

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

Project Number: 18337  
 Test Date: June 26, 2018

**Fan:**  
 Make- *Better Air*  
 Model- *FW50M*  
 Blade dia.- *49.9"*  
 Orifice dia.- *50.3"*

**Motor:**  
 Make- *AG-I*  
 Model- *A154DA5BA00*  
 Hp- *1.5*  
 RPM- *1725*  
 Volts- *115/230*  
 Amps- *13.6/6.8*  
 Hz- *60*  
 Phase- *1*  
 S. F.- *1.0*

**Shutter:**  
 Material- *plastic*  
 # Doors- *17 per column*  
 # Columns- *3*  
 Door length- *17.4"*  
 Location- *intake*

**Blade:**  
 Number- *3*  
 Shape- *propeller*  
 Material- *plastic w/ aluminum hub*  
 Pitch- *-*  
 Clearance- *0.2"*

**Drive Sheaves:**  
 Drive dia.- *4.3" o.d*  
 Axle dia.- *12" o.d.*

**Housing:**  
 Material- *fiberglass*  
 Intake area- *54.6" x 54.6"*  
 Discharge- *50.3" dia*  
 Depth- *28" top*  
           *24" bottom*

**Guards:**  
 Description- *wire*  
 Spacing- *4.8"*  
 Location- *exhaust*

**Discharge Cone:**  
 Depth- *24"*  
 Minor dia.- *50.3"*  
 Major dia.- *59"*

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
0.00	26400	614	229.3	5.85	1265	20.8	0	44800	35.4	28
0.05	25300	612	229.3	6.17	1335	19.0	12	43100	32.3	31
0.10	24100	611	229.7	6.49	1406	17.1	25	40900	29.1	34
0.15	23000	610	229.3	6.74	1458	15.8	37	39000	26.8	37
0.20	21300	609	229.3	7.08	1533	13.9	50	36200	23.6	42
0.25	19900	608	229.3	7.27	1573	12.6	62	33800	21.5	47
0.30	17800	607	229.0	7.46	1612	11.0	75	30200	18.7	53