

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

Project Number: 12619
 Test Date: August 29, 2012

Fan:	Motor:	Shutter:
Make- <i>Chore-Time</i>	Make- <i>Marathon</i>	Butterfly damper
Model- <i>53464-42</i>	Model- <i>5K48WN4495A</i>	Material- <i>Poly</i>
Blade dia.- <i>56.8"</i>	Hp- <i>1.5</i>	# Doors- <i>2</i>
Orifice dia.- <i>57.3"</i>	RPM- <i>1725 // 1425</i>	# Columns- <i>-</i>
	Volts- <i>200-230/380-460//200</i>	Door length - <i>-</i>
	Amps- <i>5.9-5.5/2.9//5.9-5.8/9.5/2.9</i>	Location- <i>exhaust</i>
Blade:	Hz- <i>60 // 50</i>	Guards:
Number- <i>3</i>	Phase- <i>3</i>	Description- <i>wire</i>
Shape- <i>propeller</i>	S. F.- <i>-</i>	Spacing- <i>2" x 4" / 5.5" concentric</i>
Material- <i>galvanized steel</i>		Location- <i>intake / exhaust</i>
Pitch- <i>-</i>		
Clearance- <i>0.2"</i>	Housing:	Discharge Cone:
	Material- <i>Poly</i>	Depth- <i>34.8"</i>
Drive Sheaves:	Intake area- <i>57.5" x 57.5"</i>	Minor dia.- <i>56.6"</i>
Drive dia.- <i>3.0" o.d.</i>	Discharge- <i>56.6"</i>	Major dia.- <i>69.8"</i>
Axle dia.- <i>9.9" o.d.</i>	Depth- <i>10.5"</i>	
	<i>0</i>	

Notes: * 60 Hz test

Test Conditions:

T(wb): 65	Barometric pressure, recorded	29.43
T(db): 79.5	Barometric Pressure, corrected	29.29

							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	30300	541	230.1	3.66	1002	30.3	0	51500	51.4	19
0.05	28700	540	229.6	3.82	1081	26.5	12	48700	45.1	22
0.10	26900	539	229.8	3.96	1151	23.3	25	45600	39.6	25
0.15	24800	538	229.8	4.10	1219	20.4	37	42200	34.6	29
0.20	22500	537	229.6	4.23	1283	17.5	50	38200	29.7	34
0.25	18500	536	229.6	4.39	1353	13.7	62	31400	23.2	43
0.30	14200	535	228.9	4.49	1385	10.3	75	24200	17.5	57