

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

Project Number: 24135
 Test Date: February 20, 2024

Fan:	Motor:	Shutter: <i>Butterfly damper</i>
Make- <i>Eurusfan</i>	Make- <i>EURUS AgriTec</i>	Material- <i>plastic</i>
Model- <i>VFA2-50HO-B3IM-CBM</i>	Model- <i>VFE3-112L3A-10BX</i>	# Doors- <i>2</i>
Blade dia.- <i>51.2"</i>	Hp- <i>1100 Watt</i>	# Columns- <i>-</i>
Orifice dia.- <i>51.6"</i>	RPM- <i>690</i>	Door length -
	Volts- <i>230</i>	Location- <i>exhaust</i>
	Amps- <i>6.8</i>	
Blade:	Hz- <i>60</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: * 60 Hz test.

Test Conditions:

T(wb) F: 53.9
 T(db) F: 73.7
 Barometric Pressure 29.35 (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	28900	696	231.6	6.18	1270	22.8	0	49100	38.7	26
0.05	27600	694	232.1	6.30	1337	20.6	12	46800	35	29
0.10	26000	693	232.1	6.41	1400	18.6	25	44100	31.5	32
0.15	24400	691	230.7	6.49	1445	16.9	37	41400	28.7	35
0.20	22800	690	230.6	6.57	1495	15.2	50	38700	25.9	39
0.25	20800	689	230.3	6.63	1530	13.6	62	35400	23.1	43
0.30	18000	689	230.3	6.65	1546	11.7	75	30700	19.8	50