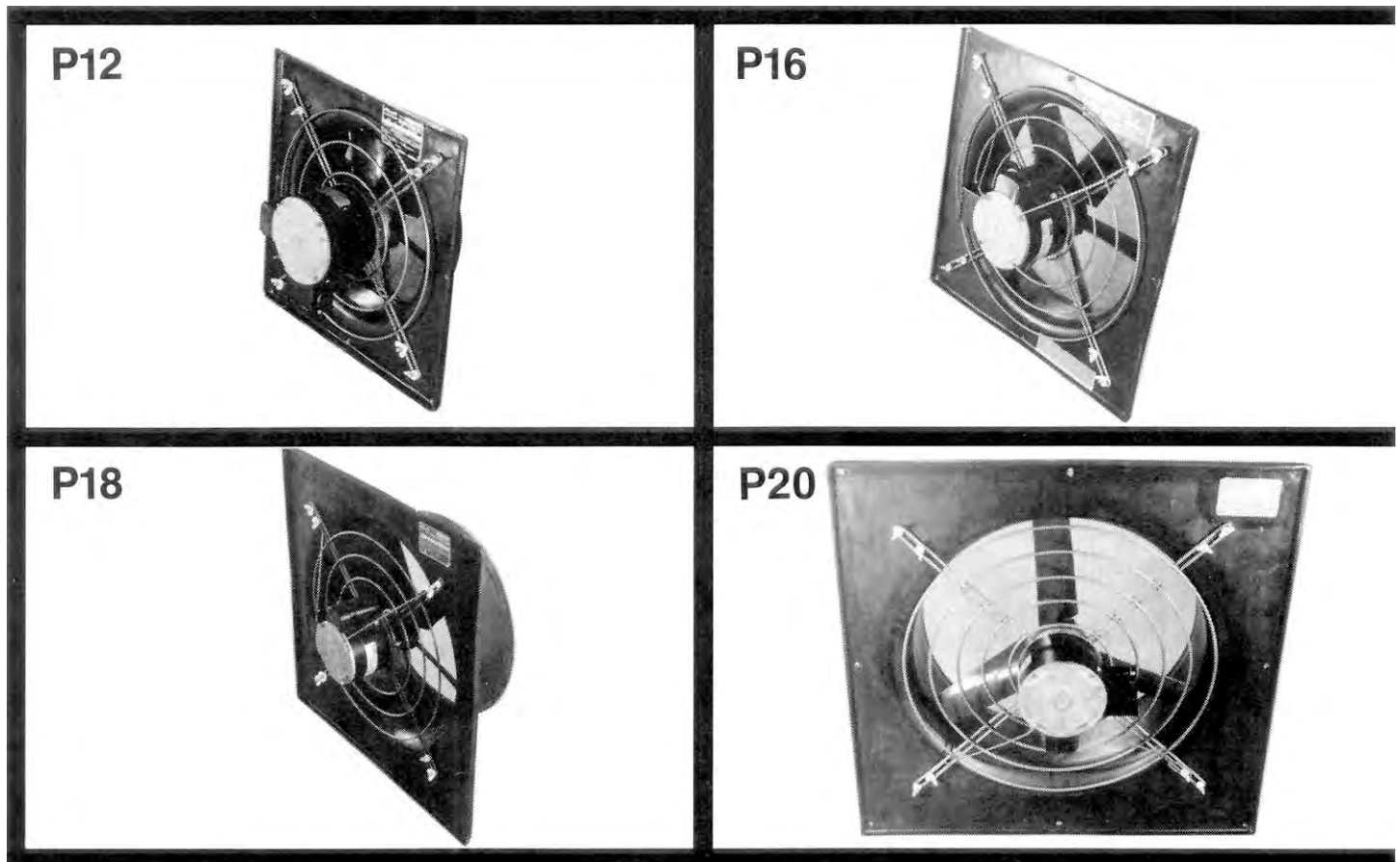


Evaluation Report

671



SUMMARY OF THE DEL-AIR PANEL FANS P12, P16, P18, P20 VENTILATION FANS

A Co-operative Program Between



P12, P16, P18, P20 PANEL VENTILATION FANS

MANUFACTURER AND DISTRIBUTOR:

Del-Air Systems Ltd.
 RO. Box 2500
 1704 Fourth Avenue
 Humboldt, Saskatchewan
 S0K 2A0
 Phone: (306) 682-5011

RETAIL PRICE: P-12 \$345
 P-16 \$356
 P-18 \$366
 P-20 \$376

(December 1991, f.o.b., Lethbridge, Alberta)

SUMMARY OF RESULTS

TABLE 1. Del-Air Model P-12 Fan Performance At Typical Levels of Operation.

