

**University of Illinois Department of Agricultural and Biological Engineering  
 Bioenvironmental and Structural Systems Lab  
 Final Report**

**Project Number:** 07488  
**Test Date:** November 20, 2007

<b>Fan:</b>		<b>Motor:</b>		<b>Shutter:</b>	
Make-	<i>Better Air</i>	Make-	<i>Vostermans</i>	Material-	<i>plastic</i>
Model-	<i>MPF-1800C</i>	Model-	<i>4E45</i>	# Doors-	<i>6</i>
Blade dia.-	<i>18.4"</i>	Hp-	<i>0.37 kW</i>	# Columns-	<i>1</i>
Orifice dia.-	<i>18.6"</i>	RPM-	<i>1600</i>	Door length-	<i>19.2"</i>
		Volts-	<i>240</i>	Location-	<i>Intake</i>
<b>Blade:</b>		Amps-	<i>1.5</i>		
Number-	<i>6</i>	Hz-	<i>60</i>	<b>Guards:</b>	
Shape-	<i>propeller</i>	Phase-	<i>1</i>	Description-	<i>wire</i>
Material-	<i>plastic</i>	S. F.-	<i>-</i>	Spacing-	<i>2" concentric</i>
Pitch-	<i>-</i>			Location-	<i>exhaust</i>
Clearance-	<i>.1"</i>	<b>Housing:</b>		<b>Discharge Cone:</b>	
		Material-	<i>plastic</i>	Depth-	<i>19.3</i>
<b>Drive Sheaves:</b>		Intake area-	<i>18.4" x 18.4"</i>	Minor dia.-	<i>18.6"</i>
Drive dia.-	<i>direct</i>	Discharge-	<i>18.6" dia.</i>	Major dia.-	<i>24"</i>
Axle dia.-	<i>drive</i>	Depth-	<i>21.5" top</i>		
			<i>20" bottom</i>		

**Notes:** *prototype cone*

**Test Conditions:**

T(wb):	64	Barometric pressure, recorded	29.24
T(db):	79	Barometric Pressure, corrected	29.11

# Open Nozzle	Noz. Dia. (inch)	Pressure		Airflow (cfm)	rpm	Volts	Amps	Watts	cfm/Watt
		Drop (in.H2O)	Static Pressure (in.H2O)						
2	8	2.21	0.00	4203	1575	230.5	1.63	348	12.1
2	8	2.05	0.04	4043	1560	230.5	1.69	362	11.2
2	8	2.02	0.05	4019	1557	230.2	1.70	370	10.9
2	8	1.87	0.10	3861	1540	230.6	1.77	382	10.1
2	8	1.70	0.15	3681	1522	230.4	1.81	386	9.5
2	8	1.50	0.20	3463	1502	230.3	1.88	397	8.7
2	8	1.28	0.25	3198	1476	229.8	1.93	410	7.8
2	8	1.07	0.30	2923	1465	229.9	1.97	413	7.1