14F	Direct	Variable	1/4	1	115/230	50/60	1	3.0/1.5	1725
APP-14FC	Direct	Variable	1/4	1	115/230	50/60	1	3.0/1.5	1725
APP-18	Direct	Variable	1/3	1	115/230	50/60	1	3.8/1.9	1725
APP-18FC	Direct	Variable	1/3	1	115/230	50/60	1	3.8/1.9	1725
APP-24	Direct	Variable	1/3	1	115/230	50/60	1	3.8/2.3	1100
APP-24FC	Direct	Variable	1/3	1	115/230	50/60	1	3.8/2.3	1100
APP-36F	Direct	Variable	1/2	1	115/230	50/60	1	6.2/3.1	850
APP-36FC	Direct	Variable	1/2	1	115/230	50/60	1	6.2/3.1	850
APPB-50C	Belt	Single	1 1/3	1	115/230	60	1	12.4/6.2	1725



COMPETITOR SERIES FANS TECHNICAL DATA

SIZE	DRIVE	SPEED	HP	PHASE	VOLTAGE	FREQ.	SF	FULL LOAD AMPS	MOTOR RPM
CS24C1	Direct	Variable	1/3	1	115/230	60	1	3.9/2.0	1100
CS241-NC	Direct	Variable	1/3	1	115/230	60	1	3.9/2.0	1100
CS24PF90	Direct	Variable	1/3	1	115/230	60	1	3.9/2.0	1100
CS54C1-P	Belt	Single	1 1/2	1	115/230	60	1.5	16.0/8.0	1725
CS54C3-P	Belt	Single	1 3/4	3	208-230/460	50/60	1	4.9-5.0/3.0	1725
CS54C1-E	Belt	Single	1 1/2	1	115/230	60	1.5	16.0/8.0	1725
CS541-NC	Belt	Single	1 1/2	1	115/230	60	1.5	16.0/8.0	1725
CS543-NC	Belt	Single	1 3/4	3	208-230/460	50/60	1	4.9-5.0/3.0	1725

PIT & SPECIALTY FANS

Whether winter or summer, your livestock needs maximum comfort to achieve optimum results. AP's wide selection of fans can improve upon marginal environments. Be it high-powered cooling, gentle circulation, or something in between, look to AP for a cost-saving solution.



COMPETITOR PIT FANS

Easy cleaning and low maintenance, Competitor series variable speed pit fans are ideal for minimum ventilation needs and removing hazardous pit gases. Choose from the Competitor 24" wall fan combined with a durable plastic pit transition or an economical one piece pit unit with external shutter.



BASKET FANS

Basket fans are available in 24" and 36" single speed and variable speed models. Basket fans feature heavy duty fan guards with baked on finish, high efficiency motors and propellers, and versatile mounting options that adapt to most applications.



DUCT FANS Ideal for low air requirements of small farrowing or nursery rooms, AP's duct fans are a very cost effective solution. These fans deliver more precise amounts of air under windy conditions than larger fans. The duct will adapt to existing 10" PVC pump out ports. 10" PVC pipe extensions and elbows for duct fans are available.



Dimensions & Performance

FAN DIMENSIONS

MODEL	ROL OPEN	JGH NING	(A) CONE DIA.	(B) WIDT	н н	(C) IEIGHT	(D) LENGTH LESS	(D) LENGTH LESS CONE		//CONE	(F) CONE LENGTH
APP-12F	17.0 >	(17.0	N/A	20.14	0″ 1	9.860″	25.50		N/A	۸	N/A
APP-14F	20.0 >	(20.0	20.500	22.50)"	22.25″	21.87		42.625		20.750
APP-18F	25.5 W	x 26.0 T	25.250	28.37	5″ 2	8.125″	22.75		44.50	00	21.750
APP-24F	34.5 >	(34.5	30.250	37.62	5″ 3	7.625″	21.37		42.63	30	21.250
APP-36F	44.5 >	〈 44.5	44.375	46.75	5" 4	46.75″	27.75		54.50	00	26.750
APPB-36	445 >	K 44.5	44.375	46.75	5″ 4	46.75″	30.25		56.00	00	27.000
APPB-50	56 >	۲ 5 6	56.000	58.44	5″ 5	8.445″	34.50		58.50	00	24.000
CS24	34.5 >	(34.5	30.000	37.62	5″ 3	7.625″	19.50		41.00	00	21.500
CS54	58.0 W 2	X 60.5 T	64.750	62.12	5″ 6	4.438″	27.00		57.50	00	30.500
 ΔΡΡ	AN 24PF 2-24PF	ROUGH	OPENING	(G) W	IDTH	(H) I	HEIGHT	(I) BASI	E DEPTH	(J) FLAN	GE EXT.
	- PROP			CEM						- - 	OUGH OPENING
MODEL	DIA.	H.P.	RPM	O" SP	.05" SP	.1" SP	CFM/WAT	T K	WIDTH (IN.	ing k .)	HEIGHT (IN.)
BSK24	24″	1/3	1100	6029	N/A	N/A		P	N/A		N/A
BSK36A	36″	1/2	850	10900		N/A	193@_005	P	N/A		N/A
DUCT FANS*	; ;			10500							
DE-10	10	1/6	3400	1015	989	962	61@055	P	N/A		N/A
*Tested by Bess Labo	pratories Un	iversity of III	inois Performa	nce showr	n with quar	rds and shu	itters in place (ex	cent wit	h DF-10 where	e shutters	do not apply)

