

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

Project Number: 12485
 Test Date: July 11, 2012

Fan:	Motor:	Shutter:
Make- <i>Schaefer</i>	Make- <i>Marathon</i>	Material- <i>aluminum</i>
Model- <i>573CF112C-1-HV</i>	Model- <i>5KCR48WN0920T</i>	# Doors- <i>15 per column</i>
Blade dia.- <i>57"</i>	Hp- <i>1.5</i>	# Columns- <i>2</i>
Orifice dia.- <i>57.7"</i>	RPM- <i>1725</i>	Door length <i>29.6"</i>
	Volts- <i>208-230</i>	Location- <i>exhaust</i>
Blade:	Amps- <i>6.8-6.4</i>	
Number- <i>3</i>	Hz- <i>60</i>	Guards:
Shape- <i>propeller</i>	Phase- <i>1</i>	Description- <i>wire</i>
Material- <i>cast aluminum</i>	S. F.- <i>1.2</i>	Spacing- <i>1.5" concentric</i>
Pitch- <i>-</i>		Location- <i>exhaust</i>
Clearance- <i>0.4"</i>	Housing:	Discharge Cone:
	Material- <i>fiberglass</i>	Depth- <i>39.5"</i>
Drive Sheaves:	Intake area- <i>58.4" x 58.5"</i>	Minor dia.- <i>57.7"</i>
Drive dia.- <i>3.5" o.d.</i>	Discharge- <i>57.7" o.d.</i>	Major dia.- <i>67"</i>
Axle dia.- <i>11" o.d.</i>	Depth- <i>28" top</i>	
	<i>27" bottom</i>	

Notes: *60 Hz test

Test Conditions:

T(wb): 65	Barometric pressure, recorded	29.44
T(db): 80	Barometric Pressure, corrected	29.30

							SI Units			
Static Pressure (in.H2O)	Airflow (cfm)	rpm	Volts	Amps	Watts	cfm/Watt	Static Pressure (Pa)	Airflow (m ³ /hr.)	(m ³ /hr)/W	W/1000m ³ /hr
0.00	30900	529	229.7	6.33	1435	21.5	0	52500	36.6	27
0.05	29100	528	230.7	6.49	1479	19.6	12	49400	33.4	30
0.10	26900	528	229.7	6.67	1516	17.7	25	45700	30.1	33
0.15	24300	527	230.1	6.81	1551	15.7	37	41400	26.7	37
0.20	18700	527	229.8	6.94	1580	11.8	50	31700	20.1	50
0.25	12900	526	229.3	7.14	1624	8.0	62	22000	13.5	74
0.30	6300	524	230.1	7.58	1733	3.6	75	10600	6.1	163