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

Project Number: 20404
Test Date: October 22, 2020

Fan:
Make- *Ya Suh Dar*
Model- *57" N-K300DL AC 1.5 33 690*
Blade dia.- *56.5"*
Orifice dia.- *57"*

Blade:
Number- *3*
Shape- *propeller*
Material- *fiberglass*
Pitch- *33*
Clearance- *0.3"*

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

Motor:
Make- *Ya Suh Dar*
Model- *AC1.5KW690*
Hp- *1.5 kW*
RPM- *690*
Volts- *220*
Amps- -
Hz- *60*
Phase- *3*
S. F.- -

Housing:
Material- *Fiberglass*
Intake area- *63" x 63"*
Discharge- *57" dia.*
Depth- *27.5"*

Shutter: *Butterfly damper*
Material- *fiberglass*
Doors- *2*
Columns- -
Door length -
Location- *exhaust*

Guards:
Description- *wire*
Spacing- *5.8" x 5.8" / 7.1" concentric*
Location- *intake / exhaust*

Discharge Cone:
Depth- *36.1"*
Minor dia.- *57"*
Major dia.- *67.5:"*

Notes: *0*

Test Conditions:

T(wb) F:	60	Barometric pressure, recorded	29.39	
T(db) F:	72	Barometric Pressure, corrected	29.26	(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	**37300**	676	219.4	6.10	1603	**23.3**	0	63400	39.6	25
0.05	**34800**	672	219.2	6.34	1695	**20.6**	12	59200	34.9	29
0.10	**32100**	669	219.4	6.56	1775	**18.1**	25	54600	30.8	32
0.15	**29800**	667	219.3	6.74	1840	**16.2**	37	50600	27.5	36
0.20	**27200**	665	219.1	6.85	1881	**14.5**	50	46200	24.6	41
0.25	**24100**	665	220.5	6.87	1899	**12.7**	62	40900	21.6	46
0.30	**21000**	666	220.2	6.81	1878	**11.2**	75	35700	19	53
0.35	**18200**	667	220.5	6.69	1835	**9.9**	87	31000	16.9	59
0.40	**10500**	672	220.9	6.36	1708	**6.1**	100	17800	10.4	96