

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

Project Number: 20387
 Test Date: October 7, 2020

Fan:	Motor:	Shutter: <i>Butterfly damper</i>
Make- <i>Ya Suh Dar</i>	Make- <i>Ya Suh Dar</i>	Material- <i>fiberglass</i>
Model- <i>57" N-K300DL</i>	Model- <i>AC1.5 kW</i>	# Doors- <i>2</i>
Blade dia.- <i>56.5"</i>	Hp- <i>1.5 kW</i>	# Columns- <i>-</i>
Orifice dia.- <i>57"</i>	RPM- <i>730</i>	Door length -
	Volts- <i>380</i>	Location- <i>exhaust</i>
	Amps- <i>-</i>	
	Hz- <i>50</i>	Guards:
Blade:	Phase- <i>3</i>	Description- <i>wire</i>
Number- <i>3</i>	S. F.- <i>-</i>	Spacing- <i>5.8" x 5.8" / 7.1" concentric</i>
Shape- <i>propeller</i>		Location- <i>intake / exhaust</i>
Material- <i>fiberglass</i>		
Pitch- <i>30</i>		
Clearance- <i>0.3"</i>		
	Housing:	Discharge Cone:
	Material- <i>Fiberglass</i>	Depth- <i>36.1"</i>
Drive Sheaves:	Intake area- <i>63" x 63"</i>	Minor dia.- <i>57"</i>
Drive dia.- <i>direct</i>	Discharge- <i>57" dia.</i>	Major dia.- <i>67.5"</i>
Axle dia.- <i>drive</i>	Depth- <i>27.5"</i>	

Notes: *50 Hz test

Test Conditions:

T(wb) F: 63	Barometric pressure, recorded	29.26
T(db) F: 78	Barometric Pressure, corrected	29.13 (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	36300	731	380.8	3.81	1393	26.1	0	61700	44.3	23
0.05	34400	730	380.8	3.90	1477	23.3	12	58400	39.5	25
0.10	32300	728	380.8	3.98	1561	20.7	25	54800	35.1	28
0.15	29800	726	380.8	4.07	1635	18.3	37	50700	31	32
0.20	27400	725	380.8	4.13	1697	16.1	50	46500	27.4	36
0.25	25000	724	380.8	4.19	1741	14.4	62	42500	24.4	41
0.30	22600	724	380.8	4.20	1758	12.9	75	38400	21.9	46
0.40	14700	726	380.8	4.07	1636	9.0	100	25000	15.3	66