

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

Project Number: 22167
 Test Date: February 14, 2022

Fan:		Motor:		Shutter:	
Make- <i>Eurusfan</i>		Make- <i>Eurusdrive</i>		Material- <i>plastic</i>	
Model- <i>VFA2-50HF-A3IM-CS</i>		Model- <i>YFE3-100L3-8BX</i>		# Doors- <i>16 per column</i>	
Blade dia.- <i>51.4"</i>		Hp- <i>1500 Watt</i>		# Columns- <i>3</i>	
Orifice dia.- <i>51.8"</i>		RPM- <i>710</i>		Door length <i>17.6"</i>	
		Volts- <i>380</i>		Location- <i>intake</i>	
Blade:		Amps- <i>4.4</i>			
Number- <i>3</i>		Hz- <i>50</i>		Guards:	
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>		Housing:			
		Material- <i>Fiberglass</i>		Discharge Cone:	
Drive Sheaves:		Intake area- <i>53.8" x 53.8"</i>		Depth- <i>32.3"</i>	
Drive dia.- <i>direct</i>		Discharge- <i>51.8" dia.</i>		Minor dia.- <i>51.8"</i>	
Axle dia.- <i>drive</i>		Depth <i>22.5"</i>		Major dia.- <i>60.8"</i>	

Notes: *50 Hz test

Test Conditions:

T(wb) F: 52.5	Barometric pressure, recorded	29.58
T(db) F: 75	Barometric Pressure, corrected	29.46 (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	35300	712	380.9	4.17	1796	19.6	0	60000	33.4	30
0.05	33800	710	380.8	4.27	1878	18.0	12	57400	30.6	33
0.10	32200	708	380.8	4.37	1952	16.5	25	54700	28	36
0.15	30800	706	380.8	4.44	2014	15.3	37	52400	26	38
0.20	29300	705	380.8	4.51	2056	14.2	50	49800	24.2	41
0.25	27600	704	380.8	4.55	2091	13.2	62	46900	22.4	45
0.30	25400	703	380.8	4.58	2112	12.0	75	43100	20.4	49