SETTING	STATIC PRESSURE		AIR FLOW RATE		INPUT POWER kW	TOTAL EFF. %	FAN SPEED rpm
	in wg	(Pa)	cfm	(L/s)			
Single Speed Direct	0.000	(0.0)	1520	(720)	0.182	22	1680
	0.050	(12.5)	1450	(690)	0.182	24	1680
	0.100	(24.9)	1390	(650)	0.182	25	1680
	0.125	(31.1)	1340	(630)	0.182	26	1680
Variable Speed Maximum (222 V)	0.250	(62.3)	900	(430)	0.177	20	1680
	0.000	(0.0)	1540	(720)	0.189	22	1680
	0.050	(12.5)	1450	(680)	0.189	23	1680
	0.100	(24.9)	1390	(660)	0.188	25	1680
Variable Speed (222 V)	0.125	(31.1)	1340	(630)	0.187	25	1680
	0.250	(62.3)	950	(450)	0.181	21	1680
	0.000	(0.0)	1230	(580)	0.145	15	1370
	0.050	(12.5)	1150	(540)	0.144	16	1360
Mid-Range (110 Volts)	0.100	(24.9)	1030	(490)	0.142	17	1380
	0.125	(31.1)	970	(460)	0.141	17	1400
	0.250	(62.3)	320	(150)	0.147	7	1290
	0.000	(0.0)	770	(360)	0.101	5	860
Variable Speed Minimum (71 Volts)	0.050	(12.5)	620	(290)	0.099	6	890
	0.100	(24.9)	200	(93)	0.102	2	800
	0.125	(31.1)	130	(60)	0.104	1	750

TABLE 2. Del-Air Model P-16 Fan Performance At Typical Levels of Operation.

SETTING	STATIC PRESSURE		AIR FLOW RATE		INPUT POWER kW	TOTAL EFF. %	FAN SPEED rpm
	in wg	(Pa)	cfm	(L/s)			
Single Speed Direct	0.000	(0.0)	2670	(1260)	0.289	25	1570
	0.050	(12.5)	2560	(1210)	0.289	27	1560
	0.100	(24.9)	2430	(1150)	0.287	29	1560
	0.125	(31.1)	2360	(1110)	0.286	29	1560
Variable Speed Maximum (222 V)	0.250	(62.3)	1950	(920)	0.273	31	1570
	0.000	(0.0)	2690	(1270)	0.298	24	1550
	0.050	(12.5)	2570	(1210)	0.298	26	1540
	0.100	(24.9)	2450	(1160)	0.298	28	1540
Variable Speed (222 V)	0.125	(31.1)	2400	(1130)	0.296	29	1540
	0.250	(62.3)	2010	(950)	0.289	31	1560
	0.000	(0.0)	2100	(990)	0.234	15	1250
	0.050	(12.5)	1980	(930)	0.235	17	1240
Mid-Range (143 Volts)	0.100	(24.9)	1800	(850)	0.233	18	1230
	0.125	(31.1)	1700	(800)	0.230	19	1240
	0.250	(62.3)	980	(460)	0.229	13	1240
	0.000	(0.0)	1230	(580)	0.148	5	740
Variable Speed Minimum (89 Volts)	0.050	(12.5)	1000	(470)	0.145	7	780
	0.100	(24.9)	450	(210)	0.145	4	720
	0.125	(31.1)	150	(70)	0.149	2	610

TABLE 3. Del-Air Model P-18 Fan Performance At Typical Levels of Operation.

SETTING	STATIC PRESSURE		AIR FLOW RATE		INPUT POWER kW	TOTAL EFF. %	FAN SPEED rpm
	in wg	(Pa)	cfm	(L/s)			
Single Speed Direct	0.000	(0.0)	3750	(1770)	0.322	36	1490
	0.050	(12.5)	3600	(1700)	0.332	38	1470
	0.100	(24.9)	3420	(1620)	0.339	38	1460
	0.125	(31.1)	3320	(1570)	0.341	38	1450
Variable Speed Maximum (221 V)	0.250	(62.3)	2710	(1280)	0.345	36	1430
	0.000	(0.0)	3660	(1720)	0.316	34	1450
	0.050	(12.5)	3490	(1650)	0.326	35	1440
	0.100	(24.9)	3320	(1570)	0.335	36	1430
Variable Speed (221 V)	0.125	(31.1)	3220	(1520)	0.338	36	1420
	0.250	(62.3)	2610	(1230)	0.342	34	1420
	0.000	(0.0)	3000	(1420)	0.269	22	1190
	0.050	(12.5)	2690	(1270)	0.273	22	1130
Mid-Range (151 Volts)	0.100	(24.9)	2330	(1110)	0.275	21	1090
	0.125	(31.1)	2130	(1010)	0.273	20	1080
	0.250	(62.3)	1050	(500)	0.274	11	1030
	0.000	(0.0)	1930	(910)	0.175	9	770
Variable Speed Minimum (106 Volts)	0.050	(12.5)	1450	(680)	0.180	8	710
	0.100	(24.9)	910	(430)	0.181	7	720
	0.125	(31.1)	500	(240)	0.184	4	640

TABLE 4. Del-Air Model P-20 Fan Performance At Typical Levels of Operation.