PERFORMER & COMPETITOR FAN PERFORMANCE

	0.00" SP		0.05" SP		0.10" SP		0	.15" SP	0.		
MODEL	CFM	CFM/Watt	CFM	CFM/Watt	CFM	CFM/Watt	CFM	CFM/Watt	CFM	CFM/Watt	АГК
APP-12F	1446	8.8	1331	7.8	1222	7.0	1092	6.1	850	5.1	0.64
APP-14F	2487	7.8	2385	7.3	2270	7.0	2150	6.5	2003	6.1	0.84
APP-14FC	2830	9.6	2710	9.0	2610	8.5	2500	8.0	2370	7.4	0.87
APP-18	4387	9.6	4181	9.0	3964	8.5	3792	8.0	3568	7.5	0.85
APP-18FC	5090	11.8	4890	11.0	4720	10.6	4470	9.7	4250	9.0	0.87
APP-24	6442	14.7	5928	13.3	5463	12.1	4990	11.0	4495	9.8	0.76
APP-24FC	7470	18.0	7010	16.7	6550	15.0	6090	13.6	5550	12.3	0.79
APP-36	11113	16.6	10297	15.0	9392	13.0	8328	11.5	7131	9.7	0.69
APP-36FC	12290	22.2	11310	19.6	10360	17.1	9220	14.8	7710	11.9	0.68
APPB-50C	24033	24.4	23228	22.7	21615	20.5	19188	17.7	17419	15.6	0.75
CS24C1	6520	18.9	6160	16.9	5800	15.4	5350	13.7	4880	12.4	0.79
CS241-NC	5770	15.3	5440	14.3	5090	13.1	4680	11.9	4230	10.9	0.77
CS54C1-P	N/A	N/A	30000	20.2	28200	18.3	26300	16.5	23900	14.7	0.80
CS54C3-P	N/A	N/A	30500	19.8	28500	17.8	26700	16.0	24300	14.2	0.80
CS54C1-E	N/A	N/A	24161	27.3	21746	23.5	18917	19.8	14966	15.4	0.62
CS541-NC	27200	18.9	25700	17.4	24100	15.9	22400	14.6	20400	13.1	0.79
CS543-NC	27000	18.4	25500	17.0	23900	15.6	22200	14.3	20100	12.8	0.79
CS24PF90	4065	11.1	3607	9.8	3132	8.4	2531	6.8	1951	5.3	0.54
APP-24PF	4580	9.3	4158	8.4	3749	7.5	3289	6.8	2523	5.6	.607

All fan performance numbers based on 60 Hz operation. Specifications subject to change without notice.

PROVEN & DEPENDABLE[™]

Look to AP for the finest in fans and accessories. Choose from a large selection of cost saving options to enhance your ventilation system.



All-weather fan hoods for 14" to 24" fans save on costs and improve fan efficiency particularly in windy or cold weather conditions.



8" to 24" fans. Transit tubs are ideal for applications where pump outs are not required.



be easily adapted to new or existing fans to improve the efficiency and performance of the total ventilation system.



weather, these insulated panels seal out even the most extreme winter conditions.



required, pit transitions are available for Competitor and Performer 12" - 24" fans.



Quick-Lock kits simplify are also available for 14" to 24" fans where pump outs are not required and sidewall



boost fan output by as much as 15%. The 14"-36" fiberglass piece unit and 50" & 54" in an 4-piece units.



and affordable means of and building climate. The true airfoil design of the shutter blades allows for very little performance loss in airflow. Low maintenance and easy to clean.



ROLLSEAL® SHUTTERS

The 2-ply flexible RollSeal shutter provides an excellent source of insulation with a positive seal for greater efficiency. The patented sealing system provides excellent



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