

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

Project Number: 16810
 Test Date: November 1, 2016

Fan:	Motor:	Shutter: <i>Butterfly damper</i>
Make- <i>SKOV</i>	Make- <i>Fabrika</i>	Material- <i>plastic</i>
Model- <i>DA 1700-5 LPC</i>	Model- <i>SK91123900</i>	# Doors- <i>2</i>
Blade dia.- <i>55"</i>	Hp- <i>2.3 kW</i>	# Columns- <i>-</i>
Orifice dia.- <i>55.6"</i>	RPM-	Door length -
	Volts- <i>364</i>	Location- <i>exhaust</i>
Blade:	Amps- <i>4.1</i>	
Number- <i>3</i>	Hz- <i>65</i>	Guards:
Shape- <i>propeller</i>	Phase- <i>-</i>	Description- <i>wire</i>
Material- <i>plastic</i>	S. F.- <i>-</i>	Spacing- <i>1.4" / 4.4" concentric</i>
Pitch- <i>-</i>		Location- <i>intake / exhaust</i>
Clearance- <i>0.3"</i>	Housing:	
	Material- <i>Plastic</i>	Discharge Cone:
Drive Sheaves:	Intake area- <i>64" dia.</i>	Depth- <i>30.5"</i>
Drive dia.- <i>direct</i>	Discharge- <i>55.6" dia.</i>	Minor dia.- <i>55.6"</i>
Axle dia.- <i>drive</i>	Depth- <i>23"</i>	Major dia.- <i>67.3"</i>

Notes: **3 phase, 460V, 60Hz input to speed controller*
24V DC Butterfly damper actuator. SKOV PM speed controller

Test Conditions:

T(wb) F: 65	Barometric pressure, recorded	29.31
T(db) F: 78.5	Barometric Pressure, corrected	29.18 (In. Hg)

							SI Units			
Static Pressure (in.H2O)	Airflow (cfm)	rpm	Volts	Amps	Watts	cfm/Watt	Static Pressure (Pa)	Airflow (m ³ /hr.)	(m ³ /hr)/W	W/1000m ³ /hr
0.00	32700	550	460.6	1.37	1002	32.7	0	55600	55.5	18
0.05	31000	550	461.1	1.50	1099	28.2	12	52700	47.9	21
0.10	29400	550	461.1	1.63	1197	24.5	25	49900	41.7	24
0.15	27500	550	461.5	1.73	1277	21.5	37	46700	36.5	27
0.20	25300	550	461.5	1.82	1355	18.7	50	42900	31.7	32
0.25	23100	550	461.8	1.89	1402	16.5	62	39200	28	36
0.30	20900	550	461.9	1.92	1425	14.7	75	35500	24.9	40