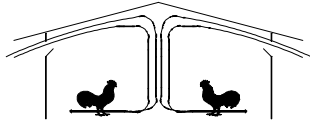




The University of Georgia

Cooperative Extension Service

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Poultry Housing Tips

Exhaust Fan Test Information Web Site

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Buying a new truck for the farm is a major investment and as a result most folks spend a fair amount of time comparing the different options available to them. There are a multitude of different manufacturers, sizes, body types, etc, to consider, but one of the most important aspects of a new truck to consider of course is its engine. You want an engine that will hold up under a heavy load as well as one that is as fuel efficient as possible. This is of course because new truck owners know their ability to get the job done at minimal cost is dependent upon these two factors.

The same things can be said about purchasing exhaust fans for a new or remodeled tunnel-ventilated poultry house. A ventilation system is all about its engine, namely its exhaust fans. As a result a producer's ability to keep birds cool during hot weather is determined by the quality of the fans installed. We want fans that not only move the air but also hold up under a load. After all, dirty pads and shutters put an increased load on the exhaust fans and producers need a fan that holds up well to high static pressures. When comparing automobile engines, you would look at horse power or torque curves; when comparing exhaust fans you would look at air flow ratio. A good fan will have an air flow ratio of at least 0.73, the minimum acceptable rating is 0.67 (*see Exhaust Fan Performance Factors, March 1999*). Furthermore, a producer wants a fan that is very energy efficient so energy costs can be kept to a minimum. When comparing trucks you look at their mile per gallon rating, when comparing exhaust fans you look at their cfm per watt. The minimum rating a producer should look for is 19.1 cfm/watt. Ideally a producer should purchase a fan with an efficiency rating of 20.8 cfm/watt or better. Keep in mind a two cfm per watt increase will lower your fan operating costs by about 10 percent.

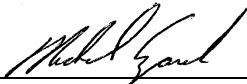
In the past, finding fan performance information could be rather difficult. Producers would have to rely on information furnished by the fan manufacturer or look it up in a test booklet from BESS Labs at the University of Illinois or AMCA. Sometimes finding a test booklet can be a time consuming task and the information in a test booklet may not be up to date.

To solve these problems, the University of Illinois has created a new web page that makes it much easier to find the most up to date performance data on the fans that they have tested. The web page can be found at: www.bess.uiuc.edu

At the web site you first select the manufacturer (Acme, Aerotech, Airstream, etc.) you want to look at, then fan diameter (36", 42", 48", etc) and finally the air flow range (15,001 - 20,000 cfm, 20,001 - 25,000 cfm, etc). The fans that meet the search criteria will then be displayed (they are examining the option of sorting by energy efficiency rating

and/or air flow ratio in the future). The information displayed consists of the BESS Labs test #, Model #, Diameter, whether it has a cone, type of shutter, air flow, energy efficiency rating at a 0.05" as well as a 0.10" static pressure and last but not least, the fans air flow ratio. If you click on an individual test number of one of the fans displayed, you can get a printout of the actual BESS Labs test report which contains a wealth of information such as motor description, pulley size, shutter description, etc.

On the following pages you will find a print out of the information that can be gathered from the web site. The creators of the web site are looking for your feed back to make the web site even better. So, as you use the site, make note of any changes or additions to the web site you would like to see and let them know.



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Provided to you by:

Fan Performance Data

Manufacturer	<input type="text" value="Acme Engineering & Mfg. Corp."/> Aerotech, Inc. Airstream Ventilation Systems All Manufacturers American Coolair
Fan Diameter	<input type="text" value="48 inches"/>
Air Flow	<input type="text" value="20001 - 25000"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

