

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

Project Number: 06048
Test Date: March 2, 2006

Fan:

Make- *Valco*
 Model- *HPM36W280MGA*
 Blade dia.- *36"*
 Orifice dia.- *36.7"*

Blade:

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

Drive Sheaves:

Drive dia.- *direct*
 Axle dia.- *drive*

Motor:

Make- *Raydot*
 Model- *7-184738-01*
 Hp- *1/2*
 RPM- *850*
 Volts- *230*
 Amps- *2.5*
 Hz- *60*
 Phase- *1*
 S. F.- *1.0*

Housing:

Material- *fiberglass*
 Intake area- *40.8" x 40.5"*
 Discharge- *36.7" o.d.*
 Depth- *24" top*
 20.3" bottom

Shutter:

Material- *aluminum*
 # Doors- *11 per column*
 # Columns- *2*
 Door length *20.8"*
 Location- *intake*

Guards:

Description- *wire*
 Spacing- *2" concentric*
 Location- *exhaust*

Discharge Cone:

Depth- *27.8"*
 Minor dia.- *36.7"*
 Major dia.- *45.5"*

Notes: *60 Hz, 1 ph. test*

Test Conditions:

T(wb):	55	Barometric pressure, recorded	29.37
T(db):	78	Barometric Pressure, corrected	29.24

Static Pressure (in.H2O)	Airflow (cfm)	rpm	Volts	Amps	Watts	cfm/Watt
0.00	13600	847	229.6	2.49	556	24.4
0.05	12600	840	229.7	2.64	595	21.2
0.10	11700	831	229.8	2.78	630	18.6
0.15	10700	822	230.2	2.96	677	15.9
0.20	9600	810	230.1	3.12	713	13.5
0.25	8200	800	230.5	3.28	748	11.0
0.30	5000	781	230.2	3.50	804	6.2