

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

Project Number: 21285
 Test Date: September 8, 2021

Fan: Make- *Roxell*
 Model- *Oxsano- #07101032 / #07101040*
 Blade dia.- *56"*
 Orifice dia.- *56.5"*

Motor: Make- *Heze Gofee Motor Cc*
 Model- *GFPM 1.5 kW*
 Hp- *1.5 kW*
 RPM- *750*
 Volts- *240*
 Amps- *-*
 Hz- *60*
 Phase- *3*
 S. F.- *-*

Shutter: *Butterfly*
 Material- *fiberglass*
 # Doors- *2*
 # Columns- *-*
 Door length -
 Location- *exhaust*

Blade: *Powder coated*
 Number- *3*
 Shape- *propeller*
 Material- *galvanized steel*
 Pitch- *-*
 Clearance- *0.3"*

Guards:
 Description- *wire*
 Spacing- *0.9" x 3.6" / 2" x 2"*
 Location- *intake / exhaust*

Housing:
 Material- *fiberglass*

Discharge Cone:
 Depth- *20.5"*
 Minor dia.- *56.5"*
 Major dia.- *64.5"*

Drive Sheaves:
 Drive dia.- *direct*
 Axle dia.- *drive*

Intake area- *59.5" x 60.5"*
Discharge- *56.5"*
Depth- *25.8" top*
24.8" bottom

Notes: * 230VAC , 50 Hz, 3 phase input.
 ** Model 07101032 Unassembled. Model 07101040 partially assembled.

Test Conditions:

T(wb) F: 65.5 Barometric pressure, recorded 29.20
 T(db) F: 78.5 Barometric Pressure, corrected 29.07 (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 | 33400 | 638 | 231.3 | 3.51 | 1330 | 25.1 | 0 | 56800 | 42.7 | 23 |
| 0.05 | 31800 | 637 | 231.3 | 3.76 | 1423 | 22.3 | 12 | 54000 | 37.9 | 26 |
| 0.10 | 30200 | 637 | 231.4 | 3.97 | 1504 | 20.1 | 25 | 51400 | 34.1 | 29 |
| 0.15 | 26800 | 637 | 231.3 | 4.31 | 1630 | 16.4 | 37 | 45500 | 27.9 | 36 |
| 0.20 | 24600 | 638 | 231.6 | 4.49 | 1703 | 14.4 | 50 | 41800 | 24.5 | 41 |
| 0.25 | 22200 | 638 | 231.6 | 4.65 | 1766 | 12.6 | 62 | 37800 | 21.4 | 47 |
| 0.30 | 19500 | 638 | 231.8 | 4.72 | 1791 | 10.9 | 75 | 33200 | 18.5 | 54 |
| ~625 rpm | | | | | | | | | | |
| 0.00 | 33000 | 624 | 230.9 | 3.33 | 1254 | 26.3 | 0 | 56100 | 44.8 | 22 |
| 0.05 | 31300 | 624 | 230.9 | 3.58 | 1354 | 23.1 | 12 | 53200 | 39.3 | 25 |
| 0.10 | 29500 | 623 | 231.1 | 3.55 | 1338 | 22.1 | 25 | 50100 | 37.5 | 27 |
| 0.15 | 26100 | 623 | 230.9 | 4.06 | 1534 | 17.0 | 37 | 44400 | 28.9 | 35 |
| 0.20 | 23700 | 622 | 231.2 | 4.22 | 1599 | 14.8 | 50 | 40300 | 25.2 | 40 |
| 0.25 | 21400 | 623 | 231.3 | 4.36 | 1652 | 12.9 | 62 | 36300 | 22 | 45 |
| 0.30 | 18400 | 623 | 231.3 | 4.40 | 1669 | 11.0 | 75 | 31200 | 18.7 | 53 |