

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

Project Number: 16467
 Test Date: June 29, 2016

Fan:	Motor:	Shutter:
Make- <i>Termotecnica Pericol</i>	Make- <i>ABB</i>	Material- <i>aluminum</i>
Model- <i>EOC 53s/2-3 50hz</i>	Model- <i>M2AA 090 L4</i>	# Doors- <i>11</i>
Blade dia.- <i>52"</i>	Hp- <i>1.5 kW</i>	# Columns- <i>1</i>
Orifice dia.- <i>52.6"</i>	RPM- <i>1420 // 1730</i>	Door length <i>51.3"</i>
	Volts- <i>400/230 // 460/230</i>	Location- <i>intake</i>
Blade:	Amps- <i>3.5/6.0 // 3.0/5.2</i>	Guards:
Number- <i>3</i>	Hz- <i>50 // 60</i>	Description- <i>wire</i>
Shape- <i>propeller</i>	Phase- <i>3</i>	Spacing- <i>1.8" concentric</i>
Material- <i>galvanized steel</i>	S. F.- <i>-</i>	Location- <i>exhaust</i>
Pitch- <i>-</i>	Housing:	Discharge Cone:
Clearance- <i>0.3"</i>	Material- <i>galvanized steel</i>	Depth- <i>24.3"</i>
Drive Sheaves:	Intake area- <i>51.7" x 51.9"</i>	Minor dia.- <i>52.6"</i>
Drive dia.- <i>4.6" o.d.</i>	Discharge- <i>52.6" dia.</i>	Major dia.- <i>61.6"</i>
Axle dia.- <i>12" o.d.</i>	Depth- <i>20.8"</i>	

Notes: *50 Hz test

Test Conditions:

T(wb) F: 63	Barometric pressure, recorded	29.48
T(db) F: 77	Barometric Pressure, corrected	29.35 (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	29600	541	230.3	5.36	1490	19.8	0	50300	33.7	30
0.05	28100	539	230.5	5.53	1577	17.8	12	47700	30.3	33
0.10	26500	537	230.3	5.62	1625	16.3	25	45100	27.8	36
0.15	24800	536	230.4	5.73	1680	14.7	37	42100	25	40
0.20	22700	534	230.4	5.86	1738	13.1	50	38500	22.2	45
0.25	19300	533	230.3	6.00	1810	10.6	62	32700	18.1	55
0.30	15700	531	230.5	6.13	1873	8.4	75	26600	14.2	70