

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

Project Number: 22053
 Test Date: January 11, 2022

Fan:	Motor:	Shutter:
Make- <i>Eurusfan</i>	Make- <i>Eurusdrive</i>	Material- <i>Plastic</i>
Model- <i>VFA2-18-A3IM-CS</i>	Model- <i>YF-90M2-4B3</i>	# Doors- <i>7</i>
Blade dia.- <i>20"</i>	Hp- <i>0.25 kW</i>	# Columns- <i>1</i>
Orifice dia.- <i>20.5"</i>	RPM- <i>1460</i>	Door length <i>22.23"</i>
	Volts- <i>380</i>	Location- <i>Intake</i>
Blade:	Amps- <i>1</i>	
Number- <i>3</i>	Hz- <i>50</i>	Guards:
Shape- <i>propeller</i>	Phase- <i>3</i>	Description- <i>wire</i>
Material- <i>Plastic</i>	S. F.- <i>1.15</i>	Spacing- <i>1.3" concentric</i>
Pitch- <i>-</i>		Location- <i>Exhaust</i>
Clearance- <i>.25"</i>	Housing:	
	Material- <i>Fiberglass</i>	Discharge Cone:
Drive Sheaves:	Intake area- <i>22.5" x 22.5"</i>	Depth- <i>23.5"</i>
Drive dia.- <i>direct</i>	Discharge- <i>20.5" dia</i>	Minor dia.- <i>20.5"</i>
Axle dia.- <i>drive</i>	Depth- <i>19"</i>	Major dia.- <i>26.5"</i>

Notes: 50 Hz test

Test Conditions:

T(wb) F: 51 Barometric pressure, recorded 29.51
 T(db) F: 73 Barometric Pressure, corrected 29.39 (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	5080	1470	380.7	0.93	314	16.2	0	8600	27.5	36
0.05	4880	1468	380.7	0.94	314	15.5	12	8300	26.4	38
0.10	4700	1467	380.7	0.94	332	14.2	25	8000	24.1	42
0.15	4480	1466	380.7	0.96	332	13.5	37	7600	22.9	44
0.20	4190	1464	380.7	0.96	349	12.0	50	7100	20.4	49
0.25	3870	1463	381.1	0.97	349	11.1	62	6600	18.8	53
0.30	3480	1462	381.2	0.97	355	9.8	75	5900	16.6	60