

**University of Illinois Department of  
Agricultural Engineering  
BESS Lab**

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**Project Number:** 98162

**Test Date:** September 29, 1998

**Fan**

*Make:* Acme

*Model #:* DDPS50J -C

*Manufacturer:* Acme

*Blade Size:* 50"

*Orifice Dia.:* 50.5"

**Blade**

*Number:* 4

*Shape:* propeller

*Material:* Stainless Steel

*Pitch:*

*Clearance:* 0.3"

**Shutter**

*Material:* Aluminum

*# of Doors:* 13 per column

*# of Columns:* 2

*Door Length:* 26.8

*Location:* intake

**Other Attachments:**

Discharge Cone 27" deep, 65" o.d., 50.5" i.d.

**Motor**

*Make:* Baldor

*Model #:* 35E743T255G1

*H.P.:* 1

*Amps:* 8.8/4.8-4.4

*Volts:* 115/208-230

*RPM:* 1725

*S.F.:* 1.0

**Drive**

*Drive Pulley Dia.* 2.5" o.d. (Ak25)

*Axle Pulley Dia.:* Ak94

**Housing**

*Material:* fiberglass

*Intake Area:* 57.5" x 55.5

*Discharge Area:* 50.5" dia.

*Depth:* 30" top  
16" bottom

**Guards**

*Description:* wire

*Spacing:* 2.1" concentric

*Location:* exhaust

TEST RESULTS

ACME DDPS50J-C

|                                              | Static Pressure  | Speed      | Airflow    | Efficiency      |
|----------------------------------------------|------------------|------------|------------|-----------------|
|                                              | <u>in. water</u> | <u>rpm</u> | <u>cfm</u> | <u>cfm/Watt</u> |
| Test: 98162                                  | 0.00             | 468        | 25200      | 25.3            |
| Fan description:                             | 0.05             | 468        | 23900      | 22.9            |
| 50" Belt drive 1 hp Baldor 35E74T255G1       | 0.10             | 466        | 22700      | 20.5            |
| motor, fiberglass housing, aluminum shutter, | 0.15             | 465        | 21200      | 18.5            |
| guard and discharge cone                     | 0.20             | 464        | 19200      | 16.2            |
|                                              | 0.25             | 464        | 16800      | 13.6            |
|                                              | 0.30             | 463        | 13200      | 10.6            |

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