

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

Project Number: 12155
Test Date: February 15, 2011

Fan:		Motor:		Shutter:	
Make- <i>Schaefer</i>		Make- <i>Marathon</i>		Material- <i>aluminum</i>	
Model- <i>485S112</i>		Model- <i>5KCR48WN0920T</i>		# Doors- <i>13 per column</i>	
Blade dia.- <i>48"</i>		Hp- <i>1.5</i>		# Columns- <i>2</i>	
Orifice dia.- <i>49"</i>		RPM- <i>1725</i>		Door length <i>29.6" x 29.6"</i>	
		Volts- <i>208-230</i>		Location- <i>intake</i>	
		Amps- <i>6.7-6.2</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>1.2</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>52.5" x 52.8"</i>		Minor dia.- <i>-</i>	
Drive dia.- <i>3.2"</i>		Discharge- <i>52.5" x 52.5"</i>		Major dia.- <i>-</i>	
Axle dia.- <i>11.1"</i>		Depth- <i>33" top</i>			
		<i>23.5" bottom</i>			

Notes: 0

Test Conditions:

T(wb):	54	Barometric pressure, recorded	29.39
T(db):	74	Barometric Pressure, corrected	29.27

							SI Units		
							Static		
Static	Airflow						Pressure	Airflow	
Pressure	(cfm)	rpm	Volts	Amps	Watts	cfm/Watt	(Pa)	(m ³ /hr.)	(m ³ /hr)/W
(in.H2O)									
0.00	23300	494	229.5	6.52	1478	15.8	0	39700	26.8
0.05	22300	493	229.5	6.63	1506	14.8	12	37900	25.1
0.10	21100	493	229.2	6.73	1525	13.8	25	35800	23.5
0.15	19800	493	230.1	6.79	1548	12.8	37	33600	21.7
0.20	18100	492	229.9	6.85	1559	11.6	50	30700	19.7
0.25	13900	492	230.3	6.85	1563	8.9	62	23600	15.1
0.30	9980	492	230.3	6.85	1565	6.4	75	17000	10.8