

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

Project Number: 22090  
 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>VFA2-56HE-A3IM-CS</i>	Model- <i>YFE3-100L2-8BX</i>	# Doors- <i>18 per column</i>
Blade dia.- <i>56.6"</i>	Hp- <i>1100 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>3.3</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	29.76
T(db) F: 75	Barometric Pressure, corrected	29.64 (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	34600	718	379.9	2.92	1235	28.0	0	58800	47.6	21
0.05	32800	715	379.9	3.03	1331	24.6	12	55700	41.9	24
0.10	31000	712	379.9	3.13	1406	22.1	25	52700	37.5	27
0.15	28900	709	379.9	3.24	1476	19.6	37	49100	33.3	30
0.20	26400	706	379.9	3.34	1562	16.9	50	44800	28.7	35
0.25	24000	704	379.9	3.40	1605	15.0	62	40800	25.4	39
0.30	21100	703	379.9	3.43	1632	12.9	75	35900	22	45