

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

Project Number: 07491
 Test Date: November 20, 2007

| | | | | | |
|-----------------------|-------------------|-----------------|---------------------------------------|------------------------|----------------------|
| Fan: | | Motor: | | Shutter: | |
| Make- | <i>Better Air</i> | Make- | <i>Vostermans</i> | Material- | <i>plastic</i> |
| Model- | <i>MPF-1400</i> | Model- | <i>MPF-1400</i> | # Doors- | <i>4</i> |
| Blade dia.- | <i>14.3"</i> | Hp- | <i>0.19 kW</i> | # Columns- | <i>1</i> |
| Orifice dia.- | <i>14.6"</i> | RPM- | <i>1600</i> | Door length- | <i>15.1</i> |
| | | Volts- | <i>240</i> | Location- | <i>Intake</i> |
| Blade: | | Amps- | <i>1.0</i> | | |
| Number- | <i>6</i> | Hz- | <i>60</i> | Guards: | |
| Shape- | <i>propeller</i> | Phase- | <i>1</i> | Description- | <i>wire</i> |
| Material- | <i>plastic</i> | S. F.- | <i>-</i> | Spacing- | <i>2" concentric</i> |
| Pitch- | <i>-</i> | | | Location- | <i>exhaust</i> |
| Clearance- | <i>0.2"</i> | Housing: | | Discharge Cone: | |
| | | Material- | <i>plastic</i> | Depth- | <i>none</i> |
| Drive Sheaves: | | Intake area- | <i>14.4" x 14.4"</i> | Minor dia.- | <i>-</i> |
| Drive dia.- | <i>direct</i> | Discharge- | | Major dia.- | <i>-</i> |
| Axle dia.- | <i>drive</i> | Depth- | <i>21" top</i> <i>19.3" bottom</i> | | |

Notes:

Test Conditions:

| | | | |
|--------|----|--------------------------------|-------|
| T(wb): | 62 | Barometric pressure, recorded | 29.23 |
| T(db): | 79 | Barometric Pressure, corrected | 29.10 |

| # Open Nozzle | Noz. Dia. (inch) | Pressure | | Airflow (cfm) | rpm | Volts | Amps | Watts | cfm/Watt |
|---------------|------------------|---------------|--------------------------|---------------|------|-------|------|-------|----------|
| | | Drop (in.H2O) | Static Pressure (in.H2O) | | | | | | |
| 1 | 8 | 2.15 | 0.00 | 2072 | 1602 | 230.5 | 1.07 | 211 | 9.8 |
| 1 | 8 | 2.02 | 0.04 | 2009 | 1597 | 230.1 | 1.08 | 212 | 9.5 |
| 1 | 8 | 1.99 | 0.05 | 1994 | 1594 | 230.4 | 1.10 | 214 | 9.3 |
| 1 | 8 | 1.80 | 0.10 | 1896 | 1590 | 230.3 | 1.10 | 219 | 8.7 |
| 1 | 8 | 1.58 | 0.15 | 1774 | 1586 | 230.6 | 1.11 | 215 | 8.3 |
| 1 | 8 | 1.30 | 0.20 | 1611 | 1597 | 230.2 | 1.07 | 211 | 7.6 |
| 1 | 6 | 1.75 | 0.25 | 1050 | 1633 | 230.5 | 0.96 | 183 | 5.7 |
| 1 | 6 | 1.37 | 0.30 | 929 | 1618 | 229.9 | 1.02 | 195 | 4.8 |