

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

Project Number: 18338  
 Test Date: June 26, 2018

<b>Fan:</b>		<b>Motor:</b>		<b>Shutter:</b>
Make- <i>Better Air</i>		Make- <i>AG-I</i>		Material- <i>plastic</i>
Model- <i>FW50M</i>		Model- <i>A154DA5BA00</i>		# Doors- <i>17 per column</i>
Blade dia.- <i>49.9"</i>		Hp- <i>1.5</i>		# Columns- <i>3</i>
Orifice dia.- <i>50.3"</i>		RPM- <i>1725</i>		Door length- <i>17.4"</i>
		Volts- <i>115/230</i>		Location- <i>intake</i>
<b>Blade:</b>		Amps- <i>13.6/6.8</i>		
Number- <i>3</i>		Hz- <i>60</i>		<b>Guards:</b>
Shape- <i>propeller</i>		Phase- <i>1</i>		Description- <i>wire</i>
Material- <i>plastic w/ aluminum hub</i>		S. F.- <i>1.0</i>		Spacing- <i>1.5" concentric</i>
Pitch- <i>-</i>				Location- <i>exhaust</i>
Clearance- <i>0.2"</i>		<b>Housing:</b>		
		Material- <i>fiberglass</i>		<b>Discharge Cone:</b>
<b>Drive Sheaves:</b>		Intake area- <i>54.6" x 54.6"</i>		Depth- <i>none</i>
Drive dia.- <i>4.3" o.d</i>		Discharge- <i>50.3" dia</i>		Minor dia.- <i>-</i>
Axle dia.- <i>12" o.d.</i>		Depth- <i>28" top</i>		Major dia.- <i>-</i>
		<i>24" bottom</i>		

Notes: 0

**Test Conditions:**

T(wb) F: 66.5	Barometric pressure, recorded	29.30
T(db) F: 77.5	Barometric Pressure, corrected	29.17 (In. Hg)

Static Pressure (in.H2O)	Airflow (cfm)	rpm	Volts	Amps	Watts	cfm/Watt	SI Units			
							Static Pressure (Pa)	Airflow (m <sup>3</sup> /hr.)	(m <sup>3</sup> /hr)/W	W/1000m <sup>3</sup> /hr
<b>0.00</b>	<b>23900</b>	611	229.0	6.55	1415	<b>16.9</b>	0	40500	28.6	35
<b>0.05</b>	<b>22800</b>	610	230.6	6.74	1465	<b>15.5</b>	12	38700	26.4	38
<b>0.10</b>	<b>21600</b>	609	229.5	6.97	1508	<b>14.3</b>	25	36700	24.4	41
<b>0.15</b>	<b>20300</b>	608	229.5	7.16	1550	<b>13.1</b>	37	34500	22.3	45
<b>0.20</b>	<b>18900</b>	607	229.3	7.29	1578	<b>12.0</b>	50	32200	20.4	49
<b>0.25</b>	<b>17300</b>	607	229.4	7.35	1595	<b>10.8</b>	62	29400	18.4	54
<b>0.30</b>	<b>15200</b>	608	229.5	7.29	1578	<b>9.6</b>	75	25900	16.4	61