

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

Project Number: 22089  
 Test Date: January 21, 2022

<b>Fan:</b>	<b>Motor:</b>	<b>Shutter:</b>
Make- <i>Eurusfan</i>	Make- <i>Eurusdrive</i>	Material- <i>plastic</i>
Model- <i>VFA2-56HO-A3IM-CS</i>	Model- <i>YFE3-100L3-8BX</i>	# Doors- <i>18 per column</i>
Blade dia.- <i>56.6"</i>	Hp- <i>1500 Watt</i>	# Columns- <i>3</i>
Orifice dia.- <i>57"</i>	RPM- <i>710</i>	Door length <i>19.9"</i>
	Volts- <i>380</i>	Location- <i>intake</i>
<b>Blade:</b>	Amps- <i>4.4</i>	
Number- <i>3</i>	Hz- <i>50</i>	<b>Guards:</b>
Shape- <i>propeller</i>	Phase- <i>3</i>	Description- <i>wire</i>
Material- <i>poly</i>	S. F.- <i>1.15</i>	Spacing- <i>4"</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>60.5" x 60.6"</i>	Depth- <i>40"</i>
Drive dia.- <i>direct</i>	Discharge- <i>57" dia.</i>	Minor dia.- <i>57"</i>
Axle dia.- <i>drive</i>	Depth <i>27.5"</i>	Major dia.- <i>68"</i>

Notes: \*50 Hz test

Test Conditions:

T(wb) F: 53	Barometric pressure, recorded	29.80
T(db) F: 75.5	Barometric Pressure, corrected	29.67 (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	40800	715	379.9	4.13	1793	22.7	0	69300	38.6	26
0.05	38900	712	379.9	4.25	1895	20.6	12	66200	34.9	29
0.10	37000	710	379.9	4.38	1987	18.6	25	62900	31.6	32
0.15	35300	707	379.9	4.48	2065	17.1	37	59900	29	34
0.20	33300	705	379.9	4.58	2143	15.5	50	56600	26.4	38
0.25	31100	703	380.1	4.67	2199	14.2	62	52900	24.1	42
0.30	28500	702	380.2	4.73	2249	12.7	75	48400	21.5	47