

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

Project Number: 12157
Test Date: February 15, 2011

Fan:		Motor:		Shutter:	
Make- <i>Schaefer</i>		Make- <i>Schaefer</i>		Material- <i>aluminum</i>	
Model- <i>425S34</i>		Model- <i>7-193132</i>		# Doors- <i>12 per column</i>	
Blade dia.- <i>42"</i>		Hp- <i>3/4</i>		# Columns- <i>2</i>	
Orifice dia.- <i>42.9"</i>		RPM- <i>1725</i>		Door length <i>23.5</i>	
		Volts- <i>230/115</i>		Location- <i>intake</i>	
		Amps- <i>3.9/7.8</i>			
Blade:		Hz- <i>60</i>		Guards:	
Number- <i>5</i>		Phase- <i>1</i>		Description- <i>wire</i>	
Shape- <i>propeller</i>		S. F.- <i>1.25</i>		Spacing- <i>1" x 2"</i>	
Material- <i>galvanized steel</i>				Location- <i>exhaust</i>	
Pitch- <i>-</i>					
Clearance- <i>0.5"</i>		Housing:		Discharge Cone:	
		Material- <i>galvanized steel</i>		Depth- <i>none</i>	
Drive Sheaves:		Intake area- <i>46.3" x 47.1"</i>		Minor dia.- <i>-</i>	
Drive dia.- <i>2.7"</i>		Discharge- <i>46.5" x 46.6"</i>		Major dia.- <i>-</i>	
Axle dia.- <i>9.3</i>		Depth- <i>30.5" top</i>			
		<i>21.9"</i>			

Notes: 0

Test Conditions:

T(wb):	54	Barometric pressure, recorded	29.38
T(db):	74	Barometric Pressure, corrected	29.26

							SI Units		
Static Pressure	Airflow						Static Pressure	Airflow	
(in.H2O)	(cfm)	rpm	Volts	Amps	Watts	cfm/Watt	(Pa)	(m^3/hr.)	(m^3/hr)/W
0.00	14800	491	230.5	3.69	664	22.3	0	25100	37.8
0.05	13800	490	230.8	3.81	694	19.9	12	23500	33.8
0.10	12600	490	230.7	3.93	728	17.2	25	21300	29.3
0.15	10700	489	230.7	4.04	754	14.2	37	18200	24.1
0.20	7400	488	229.9	4.20	796	9.3	50	12600	15.8
0.25	5300	487	230.4	4.43	852	6.3	62	9100	10.7
0.30	3550	485	229.7	4.70	918	3.9	75	6000	6.6