

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

**Project Number:** 10090  
**Test Date:** February 22, 2010

<b>Fan:</b>		<b>Motor:</b>		<b>Shutter:</b>	
Make-	<i>Termotecnica Pericoli s.</i>	Make-	<i>ABB</i>	Material-	<i>aluminum</i>
Model-	<i>EOS53 / 2 - 6</i>	Model-	<i>M3AA 090 LB-4</i>	# Doors-	<i>8</i>
Blade dia.-	<i>52.1"</i>	Hp-	<i>1.1 kW (1.5 hp)</i>	# Columns-	<i>1</i>
Orifice dia.-	<i>52.7"</i>	RPM-	<i>1740/1440</i>	Door length-	<i>48.1"</i>
		Volts-	<i>400/230</i>	Location-	<i>exhaust</i>
<b>Blade:</b>		Amps-	<i>2.6/4.5</i>		
Number-	<i>6</i>	Hz-	<i>60/50</i>	<b>Guards:</b>	
Shape-	<i>propeller</i>	Phase-	<i>3</i>	Description-	<i>wire</i>
Material-	<i>aluminum</i>	S. F.-	<i>-</i>	Spacing-	<i>1" x 4"</i>
Pitch-	<i>-</i>			Location-	<i>intake</i>
Clearance-	<i>0.3"</i>	<b>Housing:</b>		<b>Discharge Cone:</b>	
		Material-	<i>galvanized steel</i>	Depth-	<i>none</i>
<b>Drive Sheaves:</b>		Intake area-	<i>52"x52"</i>	Minor dia.-	<i>-</i>
Drive dia.-	<i>4.7" o.d.</i>	Discharge-	<i>50"x49.5"</i>	Major dia.-	<i>-</i>
Axle dia.-	<i>12" o.d.</i>	Depth-	<i>16"</i>		
			<i>0</i>		

**Notes:** \*50Hz test

**Test Conditions:**

T(wb):	57	Barometric pressure, recorded	29.08
T(db):	79	Barometric Pressure, corrected	28.95

Static Pressure (in.H2O)	Airflow (cfm)	rpm	Volts	Amps	Watts	cfm/Watt	Static Pressure (Pa)	Airflow m <sup>3</sup> /hr	W/1000m <sup>3</sup> /hr
0.00	26200	516	229.6	5.59	1914	13.7	0	44500	43
0.05	25300	513	229.6	5.72	1972	12.8	12	42900	46
0.10	24200	510	230.5	5.81	2019	12.0	25	41100	49
0.15	23000	507	229.7	5.94	2062	11.1	37	39000	53
0.20	21700	503	228.5	6.09	2119	10.2	50	36800	58
0.25	20200	499	231.5	6.08	2130	9.5	62	34300	62
0.30	18300	495	230.0	6.19	2164	8.5	75	31100	70
0.40	14600	487	230.4	6.24	2188	6.7	100	24800	88