

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

Project Number: 16466  
 Test Date: June 29, 2016

<b>Fan:</b>	<b>Motor:</b>	<b>Shutter:</b>
Make- <i>Termotecnica Pericol</i>	Make- <i>ABB</i>	Material- <i>aluminum</i>
Model- <i>EOC 53s/2-3 60hz</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>
<b>Blade:</b>	Amps- <i>3.5/6.0 // 3.0/5.2</i>	<b>Guards:</b>
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>	<b>Housing:</b>	<b>Discharge Cone:</b>
Clearance- <i>0.3"</i>	Material- <i>galvanized steel</i>	Depth- <i>24.3"</i>
<b>Drive Sheaves:</b>	Intake area- <i>51.7" x 51.9"</i>	Minor dia.- <i>52.6"</i>
Drive dia.- <i>4.0" 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: \*60 Hz test

**Test Conditions:**

T(wb) F: 63	Barometric pressure, recorded	29.48
T(db) F: 77.5	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 <sup>3</sup> /hr.)	(m <sup>3</sup> /hr)/W	W/1000m <sup>3</sup> /hr
0.00	29600	543	230.7	4.72	1484	19.9	0	50300	33.9	30
0.05	28200	541	230.6	4.88	1553	18.2	12	47900	30.9	32
0.10	26600	540	229.6	5.04	1618	16.4	25	45200	27.9	36
0.15	24900	538	229.5	5.18	1677	14.8	37	42300	25.2	40
0.20	22900	537	229.4	5.32	1734	13.2	50	38800	22.4	45
0.25	19300	535	229.6	5.53	1818	10.6	62	32800	18.1	55
0.30	16600	534	230.3	5.64	1869	8.9	75	28100	15.1	66