

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

Project Number: 24144
 Test Date: February 21, 2024

Fan:	Motor:	Shutter: <i>Butterfly damper</i>
Make- <i>Eurusfan</i>	Make- <i>EURUS AgriTec</i>	Material- <i>plastic</i>
Model- <i>VFA2-50HF-E3IM-CBM</i>	Model- <i>YFE3-100L3B-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>200</i>	Location- <i>exhaust</i>
	Amps- <i>8.6</i>	
Blade:	Hz- <i>50</i>	Guards:
Number- <i>3</i>	Phase- <i>3</i>	Description- <i>wire</i>
Shape- <i>propeller</i>	S. F.- <i>1.15</i>	Spacing- <i>1.3" x 3.4" / 4" concentric</i>
Material- <i>poly</i>		Location- <i>intake / exhaust</i>
Pitch- <i>-</i>		
Clearance- <i>0.2"</i>	Housing:	Discharge Cone:
	Material- <i>Fiberglass</i>	Depth- <i>35"</i>
Drive Sheaves:	Intake area- <i>56.5" x 56.5"</i>	Minor dia.- <i>51.6"</i>
Drive dia.- <i>direct</i>	Discharge- <i>51.6" dia.</i>	Major dia.- <i>60.9"</i>
Axle dia.- <i>drive</i>	Depth- <i>22.5"</i>	

Notes: * 50 Hz test.

Test Conditions:
 T(wb) F: 54.8
 T(db) F: 73.9
 Barometric Pressure 29.19 (In. Hg)

Static Pressure (in.H2O)	Airflow (cfm)	rpm	Volts	Amps	Watts	cfm/Watt	SI Units			
							Static Pressure (Pa)	Airflow (m ³ /hr.)	(m ³ /hr)/W	W/1000m ³ /hr
0.00	33400	714	200.9	7.66	1696	19.7	0	56700	33.4	30
0.05	31700	711	200.8	7.85	1782	17.8	12	53800	30.2	33
0.10	30200	709	200.4	8.00	1849	16.4	25	51400	27.8	36
0.15	28600	707	200.4	8.14	1911	15.0	37	48600	25.4	39
0.20	26800	706	200.4	8.24	1952	13.7	50	45500	23.3	43
0.25	24800	705	200.4	8.29	1969	12.6	62	42100	21.4	47
0.30	22500	704	200.4	8.30	1982	11.3	75	38200	19.3	52