SETTING	STATIC PRESSURE		AIR FLOW RATE		INPUT POWER kW	TOTAL EFF. %	FAN SPEED rpm
	in wg	(Pa)	cfm	(L/s)			
Single Speed Direct	0.000	(0.0)	3920	(1850)	0.270	36	1590
	0.050	(12.5)	3720	(1760)	0.275	38	1580
	0.100	(24.9)	3500	(1650)	0.277	39	1570
	0.125	(31.1)	3370	(1590)	0.278	39	1560
Variable Speed Maximum (228 V)	0.250	(62.3)	2600	(1230)	0.274	41	1560
	0.000	(0.0)	3930	(1850)	0.276	36	1590
	0.050	(12.5)	3670	(1730)	0.282	37	1580
	0.100	(24.9)	3500	(1650)	0.285	38	1570
Variable Speed (228 V)	0.125	(31.1)	3420	(1610)	0.287	39	1570
	0.250	(62.3)	2660	(1260)	0.283	39	1570
	0.000	(0.0)	2960	(1400)	0.210	20	1210
	0.050	(12.5)	2630	(1240)	0.212	20	1160
Mid-Range (131 Volts)	0.100	(24.9)	2280	(1080)	0.213	21	1150
	0.125	(31.1)	2080	(980)	0.214	22	1150
	0.250	(62.3)	840	(400)	0.210	12	1180
	0.000	(0.0)	2060	(970)	0.163	9	850
Variable Speed Minimum (95 Volts)	0.050	(12.5)	1530	(720)	0.160	9	795
	0.100	(24.9)	870	(410)	0.154	7	820
	0.125	(31.1)	300	(140)	0.159	3	760

RECOMMENDATIONS

The Alberta Farm Machinery Research Centre recommends the manufacturer:

1. Supply fan performance data over a complete range of static pressures.
2. Update the operator's manual to include specific information on the Del-Air Panel fans. Specific information should include fan general operation, maintenance, installation, rated performance, safety aspects and troubleshooting.

Manager: R.P. Atkins

Project Engineer: R.C. Maze

Test Engineer: R.J. Proctor

THE MANUFACTURER STATES THAT

With regard to recommendation number:

1. Performance data resulting from these tests will be distributed to customers. Customers making comparisons will be encouraged to contact AFMRC/PAMI for data on competitors fans as well.
2. The operator's manual has been revised and now includes this information.

GENERAL DESCRIPTION

The Del-Air Model P12, P16, P18 and P20 ventilation fans are 11.8 in (300 mm), 15.5 in (390 mm), 18 in (460 mm) and 19.5 in (500 mm) in diameter, respectively. The Del-Air panel fans are variable speed, direct drive, propeller type axial flow fans. The fans are primarily used in livestock and poultry barns as exhaust fans located in the wall.

The Del-Air P12, P16, P18 and P20 ventilation fans are flush-mounted units equipped with inlet guard grills and mounting face plates.

All the Del-Air panel fans have polypropylene propellers and aluminum hubs mounted directly on 0.25 hp (0.187 kW), single phase, 115/230 volt, electric motors. The motors are integral with the wire inlet guard grills and are bolted to the fan housing.

FIGURES 1, 2, 3 and 4 show the location of major components, while detailed specifications are given in APPENDIX 1.

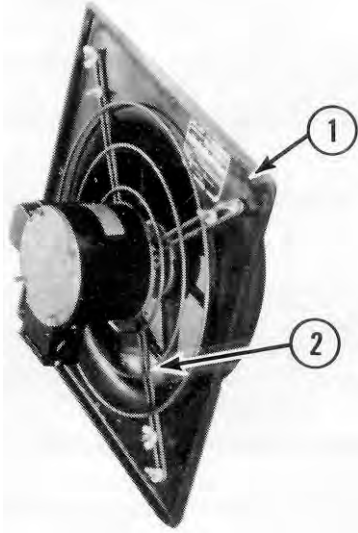


FIGURE 1. Del-Air Model P12 Panel Ventilation Fan: (1) Mounting Face Plate and (2) Inlet Guard Grill.

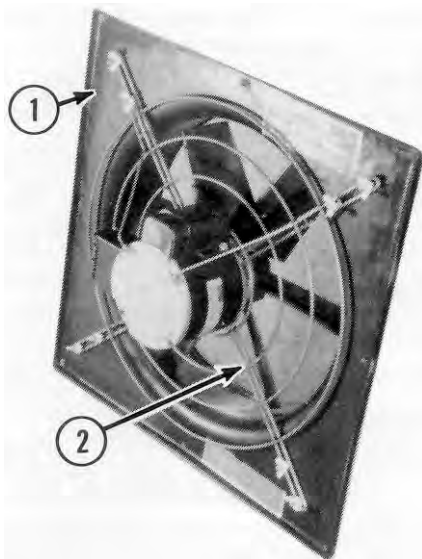


FIGURE 2. Del-Air Model P16 Panel Ventilation Fan: (1) Mounting Face Plate and (2) Inlet Guard Grill.

