

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

Project Number: 16480
 Test Date: June 30, 2016

Fan:	Motor:	Shutter:
Make- <i>Termotecnica Pericol</i>	Make- <i>ABB</i>	Material- <i>aluminum</i>
Model- <i>EOC 53s/1-3 50hz</i>	Model- <i>M2AA080B4</i>	# Doors- <i>11</i>
Blade dia.- <i>52"</i>	Hp- <i>0.75 kW</i>	# Columns- <i>1</i>
Orifice dia.- <i>52.6"</i>	RPM- <i>1390 // 1710</i>	Door length <i>51.3"</i>
	Volts- <i>230/400 // 230/460</i>	Location- <i>intake</i>
Blade:	Amps- <i>3.46/2.0 // 3.0/1.77</i>	
Number- <i>3</i>	Hz- <i>50 // 60</i>	Guards:
Shape- <i>propeller</i>	Phase- <i>3</i>	Description- <i>wire</i>
Material- <i>galvanized steel</i>	S. F.- <i>-</i>	Spacing- <i>1.8" concentric</i>
Pitch- <i>-</i>		Location- <i>exhaust</i>
Clearance- <i>0.3"</i>	Housing:	
	Material- <i>galvanized steel</i>	Discharge Cone:
Drive Sheaves:	Intake area- <i>51.7" x 51.9"</i>	Depth- <i>24.3"</i>
Drive dia.- <i>4.0" o.d.</i>	Discharge- <i>52.6" dia.</i>	Minor dia.- <i>52.6"</i>
Axle dia.- <i>12" o.d.</i>	Depth- <i>20.8"</i>	Major dia.- <i>61.6"</i>

Notes: *50 Hz test

Test Conditions:

T(wb) F: 63	Barometric pressure, recorded	29.40
T(db) F: 76	Barometric Pressure, corrected	29.27 (In. Hg)

Static Pressure (in.H2O)	Airflow (cfm)	rpm	Volts	Amps	Watts	cfm/Watt	SI Units			
							Static Pressure (Pa)	Airflow (m ³ /hr.)	(m ³ /hr)/W	W/1000m ³ /hr
0.00	24700	447	230.2	3.26	958	25.8	0	42000	43.9	23
0.05	23000	445	230.1	3.36	1010	22.8	12	39100	38.7	26
0.10	20900	443	230.3	3.48	1057	19.8	25	35500	33.6	30
0.15	17900	440	230.3	3.58	1106	16.2	37	30500	27.5	36
0.20	14300	439	230.2	3.66	1156	12.4	50	24400	21.1	47
0.25	9100	435	230.4	3.84	1225	7.5	62	15500	12.7	79
0.30	5300	430	230.5	4.05	1320	4.0	75	9000	6.8	146