

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

Project Number: 22072
 Test Date: January 19, 2022

Fan:	Motor:	Shutter:
Make- <i>Eurusfan</i>	Make- <i>Eurusdrive</i>	Material- <i>plastic</i>
Model- <i>VFA2-56HP-A3IM-CS</i>	Model- <i>YFE3-112L3-8BX</i>	# Doors- <i>18 per column</i>
Blade dia.- <i>56.6"</i>	Hp- <i>2200 Watt</i>	# Columns- <i>3</i>
Orifice dia.- <i>57"</i>	RPM- <i>715</i>	Door length <i>19.9"</i>
	Volts- <i>380</i>	Location- <i>intake</i>
Blade:	Amps- <i>6.5</i>	
Number- <i>6</i>	Hz- <i>50</i>	Guards:
Shape- <i>propeller</i>	Phase- <i>3</i>	Description- <i>wire</i>
Material- <i>poly</i>	S. F.- <i>1.15</i>	Spacing- <i>4" concentric</i>
Pitch- <i>-</i>		Location- <i>exhaust</i>
Clearance- <i>0.2"</i>	Housing:	
	Material- <i>Fiberglass</i>	Discharge Cone:
Drive Sheaves:	Intake area- <i>60.5" x 60.6"</i>	Depth- <i>40"</i>
Drive dia.- <i>direct</i>	Discharge- <i>57" dia.</i>	Minor dia.- <i>57"</i>
Axle dia.- <i>drive</i>	Depth- <i>27.5"</i>	Major dia.- <i>68"</i>

Notes: *50 Hz test

Test Conditions:

T(wb) F: 53	Barometric pressure, recorded	29.45
T(db) F: 76	Barometric Pressure, corrected	29.32 (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	39100	725	380.8	5.75	2108	18.5	0	66400	31.5	32
0.05	38100	723	380.8	5.86	2215	17.2	12	64700	29.2	34
0.10	37000	722	380.8	5.97	2315	16.0	25	62900	27.1	37
0.15	35800	720	380.8	6.08	2418	14.8	37	60900	25.2	40
0.20	34800	718	380.7	6.19	2509	13.9	50	59100	23.6	42
0.25	33700	717	380.7	6.29	2599	13.0	62	57200	22	45
0.30	32400	715	380.7	6.41	2688	12.1	75	55100	20.5	49
0.35	31000	713	380.7	6.54	2794	11.1	87	52600	18.8	53
0.40	29400	712	380.7	6.64	2873	10.2	100	50000	17.4	57
0.45	27400	710	380.7	6.74	2954	9.3	112	46500	15.7	64
0.50	25100	709	380.7	6.84	3027	8.3	125	42700	14.1	71
0.55	22300	708	380.7	6.91	3079	7.2	137	37900	12.3	81
0.60	17800	708	380.9	6.85	3040	5.8	150	30200	9.9	101