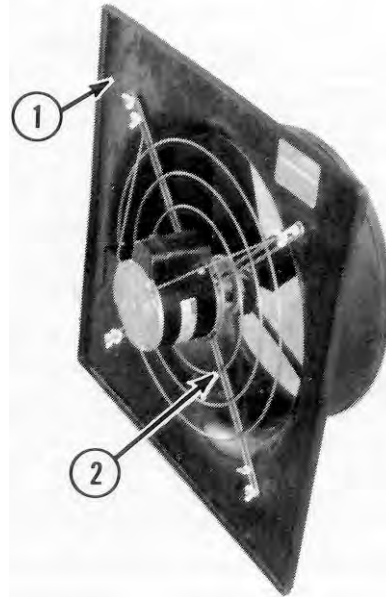


FIGURE 3. Del-Air Model P18 Panel Ventilation Fan: (1) Mounting Face Plate and (2) Inlet Guard Grill.

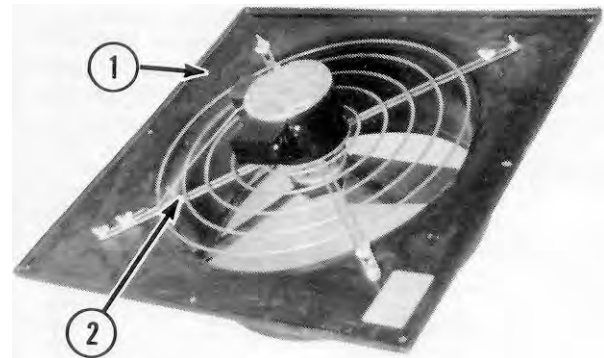


FIGURE 4. Del-Air Model P20 Panel Ventilation Fan: (1) Mounting Face Plate and (2) Inlet Guard Grill.

SCOPE OF TEST

The fans evaluated by Alberta Farm Machinery Research Centre (AFMRC) were configured as described in the General Description, FIGURES 1 through 4, and the Specifications section of this report. The manufacturer may have built different configurations of these fans before or after the AFMRC test. Therefore, when using this report check the fan under consideration is the same as the one reported here. If differences exist, assistance can be obtained from AFMRC or the manufacturer to determine changes in performance.

The Del-Air Models P12, P16, P18 and P20 Panel fans were tested in the inlet chamber set-up (FIGURE 5) in accordance with Canadian Standards Association Ventilation Fan Test Standard No. CAN/CSA C320M86. The intent was to determine the performance of the fan in terms of air flow rate, static pressure, input power and total efficiency. The control unit was not evaluated and was used only to set fan speed.

Fans were tested at 230 V for both single and variable speed modes. Fan performance was determined at a maximum setting, a mid-range setting and a minimum setting for the variable speed mode. The minimum settings were established by reducing the fan speed to the point where a static pressure of 0.125 in wg (31.1 Pa) could still be obtained.

The fans were also evaluated for ease of operation, maintenance, operator safety and suitability of the operator's manual.

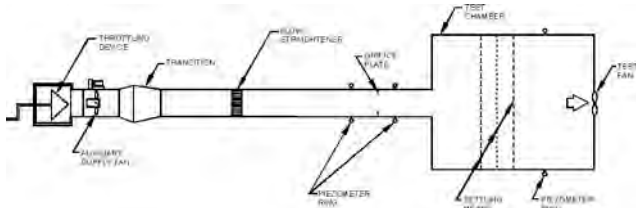


FIGURE 5. Schematic of Fan Test Apparatus--Inlet Chamber Set-Up.

RESULTS AND DISCUSSION

FAN PERFORMANCE

All fan performance results in this report are given at standard air¹ so direct comparisons can be made with other fan test reports. Fan performance under actual operating conditions could differ from these results by up to 10%, depending on such things as temperature, barometric pressure, humidity and elevation above sea level.

Air Flow Rate: Air flow rates in the single speed mode and at the maximum setting on the variable speed control were similar for all the fans tested (FIGURES 6, 7, 8 and 9). In all cases, reducing the fan speed greatly reduced the air flow rate for a given static pressure². For example, at a static pressure of 0.125 in wg (31.1 Pa), reducing the speed of the Del-Air P20 fan from maximum to mid-range to minimum setting reduced the air flow rate from 3420 cfm (1610 L/s) to 2080 cfm (980 L/s) to 300 cfm (75 L/s), respectively. At high static pressures the reductions were even larger.

Air flow rates at typical levels of operation (i.e., static pressure) are given in Table 1 through 4. Ventilation fans are often rated on their output at a static pressure of 0.125 in wg (31.1 Pa). The AFMRC measured flow rate in a single speed direct mode at 0.125 in wg (31.1 Pa) for the P12, P16, P18 and P20 fans were 1340 cfm (630 L/s), 2360 cfm (1110 L/s), 3320 cfm (1570 L/s) and 3370 cfm (1590 L/s), respectively.

