

University of Illinois Department of  
Agricultural and Biological Engineering  
BESS Lab

---

**Project Number:** 05239

**Test Date:** July 12, 2005

**Fan**

*Make:* American Coolair

*Model #:* MNBRDD52M.

*Manufacturer:* American Coolair

*Blade Size:* 52.8"

*Orifice Dia.:* 53.3"

**Blade**

*Number:* 4

*Shape:* propeller

*Material:* painted steel

*Pitch:* -

*Clearance:* 0.3"

**Shutter Butterfly damper**

*Material:* galvanized steel

*# of Doors:* 2

*# of Columns:* -

*Door Length:* 55.5"

*Location:* exhaust

**Other Attachments:**

Discharge cone 40" deep, 53.3" i.d., 67.5" o.d.

**Motor**

*Make:* Emerson

*Model #:* T63ZZCDZ-1257

*Phase:* 1

*H.P.:* 1.5

*Amps:* 13.2/6.7//15.5/7.8

*Volts:* 115/208-230

*RPM:* 1725//1425  
60/50 hz

*S.F.:* 1.15

**Drive**

*Drive Pulley Dia.* 3.0" o.d.

*Axle Pulley Dia.:* 9.5" o.d.

**Housing**

*Material:* galvanized steel

*Intake Area:* 56" x 56"

*Discharge Area:* 53.3" dia.

*Depth:* 22.5"

**Guards**

*Description:* wire

*Spacing:* 2" x 2" intake  
2" concentric, exhaust

*Location:* intake/exhaust

## TEST RESULTS

### AMERICAN COOLAIR MNRDD52M

Test: 05239

Fan description:

53" belt drive fan, 1.5 hp Emerson T63ZZCDZ-1257  
motor, galvanized steel housing, butterfly damper,  
discharge cone and guards

Static Pressure  
in. water

Speed  
rpm

Airflow  
cfm

Efficiency  
cfm/Watt

0.00

547

29,300

23.0

0.05

546

27,900

20.8

0.10

544

26,500

18.7

0.15

543

24,900

16.9

0.20

542

23,300

15.2

0.25

540

21,500

13.5

0.30

538

19,300

11.7