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**TEST REPORT OF WINDSPIN –550 Turbine roof ventilator
(This report contains three pages)**

SPRERI/SL/2004/

29-10-2004

Name and address of supplier : M/s.Shah Corporation
Plot No. 2023, Phase III
G. I. D. C., Vatva
Ahmedabad – 382 445

Name and location of Test Centre : Sardar Patel Renewable Energy
Research Institute
P. O. Box. No. 2,
Vallabh Vidyanagar – 388 120.
Gujarat

Date of receipt of sample : 19-10-2004

Testing Period : October 2004.

The Windspin – 550 Turbine roof ventilator with dome diameter of 700mm and throat size of 550 mm tested at SPRERI is shown in Fig. 1.



Fig. 1. Turbine roof ventilator tested at SPRERI, Vallabh Vidyanagar

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TEST SET UP SPECIFICATIONS

1. Blower with motor
 - Motor capacity : 0.5 hp / 2800 rpm
 - Type : Variable speed drive
2. Duct provided at the bottom of air ventilator for measurement of air flow
 - Material : G. I. Sheet
 - Shape : Cylindrical
 - Diameter, mm : 540
 - Length, mm : 800
3. Duct from blower to divergent duct
 - Material : PVC pipe
 - Diameter, mm : 80
4. Supporting stand for air ventilator
 - Material : MS angle section
 - Height, mm : 1140

INSTRUMENTS USED FOR TESTING

1. Hot wire anemometer
2. Portable anemometer
3. Blower with variable speed drive
4. Stopwatch

METHODOLOGY

To measure exhaust capacity of the WINDSPIN - 550 Turbine roof ventilator, experiments were conducted at different wind velocities ranging from 9 km/hr to 40 km/hr. A variable speed drive motor and blower regulated the wind velocity. After achieving steady state wind velocity at the outlet of divergent duct, the exhaust wind velocity was measured by inserting a hot wire anemometer in the cylindrical duct at the bottom of the turbine roof ventilator. Exhaust wind velocity measurements were taken at the center of the duct. Wind velocity was measured close to the dome of the ventilator using the portable anemometer. The rpm was measured manually with the help of a stopwatch.

RESULTS

The table below and Fig. 2 show the exhaust capacity of air ventilator at different wind velocities.

Sr. No.	Wind Velocity Km/hr	Exhaust Capacity (Draft × Cross section area)	
		Cu. m/hr	Cu. ft/hr
1	4.0	457.9	16170.6
2	5.0	552.9	19525.5
3	7.0	768.9	27153.4
4	8.0	924.5	32648.4
5	10.0	941.7	33255.8
6	14.0	959.1	33870.3
7	17.0	1010.8	35696.1

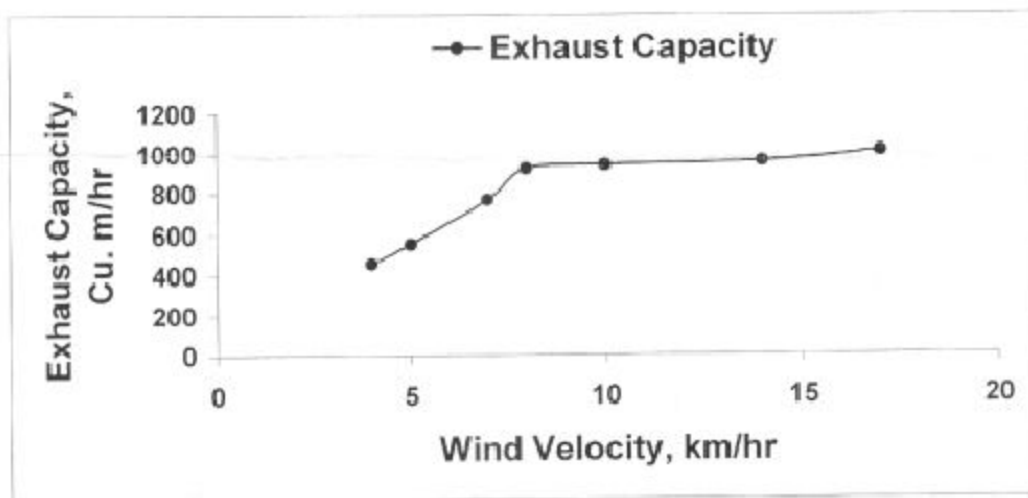


Fig. 2. Exhaust Capacity Vs Wind Velocity of WINDSPIN – 550:

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