



**AIR MOVEMENT AND CONTROL  
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**Test No. 28024-A1**

November 04, 2011

TO: Aireng Company  
Plot # 08, SECTOR I-11/4  
Industrial Area  
Islamabad, Punjab PAKISTAN 44000

ATTN: Ahmed Saeed  
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**SUBJECT: CONTRACT TESTING  
MODEL No. 15D**

Attached are the test results of the subject model performed on October 29, 2011.

If you should have any questions concerning these data, please let us know.

Sincerely,  
AIR MOVEMENT AND CONTROL  
ASSOCIATION INTERNATIONAL, INC.

Josh Parent  
Laboratory Manager

Attachment

Copy To: [saeed@airengindustries.com](mailto:saeed@airengindustries.com)

## PERFORMANCE CURVE

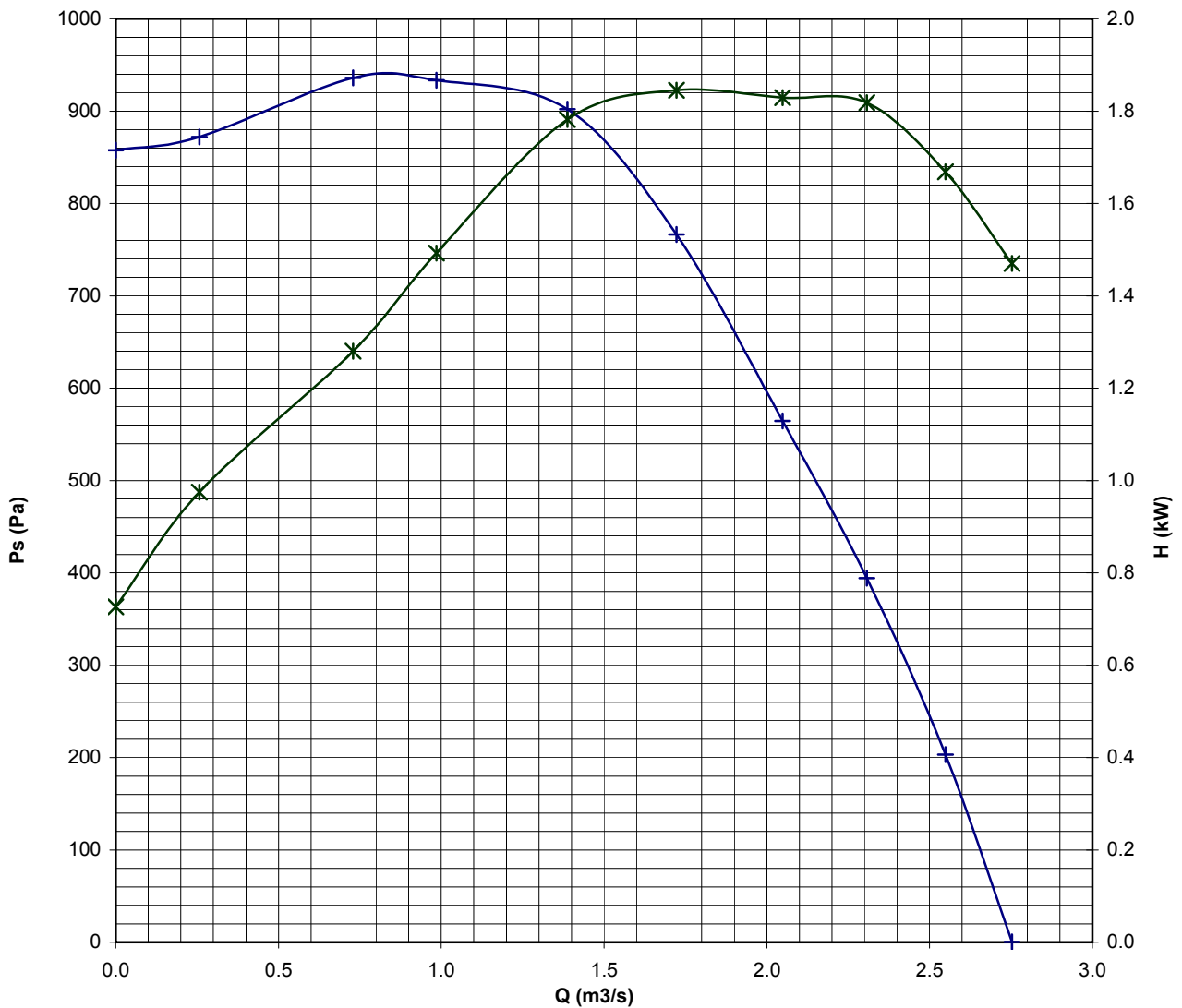
Test Unit : Centrifugal-Backward  
 Manufacturer : Aireng Company  
 Trade Name : ABIC  
 Model Number : 15D  
 Impeller Diameter : 384 mm  
 Inlet Area : 0.1134 m<sup>2</sup>  
 Outlet Area : 0.2290 m<sup>2</sup>

