

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

Project Number: 16476  
 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/1-3 60hz</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>
<b>Blade:</b>	Amps- <i>3.46/2.0 // 3.0/1.77</i>	
Number- <i>3</i>	Hz- <i>50 // 60</i>	<b>Guards:</b>
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>	<b>Housing:</b>	
	Material- <i>galvanized steel</i>	<b>Discharge Cone:</b>
<b>Drive Sheaves:</b>	Intake area- <i>51.7" x 51.9"</i>	Depth- <i>24.3"</i>
Drive dia.- <i>3.4" 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: \*60 Hz test

**Test Conditions:**

T(wb) F: 63	Barometric pressure, recorded	29.44
T(db) F: 77.5	Barometric Pressure, corrected	29.31 (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	25200	455	230.3	3.12	1003	25.1	0	42800	42.6	23
0.05	23200	452	229.4	3.26	1057	22.0	12	39500	37.3	27
0.10	21000	450	229.6	3.39	1116	18.8	25	35700	32	31
0.15	18500	449	230.7	3.51	1170	15.8	37	31400	26.8	37
0.20	14600	446	230.3	3.64	1221	12.0	50	24800	20.3	49
0.25	10300	442	230.0	3.84	1306	7.9	62	17400	13.3	75
0.30	7100	437	229.9	4.13	1417	5.0	75	12000	8.5	118