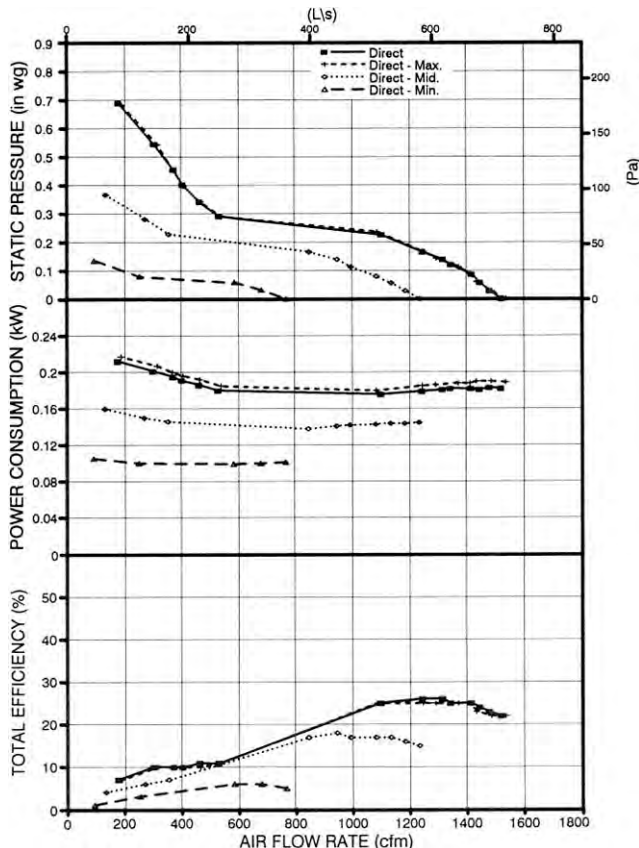


FIGURE 6. Del-Air Model P12 Panel Fan Performance Curves.

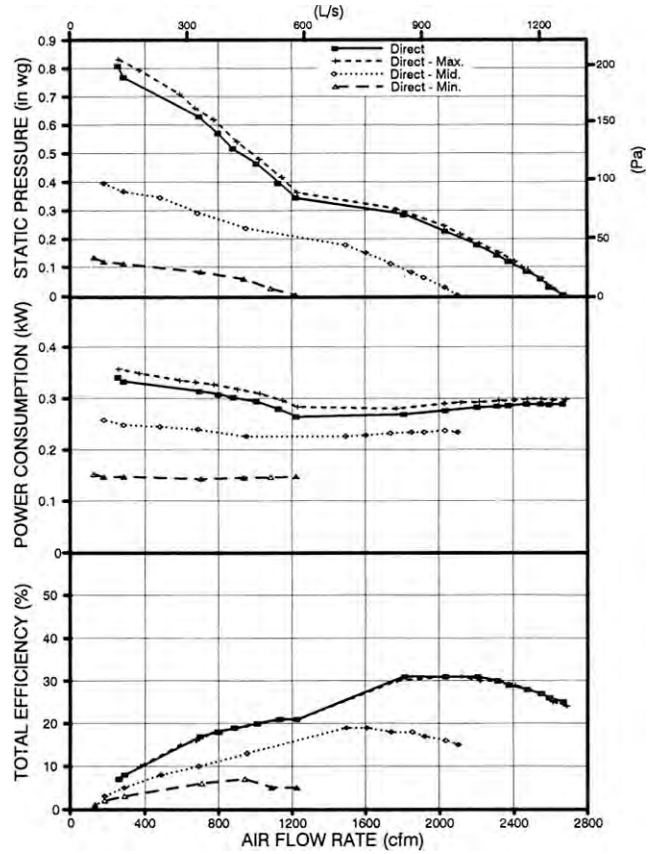


FIGURE 7. Del-Air Model P16 Panel Fan Performance Curves.

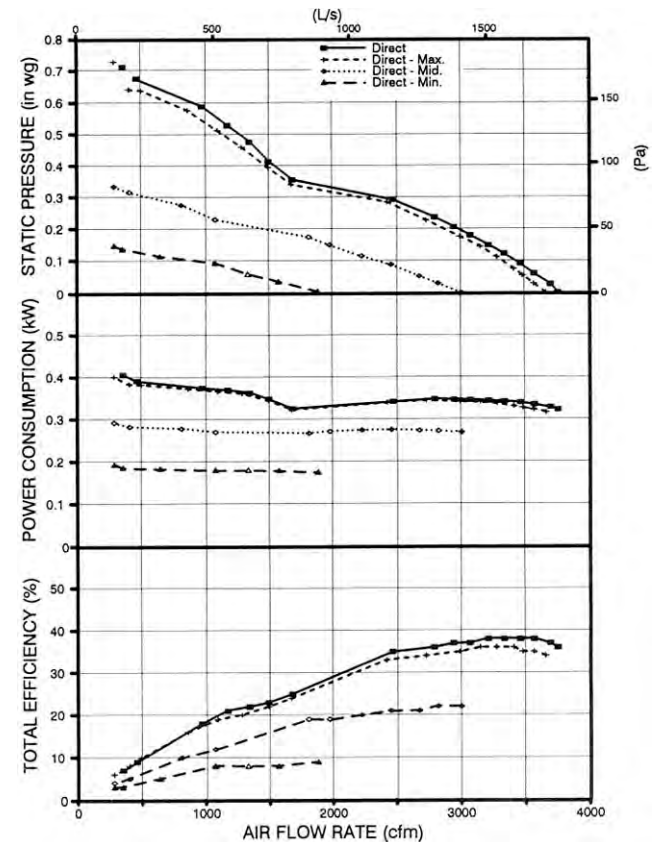


FIGURE 8. Del-Air Model P-18 Panel Fan Performance Curves.