Test Number : 28024-A1  
 Date of Test : 29 Oct 2011  
 Tested For : Aireng Company  
 Witness : No  
 Technician : LTH

Test Method per AMCA Standard 210-99, Figure 12, Installation Type B  
 Results at Standard Air, Speed = 2000 rpm

**LEGEND**

- Fan Flow Rate, Q
- + Fan Static Pressure, Ps
- \* Fan Power Input, H



## TEST RESULTS

Test Unit : Centrifugal-Backward  
 Manufacturer : Aireng Company  
 Trade Name : ABIC  
 Model Number : 15D  
 Impeller Diameter : 384 mm  
 Inlet Area : 0.1134 m<sup>2</sup>  
 Outlet Area : 0.2290 m<sup>2</sup>

Test Number : 28024-A1  
 Date of Test : 29 Oct 2011  
 Tested For : Aireng Company  
 Witness : No  
 Technician : LTH  
 Pb : 100660 Pa

Test Method per AMCA Standard 210-99, figure 12 setup, Installation type B

### Results at Test Conditions :

Det.	po (kg/m <sup>3</sup> )	N (rpm)	Pt (Pa)	Pv (Pa)	Ps (Pa)	Q (m <sup>3</sup> /s)	H (kW)	Kp	ηt (%)	ηs (%)
1	1.1381	2000	83	83	0	2.752	1.394	1.0003	16.33	0.03
2	1.1355	2000	263	70	193	2.549	1.579	0.9996	42.41	31.05
3	1.1346	2000	430	58	373	2.307	1.718	0.9989	57.69	49.97
4	1.1348	2000	579	45	533	2.048	1.729	0.9983	68.44	63.08
5	1.1353	2000	757	32	725	1.722	1.744	0.9977	74.55	71.39
6	1.1359	2000	874	21	853	1.387	1.686	0.9974	71.73	70.03
7	1.1367	2001	895	10	885	0.986	1.415	0.9976	62.20	61.47
8	1.1362	2000	892	6	886	0.730	1.212	0.9979	53.59	53.24
9	1.1368	2001	828	1	827	0.257	0.925	1.0010	23.02	23.00
10	1.1372	2000	812	0	812	0.000	0.688	1.0000	0.00	0.00

### Result at Standard Air, N = 2000 rpm

Det.	Pt (Pa)	Pv (Pa)	Ps (Pa)	Q (m <sup>3</sup> /s)	H (kW)	Kp	etat (%)	etas (%)
1	87	87	0	2.753	1.470	1.0003	16.33	0.03
2	278	74	203	2.548	1.668	0.9996	42.41	31.05
3	455	61	394	2.307	1.818	0.9989	57.69	49.97
4	612	48	564	2.048	1.829	0.9983	68.44	63.08
5	800	34	766	1.723	1.845	0.9977	74.55	71.39
6	924	22	902	1.387	1.782	0.9974	71.73	70.03
7	944	11	933	0.985	1.492	0.9976	62.20	61.47
8	942	6	936	0.730	1.280	0.9979	53.59	53.24
9	873	1	872	0.257	0.975	1.0010	23.02	23.00
10	857	0	857	0.000	0.726	1.0000	0.00	0.00

These test data were obtained in a laboratory accredited by AMCA for AMCA Standard 210 testing.  
 Data are not certified by AMCA

## MEASUREMENT

Test Unit : Centrifugal-Backward  
 Manufacturer : Aireng Company  
 Trade Name : ABIC  
 Model Number : 15D  
 Impeller Diameter : 384 mm  
 Inlet Area : 0.1134 m<sup>2</sup>  
 Outlet Area : 0.2290 m<sup>2</sup>

