

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

Project Number: 10069
Test Date: February 1, 2010

Fan: Make- <i>Fancom</i> Model- <i>50" Cone Fan</i> Blade dia.- <i>49.5"</i> Orifice dia.- <i>50"</i> Blade: Number- <i>6</i> Shape- <i>propeller</i> Material- <i>aluminum</i> Pitch- <i>-</i> Clearance- <i>0.3"</i> Drive Sheaves: Drive dia.- <i>3.4" o.d.</i> Axle dia.- <i>12" o.d.</i>	Motor: Make- <i>ABB</i> Model- <i>M2VA90S-4</i> Hp- <i>1.1 kW</i> RPM- <i>1660</i> Volts- <i>380-480/220-280</i> Amps- <i>2.89/4.9</i> Hz- <i>60</i> Phase- <i>3</i> S. F.- <i>-</i> Housing: Material- <i>galvanized steel</i> Intake area- <i>49.5" x 49.5"</i> Discharge- <i>50" dia.</i> Depth- <i>22"</i>	Shutter: Material- <i>aluminum</i> # Doors- <i>8</i> # Columns- <i>1</i> Door length <i>49.1"</i> Location- <i>intake</i> Guards: Description- <i>wire</i> Spacing- <i>1.5"x1.5"/ 2" concentric</i> Location- <i>intake/exhaust</i> Discharge Cone: Depth- <i>27.5"</i> Minor dia.- <i>50"</i> Major dia.- <i>61"</i>
---	--	---

Notes:

Test Conditions:

T(wb):	53	Barometric pressure, recorded	29.53
T(db):	75	Barometric Pressure, corrected	29.41

Static						
Pressure (in.H2O)	Airflow (cfm)	rpm	Volts	Amps	Watts	cfm/Watt
0.00	25000	459	240.4	4.03	1338	18.7
0.05	24100	458	240.2	4.14	1400	17.2
0.10	22900	456	240.1	4.28	1453	15.7
0.15	21600	455	239.7	4.40	1508	14.3
0.20	20200	454	240.0	4.50	1556	13.0
0.25	18700	453	239.9	4.59	1601	11.7
0.30	17200	451	240.0	4.66	1630	10.5