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Search Results

Test #	Model	Size	Cone	Shutter	Air Flow 0.05" SP cfm	VER 0.05" SP cfm/Watt	Air Flow 0.10" SP cfm	VER 0.10" SP cfm/Watt	Air Flow Ratio*
Acme									
98172	DDPS50JL-C	48"	Y	A	20100	28.3	18400	24.5	0.65
98171	DDPG50JL-C	48"	Y	A	20100	27.7	18600	24.2	0.62
00235	AGD48J8-C	48"	Y	A	20300	20.7	18700	18.3	0.76
93271	DDPS48J-C	48"	Y	A	20300	22.7	19200	20.5	0.79
93223	DDPS48J-C	48"	Y	A	20300	23	19200	20.7	0.79
95283	BDR48J-A	48"	N	A	20400	17.7	19300	16.5	0.82
93273	DDPG48J8-G	48"	Y	A	20600	20.8	19000	18.4	0.75
00278	DC48J-C	48"	Y	A	21000	20.9	19700	18.8	0.71
93224	DDPG48J-C	48"	Y	A	21000	22.5	19800	20.2	0.79
93272	DDPS48J8-C	48"	Y	A	21000	21.7	19300	19	0.74
93008	DC48J-C	48"	Y	A	21100	20.7	19500	18.4	0.71
93270	DDPG48J-C	48"	Y	A	21300	22.5	20000	20.2	0.78
93010	BDR48J-C	48"	Y	A	21400	21.4	20000	19.3	0.78
98142	DDPS48J-C	48"	Y	A	21400	23.2	20300	20.9	0.83
00225	BDR48J-C	48"	Y	N	21600	21.5	20300	19.4	0.79
00208	DDPG48J-C	48"	Y	A	21900	21.9	20600	19.6	0.78
00222	BDR48J-C	48"	Y	A	22200	21.1	21100	19.3	0.80
00222	BDR48J-C	48"	Y	A	22200	21.1	21100	19.3	0.80
98111	DDPG48J-C	48"	Y	A	22500	22.2	21300	20	0.81
95289	BDR48J-C	48"	Y	A	22700	20.6	21600	19	0.82
95282	BDR48K-A	48"	N	A	23200	14.4	22300	13.5	0.87
94188	DDPS48K-C	48"	Y	A	23200	19.7	22300	18.1	0.87
98165	DDPG50J-C	48"	Y	A	23400	21.5	22200	19.3	0.8
00110	BDR48J2-C	48"	Y	A	23400	20.8	22300	19.0	0.84

98166	DDPS50J-C	48"	Y	A	23500	22.5	22100	19.9	0.79
00291	DDPG50J-C	48"	Y	N	23500	21.9	22200	19.9	0.80
00252	DDPS50J-C	48"	Y	N	23800	22.0	22600	20.0	0.79
98161	DDPG50J-C	48"	Y	A	23900	21.9	22700	19.8	0.81
98162	DDPS50J-C	48"	Y	A	23900	22.9	22700	20.5	0.8
00289	DDPG50J-C	48"	Y	N	24100	20.8	22800	18.9	0.80
94187	DDPG48K-C	48"	Y	A	24600	19.3	23600	17.7	0.86
98163	DDPS50J1-C	48"	Y	A	24600	21.7	23400	19.7	0.81
98173	DDPG50J1-C	48"	Y	A	24700	21.5	23500	19.5	0.83
98174	DDPG50J1-CR	48"	Y	R	24900	21.7	23700	19.8	0.84
98175	DDPS50J1-CR	48"	Y	R	24900	22.8	23700	20.6	0.82

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

Project Number: 00110

Test Date: May 4, 2000

Fan

Make: Acme

Motor

Make: Magnetek

Model #: BDR48J2-C

Model #: C782

Manufacturer: Acme

H.P.: 1

Blade Size: 48" dia.

Amps: 4.3/8.6

Orifice Dia.: 48.5"

Volts: 230/115

Blade

Number: 4

RPM: 1725

Shape: propeller

S.F.: 1.40

Material: galvanized steel

Drive

Drive Pulley Dia. 3.3" o.d.
AK32

Pitch: -

Axle Pulley Dia.: 10.3" o.d.
AK104

Clearance: 0.3"

Housing

Material: galvanized steel

Shutter

Material: aluminum

Intake Area: 54" x 56

of Doors: 13

Discharge Area: 48.5"

of Columns: 2

Depth: 27" top
13.3" bottom

Door Length: 25.3"

Guards

Description: wire

Location: intake

Spacing: 2" concentric

Other Attachments:

discharge cone 28.5" deep, 48.5" i.d., 62.3" o.d.

Location: exhaust

TEST RESULTS

ACME BDR48J2-C

	Static Pressure	Speed	Airflow	Efficiency
	<u>in. water</u>	<u>rpm</u>	<u>cfm</u>	<u>cfm/Watt</u>
Test: 00110	0.00	528	24,300	22.6
Fan description:	0.05	526	23,400	20.8
48" belt drive, 1 hp Magnetek C782	0.10	525	22,300	19.0
motor, galvanized steel slant housing,	0.15	523	21,100	17.1
aluminum shutter, guard and discharge cone	0.20	522	19,700	15.4
	0.25	520	17,200	13.0
	0.30	519	16,100	11.8