Test Number : 28024-A1  
 Date of Test : 29 Oct 2011  
 Tested For : Aireng Company  
 Witness : No  
 Technician : LTH  
 Pb : 1006.60 hPa

Test Method per AMCA Standard 210-99, figure 12 setup, Installation type B

### Data at Test Conditions :

Det.	tdo (°C)	two (°C)	td2 (°C)	td5 (°C)	Ps5 (Pa)	dP (Pa)	td7 (°C)	Ps7 (Pa)	T (Nm)	N (rpm)
1	31.6	25.4	32.7	32.7	0	943	32.7	0	6.655	2000
2	32.2	25.9	33.2	33.2	193	804	33.2	193	7.540	2000
3	32.5	25.9	33.6	33.6	373	657	33.6	373	8.205	2000
4	32.4	25.9	33.6	33.6	533	517	33.6	533	8.255	2000
5	32.3	25.8	33.4	33.4	725	365	33.4	725	8.330	2000
6	32.2	25.8	33.4	33.4	853	237	33.4	853	8.050	2000
7	32.0	25.6	33.4	33.4	885	121	33.4	885	6.755	2001
8	32.2	25.5	33.4	33.4	886	66	33.4	886	5.785	2000
9	32.0	25.5	33.4	33.4	827	8	33.4	827	4.415	2001
10	31.8	25.7	33.2	33.2	812	0	33.2	812	3.29	2000

### Open Nozzle Diameters

c	c	c	c	c	c	c	c	c	c	c
c	c	c	c	c	c	5	5	5	5	
6	c	c	c							

Appurtenances : Unit tested with AFMA built outlet duct

Additional Comments : Contract Test

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**TEST SETUP PICTURE**

Test Unit : Centrifugal-Backward  
Manufacturer : Aireng Company  
Trade Name : ABIC  
Model No. : 15D

Test Number : 28024-A1  
Date of Test : 29 Oct 2011



Air Performance Test  
Figure 12 Setup  
Installation Type B

## INSTRUMENT LIST

Test Number: 28024-A1

Date of Test: 29 Oct 2011

Technician: LTH

The following instruments, calibrated as applicable per AMCA standards, were used for this test

### PRESSURE

Instruments	Manufacturer
<input checked="" type="checkbox"/> Static Pressure Transducer FC0332	Furness
<input type="checkbox"/> Total Pressure Transducer FC0332	Furness
<input checked="" type="checkbox"/> Static & Total Pressure Transducer FC0332	Furness
<input checked="" type="checkbox"/> Barometric Pressure Transmitter T2114	Comet

### TEMPERATURE

Instruments	Manufacturer
<input checked="" type="checkbox"/> RTD Sensor Plane 5-Fig 12	Valutemp
<input type="checkbox"/> RTD Sensor Plane 8-Fig 15	Valutemp
<input checked="" type="checkbox"/> Humidity Transducer TH-200-HN/STH-PD150	Kimo

### SPEED

Instruments	Manufacturer
<input checked="" type="checkbox"/> Speed Meter & Diffuse Reflective Sensor MP5W-44 & BM200-DDT	Autonics

### ELECTRIC METER

Instruments	Manufacturer
<input type="checkbox"/> Multimeter Fluke 322	Fluke
<input type="checkbox"/> Power Meter WT230	Yokogawa

### TORQUE

Instruments	Manufacturer
<input checked="" type="checkbox"/> Torque Transducer 1604-200 (5.5kW)	Lebow
<input type="checkbox"/> Torque Transducer 1604-2000 (37kW)	Lebow
<input checked="" type="checkbox"/> Strain-Gauge Conditioner Type 3278 Torque Readout	Daytronics

### SOUND

Instruments	Manufacturer
<input type="checkbox"/> Pulse Data Acquisition & CPB Analysis Types 3560-B-010 & 7771-N2	Bruel & Kjaer
<input type="checkbox"/> Diffuse-field microphone Type 4943	Bruel & Kjaer
<input type="checkbox"/> Microphone Preamplifier Type 2669-L	Bruel & Kjaer
<input type="checkbox"/> Rotating Boom Type 3923	Bruel & Kjaer
<input type="checkbox"/> Pistonphone for Acoustic Calibration Type 4228	Bruel & Kjaer
<input type="checkbox"/> Reference Sound Source RSS Type 4204	Bruel & Kjaer
<input type="checkbox"/> Correction Barometer Type UZ001	Bruel & Kjaer