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

Project Number: 22166
Test Date: February 14, 2022

Fan:
Make- *Eurusfan*
Model- *VFA2-50HO-A3IM-CS*
Blade dia.- *51.4"*
Orifice dia.- *51.8"*

Blade:
Number- *3*
Shape- *propeller*
Material- *poly*
Pitch- -
Clearance- *0.2"*

Drive Sheaves:
Drive dia.- *direct*
Axle dia.- *drive*

Motor:
Make- *Eurusdrive*
Model- *YFE3-100L2-8BX*
Hp- *1100 Watt*
RPM- *710*
Volts- *380*
Amps- *3.3*
Hz- *50*
Phase- *3*
S. F.- *1.15*

Housing:
Material- *Fiberglass*
Intake area- *53.8" x 53.8"*
Discharge- *51.8" dia.*
Depth *22.5"*

Shutter:
Material- *plastic*
Doors- *16 per column*
Columns- *3*
Door length *17.6"*
Location- *intake*

Guards:
Description- *wire*
Spacing- *4"*
Location- *exhaust*

Discharge Cone:
Depth- *32.3"*
Minor dia.- *51.8"*
Major dia.- *60.8"*

Notes: **50 Hz test*

Test Conditions:

T(wb) F:	53	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	**30300**	717	380.8	2.93	1230	**24.6**	0	51500	41.8	24
0.05	**29000**	714	380.8	3.01	1301	**22.3**	12	49200	37.8	26
0.10	**27500**	711	380.8	3.09	1371	**20.1**	25	46700	34.1	29
0.15	**25900**	709	380.8	3.16	1425	**18.2**	37	44000	30.9	32
0.20	**24200**	707	380.8	3.23	1476	**16.4**	50	41100	27.8	36
0.25	**22200**	705	380.7	3.29	1528	**14.5**	62	37800	24.7	40
0.30	**19800**	704	380.7	3.32	1546	**12.8**	75	33600	21.8	46