

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

Project Number: 24142  
 Test Date: February 21, 2024

<b>Fan:</b>	<b>Motor:</b>	<b>Shutter:</b> <i>Butterfly damper</i>
Make- <i>Eurusfan</i>	Make- <i>EURUS AgriTec</i>	Material- <i>plastic</i>
Model- <i>VFA2-50HF-A3IM-CBM</i>	Model- <i>YFE3-100L3-8BX</i>	# Doors- <i>2</i>
Blade dia.- <i>51.2"</i>	Hp- <i>1500 Watt</i>	# Columns- <i>-</i>
Orifice dia.- <i>51.6"</i>	RPM- <i>705</i>	Door length -
	Volts- <i>380</i>	Location- <i>exhaust</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>1.3" x 3.4" / 4" concentric</i>
Pitch- <i>-</i>		Location- <i>intake / 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>56.5" x 56.5"</i>	Depth- <i>35"</i>
Drive dia.- <i>direct</i>	Discharge- <i>51.6" dia.</i>	Minor dia.- <i>51.6"</i>
Axle dia.- <i>drive</i>	Depth- <i>22.5"</i>	Major dia.- <i>60.9"</i>

Notes: \* 50 Hz test.

Test Conditions:

T(wb) F: 54.2  
 T(db) F: 73  
 Barometric Pressure 29.22 (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	33700	713	379.1	4.19	1746	19.3	0	57300	32.8	30
0.05	32000	710	379.1	4.29	1830	17.5	12	54500	29.8	34
0.10	30600	708	379.1	4.37	1902	16.1	25	52000	27.3	37
0.15	28900	706	379.1	4.45	1965	14.7	37	49100	25	40
0.20	27300	705	379.1	4.49	2000	13.7	50	46400	23.2	43
0.25	25200	704	379.1	4.52	2026	12.4	62	42700	21.1	47
0.30	22800	703	379.1	4.53	2035	11.2	75	38700	19	53