¹Standard air is air with a density of 0.075 lbm/ft³ (1.2 kg/m³) which occurs at 68°F (20°C), 50% relative humidity and a barometric pressure of 29.92 in Hg (101.325 kPa).

²Static pressure is a measure of the pressure difference between the pressure inside the building and the pressure on the outside of the building. Static pressure is usually expressed in inches of water gauge (in wg) or Pascals (Pa).

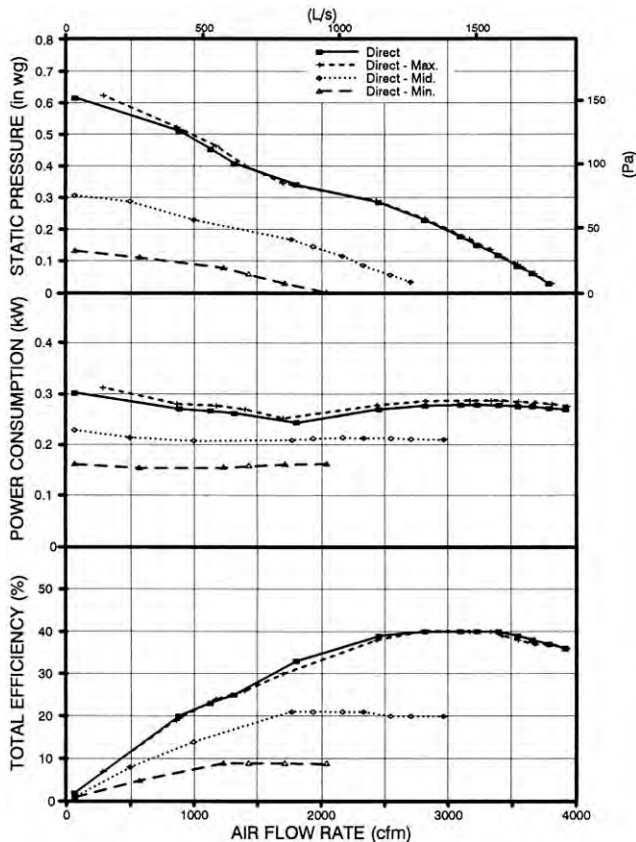


FIGURE 9. Del-Air Model P20 Panel Fan Performance Curves.

Power Consumption: The power consumption numbers given in TABLES 1 through 4 can be used to calculate the cost of operating the fan. To calculate the cost of fan operation, multiply the power consumption (kW) by the number of hours of fan operation times the cost per kilowatt hour.

The power consumed by the fan depends on fan speed. For example, at typical levels of static pressure (Table 4), the input power of the P20 fan varied from 0.270 to 0.278 kW in the single speed mode, from 0.276 to 0.287 kW at maximum speed, from 0.210 to 0.214 kW at mid-range speed and from 0.154 to 0.163 kW at minimum speed. The maximum amperage drawn by the motors was 1.24 amps for the P12, 1.55 amps for the P16, 1.75 amps for the P18 and 1.48 amps for the P20. The maximum allowable amperage draw of the motors was 1.49 amps, including the +/-10% allowable limit established by CSA Standards. Prolonged operation in excess of the rated amperage could reduce motor life.

Total Efficiency: Total efficiency is the ratio of air horsepower over the input power. Air horsepower is dependent upon the air flow rate and corresponding total pressure. For typical levels of operation, the total efficiency of the Del-Air P20 (TABLE 4) using the variable speed control ranged from 36 to 39% at maximum speed, 12 to 22% at midrange and 3 to 9% at minimum speed. The total efficiency at maximum fan speed and a static pressure of 0.125 in wg (31.1 Pa) was 39% for the Del-Air P-20 fan.

EASE OF OPERATION

Maintenance: The operator's manual advised a routine cleaning program to remove dust, dirt and ice build-up. A check of the free movement of the fan was also recommended. The design of the fans allowed for easy access to clean the fan blades and housing. Regularly scheduled cleaning and maintenance will ensure longer motor life and optimum performance.

OPERATOR SAFETY

The inlet guard grills provided adequate protection from the fan blades. The motors were totally enclosed units and presented no safety hazards. The Del-Air Models P12, P16, P18 and P20 panel

fans were CSA approved.

The noise levels of the Del-Air Panel fans were measured at a distance of 4.9 ft (1.5 m) from the centre of the fan inlet while operating at a 0.125 in wg (31.1 Pa) static pressure. The noise level of the Del-Air P12, P16, P18 and P20 Panel fans were 79, 79, 76, 76 dB(A), respectively. Higher noise levels could be expected if the fans were operated in the vicinity of other buildings. The Del-Air Panel fans fall within Range 3 of the AFMRC noise level range classification (APPENDIX II). The noise levels produced by these fans can be considered annoying and be detrimental to hearing and operator performance under continuous exposure. Ear protection should be considered if working near the fan for prolonged periods.

