

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

Project Number: 16473
 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/1,5-3 50hz</i>	Model- <i>M3AA90S4</i>	# Doors- <i>11</i>
Blade dia.- <i>52"</i>	Hp- <i>1.1 kW</i>	# Columns- <i>1</i>
Orifice dia.- <i>52.6"</i>	RPM- <i>1740 // 1450</i>	Door length <i>51.3"</i>
	Volts- <i>230 / 400</i>	Location- <i>intake</i>
Blade:	Amps- <i>4.8 / 2.8</i>	
Number- <i>3</i>	Hz- <i>60 // 50</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>4.4" 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: *50 Hz test

Test Conditions:

T(wb) F: 63	Barometric pressure, recorded	29.46
T(db) F: 78	Barometric Pressure, corrected	29.33 (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	26700	490	230.3	4.62	1161	23.0	0	45400	39.1	26
0.05	25200	489	230.2	4.70	1210	20.8	12	42800	35.4	28
0.10	23400	488	230.3	4.81	1278	18.3	25	39800	31.1	32
0.15	21400	487	230.2	4.89	1317	16.2	37	36300	27.6	36
0.20	18600	485	230.3	4.99	1359	13.7	50	31500	23.2	43
0.25	14400	484	230.3	5.08	1407	10.2	62	24500	17.4	57
0.30	10700	482	230.3	5.31	1516	7.1	75	18200	12	83