

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

Project Number: 08256
Test Date: August 26, 2008

Fan:
 Make- *Hired Hand*
 Model- *6603-8011*
 Blade dia.- *54.5"*
 Orifice dia.- *55.2"*

Blade:
 Number- *3*
 Shape- *propeller*
 Material- *galvanized steel*
 Pitch- *-*
 Clearance- *0.4"*

Drive Sheaves:
 Drive dia.- *4.5"*
 Axle dia.- *10.3"*

Motor:
 Make- *CMG*
 Model- *PPA90S24-4*
 Hp- *1.1 kW*
 RPM- *1440*
 Volts- *240/415*
 Amps- *3.98/2.3*
 Hz- *50*
 Phase- *3*
 S. F.- *-*

Housing:
 Material- *galvanized steel*
 Intake area- *59.8" x 60"*
 Discharge- *55.2" dia.*
 Depth- *14"*

Shutter: *Butterfly damper*
 Material- *galvanized steel*
 # Doors- *2*
 # Columns- *-*
 Door length- *-*
 Location- *exhaust*

Guards:
 Description- *wire*
 Spacing- *2" x 4" / 2" concentric*
 Location- *intake / exhaust*

Discharge Cone:
 Depth- *35.5"*
 Minor dia.- *55.2"*
 Major dia.- *71.4"*

Notes: *50 hz test*

Test Conditions:

T(wb): 64	Barometric pressure, recorded	29.33
T(db): 78	Barometric Pressure, corrected	29.20

# Open Nozzle	Noz. Dia. (inch)	Pressure Drop (in.H2O)	Static Pressure (in.H2O)	Airflow (cfm)	rpm	Volts	Amps	Watts	cfm/Watt
12	8	3.20	0.00	30236	620	220.2	3.82	1180	25.6
12	8	2.90	0.05	28812	619	220.3	4.01	1250	23.0
12	8	2.62	0.10	27389	617	220.3	4.18	1317	20.8
12	8	2.31	0.15	25721	615	220.3	4.32	1371	18.8
12	8	2.01	0.20	23994	612	220.3	4.48	1427	16.8
12	8	1.64	0.25	21672	610	220.4	4.64	1478	14.7
12	8	1.29	0.30	19217	608	220.4	4.74	1521	12.6