OPERATOR'S MANUAL

The operator's manual was very informative and contained information on operation, specifications, installation, wiring, maintenance, safety, service and troubleshooting. However, the manual did not include information specifically for Del-Air Models P12, P16, P18 and P20 Panel fans. The AFMRC recommends the manufacturer update the operator's manual to include specific information on the Del-Air Models P12, P16, P18 and P20 ventilation fans.

APPENDIX I

SPECIFICATIONS

MAKE:	Del-Air Systems Ltd.
MANUFACTURER:	Del-Air Systems Ltd. P.O. Box 2500 1704 Fourth Avenue Humboldt, Saskatchewan S0K 2A0
MODEL:	P12
SERIAL NUMBER:	JU12-259
OVERALL DIMENSIONS:	
- housing width	18.3 in (465 mm)
- housing depth (motor included)	7.8 in (200 mm)
- housing height	18.3 in (465 mm)
- discharge opening	12.1 in (310 mm)
- guard grill diameter	15.2 in (385 mm)
- grill opening	0.19 in (5 mm) dia. wire spaced at 1.8 in (45 mm)
IMPELLER:	
- diameter	11.8 in (305 mm)
- hub diameter	3.8 in (95 mm)
- number of blades	6
- blade angle	Hub 45°, Tip 38°
- blade width base	3.4 in (85 mm)
- blade width maximum	3.5 in (90 mm)
- tip clearance, minimum	0.15 in (4 mm)
- tip clearance, maximum	0.35 in (9 mm)
WEIGHT:	18 lb (8.4 kg)

MAKE:	Del-Air Systems Ltd.
MANUFACTURER:	Del-Air Systems Ltd. P.O. Box 2500 1704 Fourth Avenue Humboldt, Saskatchewan S0K 2A0
MODEL:	P16
SERIAL NUMBER:	JU16-269
OVERALL DIMENSIONS:	
- housing width	22.3 in (565 mm)
- housing depth (motor included)	8.0 in (205 mm)
- housing height	22.3 in (565 mm)
- discharge opening	16.0 in (405 mm)
- guard grill diameter	18.8 in (475 mm)
- grill opening	0.19 in (5 mm) dia. wire spaced at 1.8 in (45 mm)
IMPELLER:	
- diameter	15.5 in (390 mm)
- hub diameter	3.8 in (95 mm)
- number of blades	6

- blade angle Hub 40°, Tip 27°
 - blade width base 3.4 in (85 mm)
 blade width maximum 3.4 in (85 mm)
 - tip clearance, minimum 0.12 in (3 mm)
 tip clearance, maximum 0.39 in (10 mm)

WEIGHT: 20 lb (9.2 kg)

MAKE: Del-Air Systems Ltd.

MANUFACTURER: Del-Air Systems Ltd.
 P.O. Box 2500
 1704 Fourth Avenue
 Humboldt, Saskatchewan
 S0K 2A0

MODEL: P18

SERIAL NUMBER: K118-129

OVERALL DIMENSIONS:

- housing width 27.0 in (685 mm)
 - housing depth 11.8 in (300 mm)
 (motor included)
 - housing height 27.1 in (685 mm)
 - discharge opening 18.3 in (470 mm)
 - guard grill diameter 20.9 in (530 mm)
 - grill opening 0.19 in (5 mm) dia. wire spaced at 1.8 in (45 mm)

IMPELLER:

- diameter 18.0 in (460 mm)
 - hub diameter 3.8 in (95 mm)
 - number of blades 6
 - blade angle Hub 35°, Tip 20°
 - blade width base 3.3 in (85 mm)
 blade width maximum 3.3 in (85 mm)
 - tip clearance, minimum 0.16 in (4 mm)
 tip clearance, maximum 0.43 in (11 mm)

WEIGHT: 22 lb (10.2 kg)

MAKE: Del-Air Systems Ltd.

MANUFACTURER: Del-Air Systems Ltd.
 P.O. Box 2500
 1704 Fourth Avenue
 Humboldt, Saskatchewan
 S0K 2A0

MODEL: P20

SERIAL NUMBER: KD20-166

OVERALL DIMENSIONS:

- housing width 28.8 in (730 mm)
 - housing depth 11.8 in (300 mm)
 (motor included)
 - housing height 28.8 in (730 mm)
 - discharge opening 19.8 in (500 mm)
 - guard grill diameter 20.9 in (530 mm)
 - grill opening 0.19 in (5 mm) dia. wire spaced at 1.8 in (45 mm)

IMPELLER:

- diameter 19.5 in (495 mm)
 - hub diameter 3.8 in (95 mm)
 - number of blades 3
 - blade angle Hub 35°, Tip 15°
 - blade width base 3.3 in (85 mm)
 blade width maximum 3.3 in (85 mm)
 - tip clearance, minimum 0.16 in (4 mm)
 tip clearance, maximum 0.24 in (6 mm)

WEIGHT: 24 lb (11 kg)

P12, P16, P18 AND P20 MOTOR NAMEPLATE DATA:

- make FASCO
 - serial Number (P12) E J90, (P16) EG90, (P18) EL90, (P20) EL90
 - model 7124-0776
 - class B
 - type U24B1
 - rpm 1650
 - ambient temperature rise 40° C
 - volts 115/230
 - amps 2.7/1.35
 - phase 1
 - cycles 60
 - horsepower 0.25 hp (186 W)

**APPENDIX II
 NOISE LEVEL RANGES**

RANGE	SOUND LEVEL	COMMENTS
1	up to 45	Tolerable, low level background noise.
2	45 to 60	Dominating background noise that would interfere with normal conversation.
3	60 to 85	Could be annoying and detrimental to hearing and operator performance under long-term, continuous exposure. Ear protection should be considered.
4	over 85	Could damage hearing, depending on level and exposure time. Ear protection is definitely recommended.

SUMMARY CHART

DEL-AIR MODEL P12 VENTILATION FAN

RETAIL PRICE:	\$345 (December 1991, f.o.b. Lethbridge)
FAN DESCRIPTION:	11.8 in (300 mm) propeller fan, variable speed, direct drive, 0.25 hp (187 W), 115/230 V electric motor.
FAN PERFORMANCE:	
Air Flow Rate:	
- range	130 to 1540 cfm (60 to 720 L/s)
- at 0.125 in wg	1340 cfm (630 L/s)
Power Consumption:	0.099 to 0.189 kW
Efficiency Range:	1 to 26%
Efficiency at 0.125 in wg (31.1 Pa):	26%
OPERATOR SAFETY:	Inlet guard provided CSA approved noise level = 79 dB(A) at 4.9 ft (1.5 m) from fan inlet
OPERATOR'S MANUAL:	None provided

SUMMARY CHART

DEL-AIR MODEL P16 VENTILATION FAN

RETAIL PRICE:	\$356 (December 1991, f.o.b. Lethbridge)
FAN DESCRIPTION:	15.5 in (390 mm) propeller fan, variable speed, direct drive, 0.25 hp (187 W), 115/230 V electric motor.
FAN PERFORMANCE:	
Air Flow Rate:	
- range	150 to 2690 cfm (70 to 1270 L/s)
- at 0.125 in wg	2360 cfm (1110 L/s)
Power Consumption:	0.145 to 0.298 kW
Efficiency Range:	2 to 31%
Efficiency at 0.125 in wg (31.1 Pa):	29%
OPERATOR SAFETY:	Inlet guard provided CSA approved noise level = 79 dB(A) at 4.9 ft (1.5 m) from fan inlet
OPERATOR'S MANUAL:	None provided

SUMMARY CHART

DEL-AIR MODEL P18 VENTILATION FAN

RETAIL PRICE:	\$366 (December 1991, f.o.b. Lethbridge)
FAN DESCRIPTION:	18.0 in (460 mm) propeller fan, variable speed, direct drive, 0.25 hp (187 W), 115/230 V electric motor.
FAN PERFORMANCE:	
Air Flow Rate:	
- range	500 to 3750 cfm (240 to 1770 L/s)
- at 0.125 in wg	3320 cfm (1570 L/s)
Power Consumption:	0.175 to 0.345 kW
Efficiency Range:	4 to 38%
Efficiency at 0.125 in wg (31.1 Pa):	38%
OPERATOR SAFETY:	Inlet guard provided CSA approved noise level = 76 dB(A) at 4.9 ft (1.5 m) from fan inlet
OPERATOR'S MANUAL:	None provided

SUMMARY CHART

DEL-AIR MODEL P20 VENTILATION FAN

RETAIL PRICE:	\$376 (December 1991, f.o.b. Lethbridge)
FAN DESCRIPTION:	19.5 in (500 mm) propeller fan, variable speed, direct drive, 0.25 hp (187 W), 115/230 V electric motor.
FAN PERFORMANCE:	
Air Flow Rate:	
- range	300 to 3930 cfm (75 to 1850 L/s)
- at 0.125 in wg	3370 cfm (1590 L/s)
Power Consumption:	0.154 to 0.287 kW
Efficiency Range:	3 to 41%
Efficiency at 0.125 in wg (31.1 Pa):	39%
OPERATOR SAFETY:	Inlet guard provided CSA approved noise level = 76 dB(A) at 4.9 ft (1.5 m) from fan inlet
OPERATOR'S MANUAL:	None provided



**ALBERTA
FARM
MACHINERY
RESEARCH
CENTRE**

3000 College Drive South
Lethbridge, Alberta, Canada T1K 1L6
Telephone: (403) 329-1212
FAX: (403) 329-5562
<http://www.agric.gov.ab.ca/navigation/engineering/afmrc/index.html>

Prairie Agricultural Machinery Institute

Head Office: P.O. Box 1900, Humboldt, Saskatchewan, Canada S0K 2A0
Telephone: (306) 682-2555

Test Stations:
P.O. Box 1060
Portage la Prairie, Manitoba, Canada R1N 3C5
Telephone: (204) 239-5445
Fax: (204) 239-7124

P.O. Box 1150
Humboldt, Saskatchewan, Canada S0K 2A0
Telephone: (306) 682-5033
Fax: (306) 682-5080